Seat	
No.	

### S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – I**

Day & Date: Saturday, 07-12-2019

Max. Marks: 70

Time: 10:00 AM To 01:00 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

- Figures to the right indicate full marks.
- 3) Use of calculator is allowed.

#### MCQ/Objective Type Questions

**Duration: 30 Minutes** Marks: 14

#### Choose the correct alternatives from the options and rewrite the sentence. 14

- The particular integral of  $(D^3 3D^2 + 4)y = e^{2x}$  is \_\_\_\_\_.

b)  $\frac{x}{12}e^{2x}$ 

c)  $\frac{x^3}{6}e^{2x}$ 

- The complete solution of  $(D^4 + 2D^3 + D^2)y = 0$  is \_\_\_\_\_. 2)
  - a)  $y = (C_1 + C_2 x + C_3 x^2 + C_4 x^3)e^{-x}$
  - b)  $y = (C_1 + C_2 x) + (C_3 + C_4 x)e^{-x}$
  - c)  $y = (C_1 + C_2 x)e^x + (C_3 + C_4 x)e^{-x}$
  - d) None of these
- 3) The Laplace transform of *t* cosh *t* is \_\_\_

b) t + 1

- d)  $t^2 1$
- $L^{-1}\left\{\frac{s-4}{(s-4)^2+25}\right\} = \underline{\hspace{1cm}}.$ a)  $e^{4t}\sin 4t$ 5)

b)  $e^{-4t} \sin 5t$ 

c)  $e^{-4t}\cos 4t$ 

- d)  $e^{4t}\cos 4t$
- $Z\{3^k\}, k \ge 0$ , is \_\_\_\_\_. 6)

b) Z(Z-3)

- d) None of these
- The inverse z-transform of  $\frac{Z}{Z+a}$ , |Z| > a,  $k \ge 0$  is \_\_\_\_\_. 7)
  - a)  $a^k$

c)  $(-a)^{k+1}$ 

- d)  $(-a)^k$
- If  $\sum XY = 9.7$ ,  $\sum X^2 = 21.62$  &  $\sum Y^2 = 16.28$  then the value of r is \_\_\_\_\_. 8)
  - a) 0.02

b) 0.2

c) 0.5170

d) 0.0517

# Set P

9)	If average arrival rate in a queue is 6 rate is 10 per hour, which one of the customers in the line including the c a) 0.3 c) 1.2	follo usto	owing is the average number of
10)	For a certain data the regression eq $6x + y - 31 = 0$ then the value of 'r' a) 0.5 c) 0.2	is, _ b)	
11)	If $x$ is poisson variate such that $p(x)$ parameter is	= 1)	= P(x = 2) then the poissons
	a) 1	p)	2
12)	<ul><li>c) 3</li><li>A continuous random variable has the</li></ul>	d) ne fo	
12)	function $f(x) = kx(1-x), 0 \le x \le 1$		
	a) 2	b)	3
	c) 5	d)	
13)			is in $(0,\pi)$ then constant term is
	a) $\frac{\pi^2}{3}$	b)	
	c) $\frac{2\pi^2}{3}$	d)	$\frac{3\pi^2}{2}$
14)	If $f(x) = \sqrt{1 - \cos x}$ then the fourier	coef	fficient $bn$ in the interval $(0, 2\pi)$ is
	a) <sup>0</sup>	b)	$\frac{2}{\pi}$
	$C)  \frac{2\sqrt{2}}{\pi}$	d)	$\frac{4}{\pi}$

#### S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – I**

Day & Date: Saturday, 07-12-2019

Max. Marks: 56

Time: 10:00 AM To 01:00 PM

**Instructions:** 1) All questions are compulsory.

- 2) Figures to the right indicate full marks.
- 3) Use of calculator is allowed.
- Solve any three of the following questions.

09

- a) Solve  $(D^2 + 9) = \cos 2x \cos x$
- **b)** Solve  $(D^2 2D + 5)y = e^{2t} \sin t$
- c) Find the inverse Laplace transform of  $\frac{s+2}{s^2(s+3)}$
- **d)** Find the Laplace transform of  $t e^{-2t} \sin 4t$
- e) Find  $Z\{e^{-ak} \sin bk\}$
- Solve any three of the following questions. Q.3

09

- a) Solve  $(D^3 8)y = x^3 + x$
- b) Find the inverse Laplace transform of

$$Log\left[\sqrt{\frac{s^2+1}{s^2+4}}\right]$$

- c) Express the following function in terms of unit step function and find Laplace transform  $f(t) = \begin{cases} \cos t, & 0 < t < \pi \\ \sin t, & t > \pi \end{cases}$ . Find Inverse z-transform of  $\frac{1}{(Z-5)^3}$ , |z| > 5.
- e) Find the z-transform of  $\sin(3k + 5)$ .

10

- Solve any two of the following questions. Q.4 a) Solve  $(D^2 + 3D + 2)y = e^{e^x} + 2$ .
  - **b)** Solve y''' + 2y'' y' 2y = 0 given y(0) = y'(0) = 0 and y''(0) = 6 by using Laplace transform method.
  - c) Obtain  $Z^{-1}\left\{\frac{1}{(z-1/2)(z-1/3)}\right\}$  When i)  $\frac{1}{3} < |z| < \frac{1}{2}$  ii)  $\frac{1}{2} < |z|$

#### Section - II

Solve any three of the following questions. Q.5

09

a) Find half range sine series for 
$$f(x)$$
 where 
$$f(x) = \begin{cases} x & , & 0 < x \le \frac{\pi}{2} \\ \pi - x, & \frac{\pi}{2} < x < \pi \end{cases}$$

Hence, deduce that  $\frac{\pi^2}{8} = \frac{1}{1^2} + \frac{1}{3^2} + \frac{1}{5^2} + \cdots$ 

09

10

**b)** The life of army shoes is normally distributed with mean 8 months and standard deviation 2 months. If 5000 pairs are issued, how many pairs would be expected to need replacement after 2 months.

[Given: Area from z = 0 to z = 2 is 0.4772]

c) For the data

x:	1	2	3	4	5	6	7	8	9
ν:	9	8	10	12	11	13	14	16	15

Find the correlation coefficient

- d) The two regression equations are given by x + 2y 5 = 0 and 2x + 3y 8 = 0 then find mean values of x and y and the coefficient of correlation between x and y.
- e) Find Fourier expansion of  $f(x) = \sqrt{1 \cos x}$  in  $(-\pi, \pi)$

#### Q.6 Solve any three of the following questions.

a) Find the value of K, if f(x) is probability density function,

$$f(x) = \begin{cases} k. x e^{-4x^2}, & x > 0 \\ 0, & x \le 0 \end{cases}$$

- **b)** The number of arrivals of customers during any day follows poisson distribution with mean of five. What is the probability that the total number of customers on two days selected at random is less than two?
- c) In a distribution which is exactly normal 7% of the items are under 35 and 89% items are under 63. Find the mean and standard deviation of the distribution.

[Given that for area 0.43 SNV z=1.48 & for area 0.39 SNV z=1.23]

**d)** The following table gives age (x) in years of cars and annual maintenance cost (y) in hundred

<i>x</i> :	1	3	5	7	9
<i>y</i> :	15	18	21	23	22

Estimate maintenance cost for a 4 year old car.

**e)** Expand  $\pi x - x^2$  as a sine series  $(0, \pi)$ .

#### Q.7 Solve any two of the following questions.

- a) A warehouse has only one loading dock manned by a three person crew. Trucks arrive at the loading dock at an average rate of 4 trucks per hour and the arrival rate is Poisson distributed. The loading of a truck take 10 min. on an average and can be assumed to be exponentially distributed. The operation cost of truck is ₹ 20 per hour and the members of the loading crew are paid @ ₹ 6 per hour. Would you advice the truck owner to add another crew of three persons?
- **b)** Obtain a fourier series for f(x) where

$$f(x) = 0, -5 \le x < 0$$
  
= 3, 0 < x \le 5

If period of f(x) is 10. Hence show that

$$\frac{\pi}{4} = 1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \dots - \dots$$

- c) Customers arrive at a clinic according to a poission process with mean interval of 25 min. The physician needs on an average 20 min for a patient to examine.
  - i) Find the expected number of patients at the clinic and in the gueue.
  - ii) Find percentage of patients who are not required to wait.

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# S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering APPLIED MATHEMATICS – I

			C	-			Engineering ATICS – I
•			turday, 07- To 01:00 l				Max. Marks: 70
Instru	ıction	ns: 1)	) Q. No. 1 i	s compulso	ory and sho	uld	be solved in first 30 minutes in answer
			_	the right in liculator is a		ma	rks.
			I	MCQ/Obj	ective Ty	ре	Questions
Durati	on: 30	0 Mir	nutes				Marks: 14
	<b>Choo</b> 1)	If $\sum z$ a)			$\& \Sigma Y^2 = 1$		
	2)	rate cust a)	is 10 per homers in the	nour, which	one of the ding the cu	foll	r hour and the average service owing is the average number of omer being served?  0.6  1.5
	3)	6 <i>x</i> + a)	-y - 31 =	ata the regi 0 then the v	value of 'r'	is, <sub>-</sub> b)	ons are $3x + 2y - 26 = 0$ & $-0.5$ $-0.2$
,	4)	para a)	ameter is _ 1		-	b)	
	5)	A co	f(x) = 2		able has the $0 \le x \le 1$	the	
	6)	If f(a)	$\frac{\pi^2}{3}$	expanded a		b)	es in $(0,\pi)$ then constant term is $\frac{\pi^3}{3}$ $\frac{3\pi^2}{2}$
	7)	a)	$ (x) = \sqrt{1 - 0} $ $ 0$ $ \frac{2\sqrt{2}}{\pi} $	$\cos x$ then t	he fourier (	coe b) d)	fficient $bn$ in the interval $(0,2\pi)$ is $\frac{2}{\pi}$ $\frac{4}{\pi}$

# Set | Q

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b)  $\frac{x}{12}e^{2x}$ 

c)  $\frac{x^3}{6}e^{2x}$ 

- d)  $\frac{e^{2x}}{12}$
- The complete solution of  $(D^4 + 2D^3 + D^2)y = 0$  is \_\_\_\_\_. 9)
  - a)  $y = (C_1 + C_2 x + C_3 x^2 + C_4 x^3)e^{-x}$

  - b)  $y = (C_1 + C_2 x) + (C_3 + C_4 x)e^{-x}$ c)  $y = (C_1 + C_2 x)e^x + (C_3 + C_4 x)e^{-x}$ d) None of these
- 10) The Laplace transform of  $t \cosh t$  is \_\_\_\_

c)  $\frac{s^2+1}{(s^2-1)^2}$ 

- d)  $-\frac{s^2+1}{(s^2-1)^2}$
- 11)  $L^{-1}\left\{\frac{s+s^2}{s^3}\right\} = \underline{\hspace{1cm}}$ a)  $t+t^2$ c)  $t^2+1$

b) t+1d)  $t^2-1$ 

- 12)  $L^{-1}\left\{\frac{s-4}{(s-4)^2+25}\right\} = \underline{\hspace{1cm}}$ a)  $e^{4t}\sin 4t$ c)  $e^{-4t}\cos 4t$

b)  $e^{-4t} \sin 5t$ 

- d)  $e^{4t}\cos 4t$
- 13)  $Z\{3^k\}, k \ge 0$ , is \_\_\_\_\_. a)  $\frac{1}{Z-3}$

b) Z(Z-3)

c)  $\frac{Z}{Z-3}$ 

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Seat No.

#### S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – I**

Day & Date: Saturday, 07-12-2019

Max. Marks: 56

Time: 10:00 AM To 01:00 PM

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Seat	Set	D
No.	Set	IN.

	5	E. (Part – I) (New/Old) (CBCS). Computer Science	•	
		APPLIED MATH		
•		e: Saturday, 07-12-2019 0 AM To 01:00 PM		Max. Marks: 70
Instr	ructio	· · · · · · · · · · · · · · · · · · ·	ould	be solved in first 30 minutes in answer
		book. 2) Figures to the right indicate full 3) Use of calculator is allowed.	ll ma	rks.
		MCQ/Objective T	vpe	Questions
Dura	ation: 3	30 Minutes	<i>)</i>   0	Marks: 14
Q.1	Cho	ose the correct alternatives from t	he o	ptions and rewrite the sentence. 14
	1)	$L^{-1}\left\{\frac{s-4}{(s-4)^2+25}\right\} = \underline{\qquad}.$		
		a) $e^{4t} \sin 4t$		$e^{-4t}\sin 5t$
		c) $e^{-4t}\cos 4t$	d)	$e^{4t}\cos 4t$
	2)	$Z\{3^k\}, k \ge 0$ , is		7(7 2)
		a) $\frac{1}{Z-3}$	b)	Z(Z-3)
		c) $\frac{Z}{Z-3}$	d)	None of these
	3)	The inverse z-transform of $\frac{Z}{Z+a}$ , $ Z $	> a,	$k \ge 0$ is
		a) $a^k$	b)	$a^{k+1}$
		c) $(-a)^{k+1}$	d)	$(-a)^k$
	4)	If $\sum XY = 9.7$ , $\sum X^2 = 21.62 \& \sum Y^2 =$		
		a) 0.02 c) 0.5170	,	0.2 0.0517
	5)	If average arrival rate in a queue is	,	
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		a) 0.3 c) 1.2	d)	0.6 1.5
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		a) 1	b)	2
	8)	<ul><li>c) 3</li><li>A continuous random variable has t</li></ul>	d)	
	0)	function $f(x) = kx(1-x), 0 \le x \le 1$		
		a) 2	b)	3
		c) 5	d)	6

- If  $f(x) = x^2$  is expanded as cosine series in  $(0, \pi)$  then constant term is \_\_\_\_\_. 9)

- If  $f(x) = \sqrt{1 \cos x}$  then the fourier coefficient bn in the interval  $(0, 2\pi)$  is \_\_\_\_\_.
  - a) 0

c)  $\frac{2\sqrt{2}}{\pi}$ 

- d)  $\frac{4}{\pi}$
- The particular integral of  $(D^3 3D^2 + 4)y = e^{2x}$  is \_\_\_\_\_. a)  $\frac{x^2}{6}e^{2x}$  b)  $\frac{x}{12}e^{2x}$

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#### Section - II

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Hence, deduce that  $\frac{\pi^2}{8} = \frac{1}{12} + \frac{1}{22} + \frac{1}{52} + \cdots$ 

09

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Find the correlation coefficient

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If period of f(x) is 10. Hence show that

$$\frac{\pi}{4} = 1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \dots - \dots$$

- c) Customers arrive at a clinic according to a poission process with mean interval of 25 min. The physician needs on an average 20 min for a patient to examine.
  - i) Find the expected number of patients at the clinic and in the queue.
  - ii) Find percentage of patients who are not required to wait.

Seat	Set	9
No.	Set	3

# S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering  APPLIED MATHEMATICS – I
-		e: Saturday, 07-12-2019 Max. Marks: 70 0 AM To 01:00 PM
Insti	ruction	ns: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.
		<ul><li>2) Figures to the right indicate full marks.</li><li>3) Use of calculator is allowed.</li></ul>
		MCQ/Objective Type Questions
Dura	tion: 3	Marks: 14
Q.1	<b>Choo</b> 1)	For a certain data the regression equations are $3x + 2y - 26 = 0$ & $6x + y - 31 = 0$ then the value of 'r' is,  a) 0.5 b) -0.5
		c) 0.2 d) -0.2
	2)	If $x$ is poisson variate such that $p(x = 1) = P(x = 2)$ then the poissons parameter is  a) 1 b) 2
		c) 3 d) 4
	3)	A continuous random variable has the following probability density function $f(x) = kx(1-x)$ , $0 \le x \le 1$ then $k = $
		a) 2 c) 5 d) 6
	4)	If $f(x) = x^2$ is expanded as cosine series in $(0, \pi)$ then constant term is
		a) $\frac{\pi^2}{3}$ b) $\frac{\pi^3}{3}$
		c) $\frac{2\pi^2}{3}$ d) $\frac{3\pi^2}{2}$
	5)	If $f(x) = \sqrt{1 - \cos x}$ then the fourier coefficient $bn$ in the interval $(0, 2\pi)$ is
		a) 0 b) $\frac{2}{\pi}$
		c) $\frac{2\sqrt{2}}{\pi}$ d) $\frac{4}{\pi}$
	6)	The particular integral of $(D^3 - 3D^2 + 4)y = e^{2x}$ is
		a) $\frac{x^2}{6}e^{2x}$ b) $\frac{x}{12}e^{2x}$
		c) $\frac{x^3}{6}e^{2x}$ d) $\frac{e^{2x}}{12}$
	7)	The complete solution of $(D^4 + 2D^3 + D^2)y = 0$ is a) $y = (C_1 + C_2 x + C_3 x^2 + C_4 x^3)e^{-x}$ b) $y = (C_1 + C_2 x) + (C_3 + C_4 x)e^{-x}$ c) $y = (C_1 + C_2 x)e^x + (C_3 + C_4 x)e^{-x}$ d) None of these

## Set | S

- 8) The Laplace transform of *t* cosh *t* is \_\_\_\_\_

b) t + 1

c)  $t^2 + 1$ 

- d)  $t^2 1$
- 10)  $L^{-1}\left\{\frac{s-4}{(s-4)^2+25}\right\} = \underline{\hspace{1cm}}$ a)  $e^{4t}\sin 4t$ c)  $e^{-4t}\cos 4t$

b)  $e^{-4t} \sin 5t$ d)  $e^{4t} \cos 4t$ 

- 11)  $Z\{3^k\}, k \ge 0$ , is \_\_\_\_\_. a)  $\frac{1}{Z-3}$

b) Z(Z-3)

- d) None of these
- The inverse z-transform of  $\frac{Z}{Z+a}$ ,  $|Z|>a, k\geq 0$  is \_\_\_\_\_. a)  $a^k$  b)  $a^{k+1}$ 12)

c)  $(-a)^{k+1}$ 

- d)  $(-a)^k$
- If  $\sum XY = 9.7$ ,  $\sum X^2 = 21.62 \& \sum Y^2 = 16.28$  then the value of r is \_\_\_\_\_.
  - a) 0.02

b) 0.2

c) 0.5170

- d) 0.0517
- If average arrival rate in a queue is 6 per hour and the average service 14) rate is 10 per hour, which one of the following is the average number of customers in the line including the customer being served?
  - a) 0.3

b) 0.6

c) 1.2

d) 1.5

Seat No.

#### S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – I**

Day & Date: Saturday, 07-12-2019

Max. Marks: 56

Time: 10:00 AM To 01:00 PM

**Instructions:** 1) All questions are compulsory.

- 2) Figures to the right indicate full marks.
- 3) Use of calculator is allowed.
- Solve any three of the following questions.

09

- a) Solve  $(D^2 + 9) = \cos 2x \cos x$
- **b)** Solve  $(D^2 2D + 5)y = e^{2t} \sin t$
- Find the inverse Laplace transform of  $\frac{s+2}{s^2(s+3)}$
- **d)** Find the Laplace transform of  $t e^{-2t} \sin 4t$
- e) Find  $Z\{e^{-ak} \sin bk\}$
- Solve any three of the following questions. Q.3

09

- a) Solve  $(D^3 8)y = x^3 + x$
- b) Find the inverse Laplace transform of

$$Log\left[\sqrt{\frac{s^2+1}{s^2+4}}\right]$$

- c) Express the following function in terms of unit step function and find Laplace transform  $f(t) = \begin{cases} \cos t, & 0 < t < \pi \\ \sin t, & t > \pi \end{cases}$ . Find Inverse z-transform of  $\frac{1}{(Z-5)^3}$ , |z| > 5.
- e) Find the z-transform of  $\sin(3k + 5)$ .

10

- Solve any two of the following questions. Q.4 a) Solve  $(D^2 + 3D + 2)y = e^{e^x} + 2$ .
  - **b)** Solve y''' + 2y'' y' 2y = 0 given y(0) = y'(0) = 0 and y''(0) = 6 by using Laplace transform method.
  - c) Obtain  $Z^{-1}\left\{\frac{1}{(z-1/2)(z-1/3)}\right\}$  When i)  $\frac{1}{3} < |z| < \frac{1}{2}$  ii)  $\frac{1}{2} < |z|$

#### Section - II

Solve any three of the following questions. Q.5

09

a) Find half range sine series for 
$$f(x)$$
 where 
$$f(x) = \begin{cases} x & , & 0 < x \le \frac{\pi}{2} \\ \pi - x, & \frac{\pi}{2} < x < \pi \end{cases}$$

Hence, deduce that  $\frac{\pi^2}{8} = \frac{1}{12} + \frac{1}{22} + \frac{1}{52} + \cdots$ 

09

10

**b)** The life of army shoes is normally distributed with mean 8 months and standard deviation 2 months. If 5000 pairs are issued, how many pairs would be expected to need replacement after 2 months.

[Given: Area from z = 0 to z = 2 is 0.4772]

c) For the data

x:	1	2	3	4	5	6	7	8	9
ν:	9	8	10	12	11	13	14	16	15

Find the correlation coefficient

- d) The two regression equations are given by x + 2y 5 = 0 and 2x + 3y 8 = 0 then find mean values of x and y and the coefficient of correlation between x and y.
- **e)** Find Fourier expansion of  $f(x) = \sqrt{1 \cos x}$  in  $(-\pi, \pi)$

#### Q.6 Solve any three of the following questions.

a) Find the value of K, if f(x) is probability density function,

$$f(x) = \begin{cases} k. x e^{-4x^2}, & x > 0 \\ 0, & x \le 0 \end{cases}$$

- **b)** The number of arrivals of customers during any day follows poisson distribution with mean of five. What is the probability that the total number of customers on two days selected at random is less than two?
- c) In a distribution which is exactly normal 7% of the items are under 35 and 89% items are under 63. Find the mean and standard deviation of the distribution.

[Given that for area 0.43 SNV z=1.48 & for area 0.39 SNV z=1.23]

**d)** The following table gives age (x) in years of cars and annual maintenance cost (y) in hundred

<i>x</i> :	1	3	5	7	9
ν:	15	18	21	23	22

Estimate maintenance cost for a 4 year old car.

e) Expand  $\pi x - x^2$  as a sine series  $(0, \pi)$ .

#### Q.7 Solve any two of the following questions.

- a) A warehouse has only one loading dock manned by a three person crew. Trucks arrive at the loading dock at an average rate of 4 trucks per hour and the arrival rate is Poisson distributed. The loading of a truck take 10 min. on an average and can be assumed to be exponentially distributed. The operation cost of truck is ₹ 20 per hour and the members of the loading crew are paid @ ₹ 6 per hour. Would you advice the truck owner to add another crew of three persons?
- **b)** Obtain a fourier series for f(x) where

$$f(x) = 0, -5 \le x < 0$$
  
= 3, 0 < x \le 5

If period of f(x) is 10. Hence show that

$$\frac{\pi}{4} = 1 - \frac{1}{3} + \frac{1}{5} - \frac{1}{7} + \dots - \dots$$

- c) Customers arrive at a clinic according to a poission process with mean interval of 25 min. The physician needs on an average 20 min for a patient to examine.
  - i) Find the expected number of patients at the clinic and in the queue.
  - ii) Find percentage of patients who are not required to wait.

Seat	Set	D
No.	Set	

# S.E. (Part -I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DISCRETE MATHEMATICAL STRUCTURES

		DISCRETE MATHEMAT	CAL	. STRUCTURES		
•		e: Tuesday,10-12-2019 D AM To 01.00 PM		Max. Marks: 70		
Instr	Instructions: 1) Q. No. 1 is compulsory. It should be solved in first 30 minutes in answer book.					
		2) Figures to the right indicate full i	marks	S.		
		MCQ/Objective Ty	pe C	Questions		
Durat	tion: 3	0 Minutes		Marks: 14		
Q.1	<b>Choo</b> 1)	Pose the correct alternatives from the PoseT on set P can be represented a) $\langle P, \langle \rangle$	b) b)	 < <i>P</i> ,≥>		
		c) $\langle P \rangle \rangle$	,	< <i>P</i> ≤>		
	2)	Suppose A= {1,2,3}, B= { } . What do a) {<1,1>,<2,2>,<3,3>} c) { }	b)			
	3)	The function of f: $N\rightarrow N$ (N is set of national f(n) = $2n + 3$ is  a) one to one c) Onto	atural b) d)	numbers) is defined by into Both a & b		
	4)	LUB is called as a) Join c) Infimum	b) d)	Supermum Both a & b		
	5)	A group is said to if there exist element of G can be written as some a) Acyclic c) Abalian				
	6)	Which of the following is partition of a) {{4,5,6},{7,4},{8,6}} c) {{4,5},{8,9},{6,7}}	b)			
	7)	The possible number of relation from a) 12 c) 4096		$\{a, b, c\}$ to $B = (1,2,3,4)$ is 144 128		
	8)	The number of possible function from elements are  a) m + n c) n m	b) d)	of <b>m</b> elements to set of <b>n</b> m   m   m   n		
	9)	Hesse diagram are drawn for a) POSET c) Boolean algebra	 b) d)	Lattice POSET which is not lattice		

Set P

10) Join operation is denoted by the symbol				
a)	+	b)	U	
c)	^	ď)	Both a and b	
Ab	sorption law is defined as	•		
a)	a* (a* b) = b	b)	a* (a ⊕ b) = b	
c)	$a * (a \oplus b) = b$	d)	a*(a ⊕ b) = a	
Pic	k the correct prefix			
	·	b)	$\rightarrow$ P v QRS	
	• • • • • • • • • • • • • • • • • • •	ď)	$\rightarrow$ P v Q <sub>7</sub> QSP	
Every finite subset of lattice has  a) An LUB and GLB b) Many LUB and a GLB c) Many LUBs and Many GLBs d) Either some LUBs or some GLBs				
A s	elf-complemented, distributive lat	tice is	s called as .	
	•	b)	Modular Lattice	
c)	Complemented lattice	ď)	Complete Lattice	
	a) c) Ab: a) c) Pic a) c) Eve a) b) c) d) A s a)	a) + c) ^ Absorption law is defined as a) a* (a* b) = b c) a * (a ⊕ b) = b  Pick the correct prefix a) →P v Q R <sub>7</sub> S c) → P Q → QR → PR  Every finite subset of lattice has a) An LUB and GLB b) Many LUB and a GLB c) Many LUBs and Many GLBs d) Either some LUBs or some GLB	a) + b) c) $\wedge$ d)  Absorption law is defined as a) $a^* (a^* b) = b$ b) c) $a^* (a \oplus b) = b$ d)  Pick the correct prefix a) $\rightarrow P \vee Q R_{\uparrow} S$ b) c) $\rightarrow P \vee Q R_{\uparrow} S$ b) c) $\rightarrow P \vee Q R_{\uparrow} S$ b) c) $\rightarrow P \vee Q R_{\uparrow} S$ b) Every finite subset of lattice has a) An LUB and GLB b) Many LUB and a GLB c) Many LUBs and Many GLBs d) Either some LUBs or some GLBs A self-complemented, distributive lattice is a) Boolean Algebra b)	

Seat	Set	D
No.	Set	

#### S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering** DISCRETE MATHEMATICAL STRUCTURES

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56 Time: 10.00 AM To 01.00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I **Answer the following questions. (Any Three)** 12 Q.2 State and explain Duality law with example. Show the following Tautological implication  $((P \lor \sim P) \to Q) \to ((P \lor \sim P) \to R)) => (Q \to R)$ Defined Cartesian product and find (AXB), (BXA) and (AXB) ∩ (BXA) for c)  $A = {\alpha, \beta} \& B = {x, y, z, w}.$ Draw the Hesse diagram of the given sets under partial ordering which satisfy "divides" and indicate which set is totally ordered {2, 6, 12, 24} {1, 2, 3, 6, 12} ii) Q.3 **Answer the following questions. (Any One)** 80 a) Define Relation and explain the Properties of relation with example. **b)** Define and explain the following with suitable example. i) Ordered pair & order - n- type ii) Equivalence Relation Obtain PDNF and PCNF of the following Q.4 08 a)  $(\neg p \rightarrow \neg q) \rightarrow (p \leftrightarrow \neg q)$ **b)**  $p \vee (\neg p \rightarrow (q \vee (\neg q \rightarrow r)))$ Section - II 12 Q.5 **Answer the following questions. (Any Three)** Let  $X = \{1, 2, 3, 4\}$  Define function f from X to X such that  $f \neq I_x$  and it is one to one onto find  $f \circ f = f^2$ i)  $f \circ f^2 = f^3$ ii)  $f^{-1}$ iii)  $f \circ f^{-1}$ iv) Define Semi group & Monoid with example. b) What is Permutation Group? Define order of Permutation Group and Degree of Permutation Group. Define with example d) upper bound i) lower bound ii) iii) LUB

**GLB** 

iv)

Set P

Q.6 Answer the following questions. (Any One)

08

- a) Obtain the sum of product of canonical form of following Boolean algebra
  - i)  $X_1 \oplus X_2$
  - ii)  $X_1 \oplus [X_2^0 * X_3^1]$
- b) Let  $Z_4$  be the set of equivalence classes generated so that  $Z_4$ = {[0], [1], [2],[3]}. Let  $+_4$  on  $Z_4$  is given by [i]  $+_4$  [j]=[(i + j) mod 4] determine an algebraic System & list out the properties which are applicable on algebraic system
- Q.7 Composition table for <G \* > and < S, ♦ > are given below show that they are groups and they are isomorphic

*	p1	p2	р3	p4	
p1	p1 p2 p3 p4	p2	рЗ	p4	
p2	p2	p1	p4	рЗ	
р3	р3	p4	p1	p2	
p4	p4	p3	p2	p1	

$\Diamond$	q1	q2		q4
q1	q3 q4 q1	q4	q1	q2
q2	q4	q3	q2	q1
q3	q1	q2	q3	q4
q4	q2	q1	q4	q3

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No.	Set	y

# S.E. (Part -I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DISCRETE MATHEMATICAL STRUCTURES

DISCRETĖ MATHEMATICAL ŠTRUCTŪRES								
		: Tuesday,10-12-2019 ) AM To 01.00 PM		Max. Marks: 70				
Instr	uction	s: 1) Q. No. 1 is compulsory. It shou book.	ld be	solved in first 30 minutes in answer				
	<ol><li>Figures to the right indicate full marks.</li></ol>							
		MCQ/Objective Ty	/pe C	Questions				
Durat	Duration: 30 Minutes Marks: 14							
Q.1	<b>Choo</b> 1)	ose the correct alternatives from the The number of possible function from elements are	•					
		a) m + n c) n <sup>m</sup>	b) d)	m <sup>n</sup> m * n				
	2)	Hesse diagram are drawn for a) POSET c) Boolean algebra	 b) d)	Lattice POSET which is not lattice				
	3)	Join operation is denoted by the syn a) + c) ^	nbol _ b) d)	U Both a and b				
	4)	Absorption law is defined as a) $a^*(a^*b) = b$ c) $a^*(a \oplus b) = b$	b) d)	$a^* (a \oplus b) = b$ $a^*(a \oplus b) = a$				
	5)	Pick the correct prefix  a) $\rightarrow P \lor Q R_{7} S$ c) $\rightarrow \rightarrow P Q \rightarrow \rightarrow QR \rightarrow PR$		$\rightarrow$ P v QRS $\rightarrow$ P v Q <sub>1</sub> QSP				
	6)	Every finite subset of lattice has a) An LUB and GLB b) Many LUB and a GLB c) Many LUBs and Many GLBs d) Either some LUBs or some GLB		_•				
	7)	<ul><li>A self-complemented, distributive lata</li><li>a) Boolean Algebra</li><li>c) Complemented lattice</li></ul>	ttice is b) d)	s called as  Modular Lattice  Complete Lattice				
	8)	POSET on set P can be represented a) $< P, <>$ c) $< P >>$	b)	· · · · · · · · · · · · · · · · · · ·				
	9)	Suppose A= $\{1,2,3\}$ , B= $\{\}$ . What do a) $\{<1,1>,<2,2>,<3,3>\}$ c) $\{\}$	b)	e set A x B contain {< 1,2,3 >} {<< 1,2 >,3 >}				

# Set Q

10)	The function of f: $N \rightarrow N$ (N is set of not $f(n) = 2n + 3$ is	atural	numbers) is defined by
	a) one to one	b)	into
	c) Onto	d)	Both a & b
11)	LUB is called as		
,	a) Join	b)	Supermum
	c) Infimum	d)	Both a & b
12)	A group is said to if there exist element of G can be written as some a) Acyclic	pow b)	er of a Cyclic
	c) Abalian	d)	Angular
13)	Which of the following is partition of ta) {{4,5,6}, {7,4}, {8,6}}		
	c) {{4,5},{8,9},{6,7}}	d)	{{4, 5, 6, 7, 8, 9}, {9}}
14)	The possible number of relation from a) 12 c) 4096	A = b)	${a, b, c}$ to $B = (1,2,3,4)$ is 144 128

Seat	Set	0
No.	Set	Q

#### S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering** DISCRETE MATHEMATICAL STRUCTURES

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56 Time: 10.00 AM To 01.00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I **Answer the following questions. (Any Three)** 12 Q.2 State and explain Duality law with example. Show the following Tautological implication  $((P \lor \sim P) \to Q) \to ((P \lor \sim P) \to R)) => (Q \to R)$ Defined Cartesian product and find (AXB), (BXA) and (AXB) ∩ (BXA) for c)  $A = {\alpha, \beta} \& B = {x, y, z, w}.$ Draw the Hesse diagram of the given sets under partial ordering which satisfy "divides" and indicate which set is totally ordered {2, 6, 12, 24} {1, 2, 3, 6, 12} ii) Q.3 **Answer the following questions. (Any One)** 80 a) Define Relation and explain the Properties of relation with example. **b)** Define and explain the following with suitable example. i) Ordered pair & order - n- type ii) Equivalence Relation Obtain PDNF and PCNF of the following Q.4 08 a)  $(\neg p \rightarrow \neg q) \rightarrow (p \leftrightarrow \neg q)$ **b)**  $p \vee (\neg p \rightarrow (q \vee (\neg q \rightarrow r)))$ Section - II 12 Q.5 **Answer the following questions. (Any Three)** Let  $X = \{1, 2, 3, 4\}$  Define function f from X to X such that  $f \neq I_x$  and it is one to one onto find  $f \circ f = f^2$ i)  $f \circ f^2 = f^3$ ii)  $f^{-1}$ iii)  $f \circ f^{-1}$ iv) Define Semi group & Monoid with example. b) What is Permutation Group? Define order of Permutation Group and Degree of Permutation Group. Define with example d) upper bound i) lower bound ii) iii) LUB **GLB** iv)

Set Q

Q.6 Answer the following questions. (Any One)

08

- a) Obtain the sum of product of canonical form of following Boolean algebra
  - i)  $X_1 \oplus X_2$
  - ii)  $X_1 \oplus [X_2^0 * X_3^1]$
- b) Let Z<sub>4</sub> be the set of equivalence classes generated so that Z<sub>4</sub>= {[0], [1], [2],[3]}. Let +<sub>4</sub> on Z<sub>4</sub> is given by [i] +<sub>4</sub>[j]=[(i + j) mod 4] determine an algebraic System & list out the properties which are applicable on algebraic system
- Q.7 Composition table for <G \* > and < S, ♦ > are given below show that they are groups and they are isomorphic

*	p1	p2	рЗ	p4
p1	p1	p2 p1 p4 p3	рЗ	p4
p2	p2	p1	p4	р3
р3	рЗ	p4	p1	p2
p4	p4	р3	p2	p1

$\Diamond$	q1	q2		q4
q1	q3 q4 q1	q4	q1	q2
q2	q4	q3	q2	q1
q3	q1	q2	q3	q4
q4	q2	q1	q4	q3

Seat	Set	D
No.	Set	K

# S.E. (Part -I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DISCRETE MATHEMATICAL STRUCTURES

		DISCRETE MATHEMA	TICAI	_ STRUCTURES	
		e: Tuesday,10-12-2019 0 AM To 01.00 PM		Max. Marks:	70
Instr	uctio	ns: 1) Q. No. 1 is compulsory. It sho book.	uld be	solved in first 30 minutes in answer	r
		<ol><li>Figures to the right indicate fu</li></ol>	ll mark	S.	
		MCQ/Objective	Гуре (	Questions	
Dura	tion: 3	30 Minutes		Marks:	14
Q.1	<b>Cho</b> (1)	ose the correct alternatives from to A group is said to if there expelled the control of G can be written as sormal as Acyclic c) Abalian	kist an	element a € G such that every	14
	2)	Which of the following is partition of a) {{4, 5, 6}, {7, 4}, {8, 6}} c) {{4, 5}, {8, 9}, {6, 7}}	b)	•	
	3)	The possible number of relation from a) 12 c) 4096	om A = b) d)	${a,b,c}$ to B = $(1,2,3,4)$ is 144 128	
	4)	The number of possible function from the elements are  a) m + n  c) n m	om set b) d)	of <b>m</b> elements to set of <b>n</b> m n  m * n	
	5)	Hesse diagram are drawn for a) POSET c) Boolean algebra	 b) d)	Lattice POSET which is not lattice	
	6)	Join operation is denoted by the sy a) + c) ^			
	7)	Absorption law is defined as a) $a^*(a^*b) = b$ c) $a^*(a \oplus b) = b$	b) d)	$a^* (a \oplus b) = b$ $a^*(a \oplus b) = a$	
	8)	Pick the correct prefix  a) $\rightarrow P \lor Q R_{1} S$ c) $\rightarrow \rightarrow P Q \rightarrow \rightarrow QR \rightarrow PR$	,	<ul><li>→ P v QRS</li><li>→ P v Q<sub>1</sub> QSP</li></ul>	
	9)	Every finite subset of lattice has a) An LUB and GLB b) Many LUB and a GLB c) Many LUBs and Many GLBs			

d) Either some LUBs or some GLBs

Set R

10)	<ul><li>A self-complemented, distributive late</li><li>a) Boolean Algebra</li><li>c) Complemented lattice</li></ul>	tice is b) d)	Modular Lattice
11)	POSET on set P can be represented a) < P, <> c) < P >>	b)	 < P,≥> < P ≤>
12)	Suppose $A = \{1,2,3\}, B = \{\}$ . What do	es th	e set A x B contain
·	a) $\{<1,1>,<2,2>,<3,3>\}$	b)	{< 1, 2, 3 >}
	c) {}	d)	{<< 1, 2 >, 3 >}
13)	The function of f: $N\rightarrow N$ (N is set of na $f(n) = 2n + 3$ is	atural	numbers) is defined by
	a) one to one	b)	into
	c) Onto	ď)	Both a & b
14)	LUB is called as		
,	a) Join	b)	Supermum
	c) Infimum	ď)	Both a & b

Seat	Set	D
No.	Set	K

#### S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering** DISCRETE MATHEMATICAL STRUCTURES

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56 Time: 10.00 AM To 01.00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I **Answer the following questions. (Any Three)** 12 Q.2 State and explain Duality law with example. Show the following Tautological implication  $((P \lor \sim P) \to Q) \to ((P \lor \sim P) \to R)) => (Q \to R)$ Defined Cartesian product and find (AXB), (BXA) and (AXB) ∩ (BXA) for c)  $A = {\alpha, \beta} \& B = {x, y, z, w}.$ Draw the Hesse diagram of the given sets under partial ordering which satisfy "divides" and indicate which set is totally ordered {2, 6, 12, 24} {1, 2, 3, 6, 12} ii) Q.3 **Answer the following questions. (Any One)** 80 a) Define Relation and explain the Properties of relation with example. b) Define and explain the following with suitable example. i) Ordered pair & order - n- type ii) Equivalence Relation Obtain PDNF and PCNF of the following Q.4 08 a)  $(\neg p \rightarrow \neg q) \rightarrow (p \leftrightarrow \neg q)$ **b)**  $p \vee (\neg p \rightarrow (q \vee (\neg q \rightarrow r)))$ Section - II 12 Q.5 **Answer the following questions. (Any Three)** Let  $X = \{1, 2, 3, 4\}$  Define function f from X to X such that  $f \neq I_x$  and it is one to one onto find  $f \circ f = f^2$ i)  $f \circ f^2 = f^3$ ii)  $f^{-1}$ iii)  $f \circ f^{-1}$ iv) Define Semi group & Monoid with example. b) What is Permutation Group? Define order of Permutation Group and Degree of Permutation Group. Define with example d) upper bound i) lower bound ii) iii) LUB **GLB** iv)

Set R

Q.6 Answer the following questions. (Any One)

08

- a) Obtain the sum of product of canonical form of following Boolean algebra
  - i)  $X_1 \oplus X_2$
  - ii)  $X_1 \oplus [X_2^0 * X_3^1]$
- b) Let Z<sub>4</sub> be the set of equivalence classes generated so that Z<sub>4</sub>= {[0], [1], [2],[3]}. Let +<sub>4</sub> on Z<sub>4</sub> is given by [i] +<sub>4</sub>[j]=[(i + j) mod 4] determine an algebraic System & list out the properties which are applicable on algebraic system
- Q.7 Composition table for <G \* > and < S, ♦ > are given below show that they are groups and they are isomorphic

*			рЗ	
р1	p1	p2	p3 p4 p1	p4
p2	p2	p1	p4	р3
рЗ	р3	p4	p1	p2
p4	p4	p3	p2	p1

$\Diamond$	q1	q2	q3	q4
q1	q3	q4 q3 q2	q1	q2
q2	q4	q3	q2	q1
q3	q1	q2	q3	q4
q4	q2	q1	q4	q3

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Seat	Set	C
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# S.E. (Part -I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DISCRETE MATHEMATICAL STRUCTURES

		DISCRETE MATHEMATI	CAL	SIRUCIURES		
	Day & Date: Tuesday,10-12-2019 Max. Marks: 70 ime: 10.00 AM To 01.00 PM					
Instr	uction	<ul><li>ns: 1) Q. No. 1 is compulsory. It should book.</li><li>2) Figures to the right indicate full remaining the state of the state.</li></ul>				
		MCQ/Objective Ty				
Durat	Ouration: 30 Minutes Marks: 14					
Q.1		ose the correct alternatives from the	•			
	1)	Join operation is denoted by the sym a) + c) ^	bol _ d)	U		
	2)	Absorption law is defined as a) a* (a* b) = b	b)	$a^* (a \oplus b) = b$		
	3)	<ul> <li>c) a * (a ⊕ b) = b</li> <li>Pick the correct prefix</li> <li>a) →P v Q R<sub>7</sub> S</li> <li>c) → → P Q → → QR → PR</li> </ul>	b)	$a^*(a \oplus b) = a$ $\rightarrow P \vee QRS$		
	4)	Every finite subset of lattice has a) An LUB and GLB b) Many LUB and a GLB c) Many LUBs and Many GLBs d) Either some LUBs or some GLBs		·		
	5)	<ul><li>A self-complemented, distributive latt</li><li>a) Boolean Algebra</li><li>c) Complemented lattice</li></ul>	b)	called as  Modular Lattice  Complete Lattice		
	6)	POSET on set P can be represented a) $< P, <>$ c) $< P >>$	b)	 < P,≥> < P ≤>		
	7)	Suppose A= $\{1,2,3\}$ , B= $\{\}$ . What do a) $\{<1,1>,<2,2>,<3,3>\}$ c) $\{\}$	b)			
	8)	The function of f: $N\rightarrow N$ (N is set of na $f(n)=2n+3$ is  a) one to one c) Onto	atural b) d)	numbers) is defined by into Both a & b		
	9)	LUB is called as  a) Join c) Infimum	b) d)	Supermum Both a & b		

Set S

10)	<ul><li>A group is said to if there exist element of G can be written as some</li><li>a) Acyclic</li><li>c) Abalian</li></ul>		•
11)	Which of the following is partition of ta) {{4, 5, 6}, {7, 4}, {8, 6}}	he se b)	et S= {4,5,6,7,8,9}?
12)	The possible number of relation from a) 12 c) 4096	A = b) d)	$\{a, b, c\}$ to $B = \{1,2,3,4\}$ is 144 128
13)	The number of possible function from elements are  a) m + n  c) n m	b) d)	of <b>m</b> elements to set of <b>n</b> m <sup>n</sup> m * n
14)	Hesse diagram are drawn for a) POSET c) Boolean algebra	 b) d)	Lattice POSET which is not lattice

3	Seat	
1 N	lo.	

# S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

DISCRETE MATHEMATICAL STRUCTURES Day & Date: Tuesday, 10-12-2019 Max. Marks: 56 Time: 10.00 AM To 01.00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I **Answer the following questions. (Any Three)** 12 Q.2 State and explain Duality law with example. Show the following Tautological implication  $((P \lor \sim P) \to Q) \to ((P \lor \sim P) \to R)) => (Q \to R)$ Defined Cartesian product and find (AXB), (BXA) and (AXB) ∩ (BXA) for c)  $A = {\alpha, \beta} \& B = {x, y, z, w}.$ Draw the Hesse diagram of the given sets under partial ordering which satisfy "divides" and indicate which set is totally ordered {2, 6, 12, 24} {1, 2, 3, 6, 12} ii) Q.3 **Answer the following questions. (Any One)** 80 a) Define Relation and explain the Properties of relation with example. **b)** Define and explain the following with suitable example. i) Ordered pair & order - n- type ii) Equivalence Relation Obtain PDNF and PCNF of the following Q.4 08 a)  $(\neg p \rightarrow \neg q) \rightarrow (p \leftrightarrow \neg q)$ **b)**  $p \vee (\neg p \rightarrow (q \vee (\neg q \rightarrow r)))$ Section - II 12 Q.5 **Answer the following questions. (Any Three)** Let  $X = \{1, 2, 3, 4\}$  Define function f from X to X such that  $f \neq I_x$  and it is one to one onto find  $f \circ f = f^2$ i)  $f \circ f^2 = f^3$ ii)  $f^{-1}$ iii)  $f \circ f^{-1}$ iv) Define Semi group & Monoid with example. b) What is Permutation Group? Define order of Permutation Group and Degree of Permutation Group. Define with example d) upper bound i) lower bound ii) iii) LUB

**GLB** 

iv)

Set S

Q.6 Answer the following questions. (Any One)

08

- a) Obtain the sum of product of canonical form of following Boolean algebra
  - i)  $X_1 \oplus X_2$
  - ii)  $X_1 \oplus [X_2^0 * X_3^1]$
- b) Let Z<sub>4</sub> be the set of equivalence classes generated so that Z<sub>4</sub>= {[0], [1], [2],[3]}. Let +<sub>4</sub> on Z<sub>4</sub> is given by [i] +<sub>4</sub>[j]=[(i + j) mod 4] determine an algebraic System & list out the properties which are applicable on algebraic system
- Q.7 Composition table for <G \* > and < S, ♦ > are given below show that they are groups and they are isomorphic

*			рЗ	
р1	p1	p2	p3 p4 p1	p4
p2	p2	p1	p4	р3
рЗ	р3	p4	p1	p2
p4	p4	p3	p2	p1

$\Diamond$	q1	q2		q4
q1	q3 q4 q1	q4	q1	q2
q2	q4	q3	q2	q1
q3	q1	q2	q3	q4
q4	q2	q1	q4	q3

Seat	Set	D
No.	Set	

# S.E. (Part -I) (New/Old) (CBCS) Examination Nov/Dec-2019

		Computer Scien DATA COMI		
-		te: Thursday,12-12-2019 00 AM To 01.00 PM		Max. Marks: 70
Instr	uctio	book. 2) All questions are compulsor	y.	necessary and state them clearly.
_		MCQ/Objective	Type (	
		30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	ose the correct alternatives from DNS and SMTP is function of a) Application c) Session	-	
	2)	Framing is task oflayer.  a) Data link c) Application	b) d)	Transport Presentation
	3)	is method is used to detect a) CRC c) Parity check	t as well b) d)	as to correct the error. Hamming code none of this
	4)	The transmission that is used with a) Synchronous c) Parallel	nout the b) d)	timing signal is called Asynchronous Isochronous
	5)	cable is used for a long disa.  a) Fiber optics c) Co-axial	stance tr b) d)	ansmission. Twisted pair None
	6)	In the OSI model, encryption and layer. a) Application c) Data link	decrypti b) d)	on are functions of the Presentation Physical
	7)	Topology in which all the Node ar as a) Mesh c) Star	re conne b) d)	cted to central device are called Ring Bus
	8)	In IEEE std.802.3, 10 Base 5 cab a) Ethernet c) Thin Ethernet	ling is ca b) d)	alled Thick Ethernet none of this
	9)	is collision free protocol. a) Basic bit map c) both a & b	b) d)	Binary countdown none of this

## SLR-FM-282 Set P

10)	vvn a) c)	CSMA/CD	b) d)	TDM Bit-map
11)		at is the purpose of preamble bits Pre-bit counting Error checking	in ar b) d)	_
12)		ngestion occurs due to  Slow processors Insufficient memory to store arrive Both a & b None	/ing p	ackets
13)		e technique in which incoming pac ng Approximately in the right direc Flooding Selective flooding	ction i	
14)	a) c)	uses DQDB. LAN WAN	b) d)	MAN None of above

Seat No.	Set	Р

	•	S.E. (Part -I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DATA COMMUNICATION	
•		e: Thursday,12-12-2019 Max. 0 AM To 01.00 PM	Marks: 56
Instr	uctior	ns: 1) All questions are compulsory.  2) Assume the suitable data if necessary and state them clearly.	
		Section – I	
Q.2	Attera) b) c) d) e)	mpt any Four: Write differences between Parallel and Serial transmission. Explain CRC with suitable example. Write a function of Data link layer and Presentation layer. Write difference between LAN, MAN and WAN. Define Noise. Explain Different types of Noise.	16
Q.3	Attei a) b)	mpt any One: Explain GO-Back N Protocol with Example. Explain twisted pair cable and its types.	06
Q.4		mpt the following. ain TCP/IP Reference Model.	06
		Section – II	
Q.5	Attera) b) c) d)	mpt any Four.  Give two example computer application for which connection oriented Servic appropriate and two example for which connectionless service is best.  Explain Binary count down protocol.  Explain IEEE std.802.4.  Write differences between Leaky Bucket and Token Bucket algorithm.	<b>16</b> e as
	e)	Explain static channel allocation problem.	
Q.6	Attera) b)	mpt any One. Compare the different connecting Devices like Hub, Bridge and Switch. Explain IEEE std. 802.3 with frame format.	06
Q.7		mpt the following. ain distance vector algorithm with example. Discuss count to infinity problem.	06

Seat	Set	<b>^</b>
No.	Set	Q

# S.E. (Part -I) (New/Old) (CBCS) Examination Nov/Dec-2019

			Computer Science DATA COMM		
•			nursday,12-12-2019 // To 01.00 PM		Max. Marks: 70
Inst	ructio	ns: 1	<ol> <li>Q. No. 1 is compulsory and sh book.</li> </ol>	ould b	pe solved in first 30 minutes in answer
			<ol> <li>All questions are compulsory.</li> <li>Assume the suitable data whe</li> </ol>	never	necessary and state them clearly.
			MCQ/Objective T	уре (	Questions
Dura	ation: 3	30 M	inutes		Marks: 14
Q.1	<b>Cho</b> 1)		the correct alternatives from to EEE std.802.3, 10 Base 5 cabling Ethernet	-	tions and rewrite the sentence. 14 alled Thick Ethernet
		c)	Thin Ethernet	d)	none of this
	2)	,	is collision free protocol.	,	
	_,	a) c)	<del></del>	b) d)	Binary countdown none of this
	3)		ich of the following is a static ch CSMA CSMA/CD	annel b) d)	allocation method? TDM Bit-map
	4)		at is the purpose of preamble bi Pre-bit counting Error checking	ts in a b) d)	n Ethernet frame? Synchronization Destination adder
	5)	Coi	ngestion occurs due to		
	ŕ	a) b) c) d)	Slow processors Insufficient memory to store and Both a & b None	riving	packets
	6)		e technique in which incoming pa ng Approximately in the right dire Flooding Selective flooding		
	7)	a) c)	uses DQDB. LAN WAN	b) d)	MAN None of above
	8)	DN a) c)	S and SMTP is function of Application Session	_ laye b) d)	r. Presentation None
	9)	Fra a)	lming is task oflayer. Data link	b)	Transport

d)

Presentation

c) Application

Set Q

10)	a) CRC c) Parity check	b) d)	Hamming code none of this
11)	The transmission that is used without a) Synchronous c) Parallel	t the b) d)	timing signal is called Asynchronous Isochronous
12)	<ul><li>cable is used for a long distart</li><li>a) Fiber optics</li><li>c) Co-axial</li></ul>	nce tr b) d)	ansmission. Twisted pair None
13)	In the OSI model, encryption and de layer.		
	<ul><li>a) Application</li><li>c) Data link</li></ul>	b) d)	Presentation Physical
14)	Topology in which all the Node are of as .	onne	cted to central device are called
	a) Mesh	b)	Ring
	c) Star	d)	Bus

Seat	Seat	
No.	No.	

Q.7

Attempt the following.

Set



# S.E. (Part -I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DATA COMMUNICATION

Day & Date: Thursday, 12-12-2019 Max. Marks: 56 Time: 10.00 AM To 01.00 PM **Instructions:** 1) All questions are compulsory. 2) Assume the suitable data if necessary and state them clearly. Section - I 16 Q.2 Attempt any Four: Write differences between Parallel and Serial transmission. a) Explain CRC with suitable example. b) Write a function of Data link layer and Presentation layer. c) Write difference between LAN, MAN and WAN. d) Define Noise. Explain Different types of Noise. e) Q.3 **Attempt any One:** 06 Explain GO-Back N Protocol with Example. Explain twisted pair cable and its types. b) Attempt the following. 06 Explain TCP/IP Reference Model. Section - II Q.5 Attempt any Four. 16 Give two example computer application for which connection oriented Service as appropriate and two example for which connectionless service is best. Explain Binary count down protocol. b) Explain IEEE std.802.4. c) Write differences between Leaky Bucket and Token Bucket algorithm. d) Explain static channel allocation problem. e) Q.6 06 Attempt any One. Compare the different connecting Devices like Hub, Bridge and Switch. a) Explain IEEE std. 802.3 with frame format. b)

Explain distance vector algorithm with example. Discuss count to infinity problem.

06

Seat	Set	D
No.	Set	K

	3	S.E. (Part -I) (New/Old) (CBCS) Computer Science DATA COMMU	& E	ngineering
•		e: Thursday,12-12-2019 00 AM To 01.00 PM		Max. Marks: 70
Insti	ructio	ns: 1) Q. No. 1 is compulsory and sho book. 2) All questions are compulsory. 3) Assume the suitable data when		necessary and state them clearly.
		·		
Dura	ation: 3	MCQ/Objective Ty 30 Minutes	pe (	Marks: 14
Q.1	<b>Cho</b> 1)	ose the correct alternatives from th cable is used for a long distar a) Fiber optics c) Co-axial	•	
	2)	In the OSI model, encryption and de layer.  a) Application c) Data link	crypt b) d)	ion are functions of the Presentation Physical
	3)	Topology in which all the Node are cas a) Mesh c) Star	onne b) d)	ected to central device are called Ring Bus
	4)	In IEEE std.802.3, 10 Base 5 cabling a) Ethernet c) Thin Ethernet	j is ca b) d)	alled Thick Ethernet none of this
	5)	is collision free protocol. a) Basic bit map c) both a & b	b) d)	Binary countdown none of this
	6)	Which of the following is a static cha a) CSMA c) CSMA/CD	nnel b) d)	allocation method? TDM Bit-map
	7)	What is the purpose of preamble bits a) Pre-bit counting c) Error checking	in a b) d)	n Ethernet frame? Synchronization Destination adder
	8)	Congestion occurs due to  a) Slow processors b) Insufficient memory to store arriv c) Both a & b d) None	ing ر	packets

## SLR-FM-282 Set R

9)		e technique in which incoming pac ng Approximately in the right dired Flooding	ction i	
	a) C)	Selective flooding	d)	Symmetric flooding
10)	a) c)	uses DQDB. LAN WAN	b) d)	MAN None of above
11)	DN: a) c)	S and SMTP is function of Application Session	layer b) d)	Presentation None
12)	France)	ming is task oflayer. Data link Application	b) d)	Transport Presentation
13)	a) c)	is method is used to detect as CRC Parity check	well b) d)	as to correct the error. Hamming code none of this
14)	The a) c)	transmission that is used withou Synchronous Parallel	t the t b) d)	iming signal is called Asynchronous Isochronous

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Seat	Set	D
No.	Set	K

	Computer Science & Engineering  DATA COMMUNICATION	
•	& Date: Thursday,12-12-2019 Max. Ma : 10.00 AM To 01.00 PM	rks: 56
Instr	uctions: 1) All questions are compulsory. 2) Assume the suitable data if necessary and state them clearly.	
	Section – I	
Q.2	<ul> <li>Attempt any Four:</li> <li>a) Write differences between Parallel and Serial transmission.</li> <li>b) Explain CRC with suitable example.</li> <li>c) Write a function of Data link layer and Presentation layer.</li> <li>d) Write difference between LAN, MAN and WAN.</li> <li>e) Define Noise. Explain Different types of Noise.</li> </ul>	16
Q.3	<ul><li>Attempt any One:</li><li>a) Explain GO-Back N Protocol with Example.</li><li>b) Explain twisted pair cable and its types.</li></ul>	06
Q.4	Attempt the following.  Explain TCP/IP Reference Model.	06
	Section – II	
Q.5	<ul> <li>Attempt any Four.</li> <li>a) Give two example computer application for which connection oriented Service as appropriate and two example for which connectionless service is best.</li> <li>b) Explain Binary count down protocol.</li> <li>c) Explain IEEE std.802.4.</li> <li>d) Write differences between Leaky Bucket and Token Bucket algorithm.</li> <li>e) Explain static channel allocation problem.</li> </ul>	<b>16</b>
0.0	•	00
Q.6	<ul> <li>Attempt any One.</li> <li>a) Compare the different connecting Devices like Hub, Bridge and Switch.</li> <li>b) Explain IEEE std. 802.3 with frame format.</li> </ul>	06
Q.7	Attempt the following.  Explain distance vector algorithm with example. Discuss count to infinity problem.	06

Seat	Sat	C
No.	Set	3

# S.E. (Part -I) (New/Old) (CBCS) Examination Nov/Dec-2019

			Computer Scie		
			nursday,12-12-2019 // To 01.00 PM		Max. Marks: 70
Insti	ructio		Q. No. 1 is compulsory and book.  Output  Discrepance of the compulsor of the computation of the compulsor of the compulsor of the compulsor of the compulsor of the computation o		e solved in first 30 minutes in answer
		(	3) Assume the suitable data	whenever	necessary and state them clearly.
<b>-</b>	. 4: 4	00 14	MCQ/Objectiv	e Type C	
			inutes		Marks: 14
Q.1	1)	Wh	the correct alternatives fro nich of the following is a station CSMA CSMA/CD	-	ions and rewrite the sentence. 14 allocation method? TDM Bit-map
	2)		at is the purpose of preambl Pre-bit counting Error checking	e bits in ar b) d)	
	3)		ngestion occurs due to Slow processors Insufficient memory to store Both a & b None		packets
	4)	goi	e technique in which incomin ng Approximately in the right Flooding Selective flooding	• .	s sent on these lines that are is Flow-based routing Symmetric flooding
	5)	,	uses DQDB. LAN WAN	b) d)	MAN None of above
	6)	DN a) c)	S and SMTP is function of _ Application Session	layeı b) d)	r. Presentation None
	7)	Fra a) c)	ming is task oflayer. Data link Application	b) d)	Transport Presentation
	8)	a) c)	is method is used to dete CRC Parity check	ect as well b) d)	as to correct the error. Hamming code none of this
	9)	The a) c)	e transmission that is used w Synchronous Parallel	rithout the b) d)	timing signal is called Asynchronous Isochronous

## SLR-FM-282 Set S

10) cable is used for a long distance transmission.					
a) Fiber optics	b)	Twisted pair			
c) Co-axial	ď)	None			
	ecrypt	ion are functions of the			
•	b)	Presentation			
c) Data link	ď)	Physical			
, 0,	conne	ected to central device are called			
<del></del>	b)	Ring			
c) Star	ď)	Bus			
In IEEE std.802.3, 10 Base 5 cablin	ng is c	alled			
a) Ethernet	b)	Thick Ethernet			
c) Thin Ethernet	ď)	none of this			
is collision free protocol.					
a) Basic bit map	b)	Binary countdown			
c) both a & b	ď)	none of this			
	a) Fiber optics c) Co-axial  In the OSI model, encryption and d layer. a) Application c) Data link  Topology in which all the Node are as a) Mesh c) Star  In IEEE std.802.3, 10 Base 5 cablin a) Ethernet c) Thin Ethernet is collision free protocol. a) Basic bit map	a) Fiber optics c) Co-axial  In the OSI model, encryption and decrypt layer. a) Application b) c) Data link  Topology in which all the Node are conneas as a) Mesh b) c) Star  In IEEE std.802.3, 10 Base 5 cabling is ca) Ethernet b) c) Thin Ethernet c) Thin Ethernet b) d) is collision free protocol. a) Basic bit map b)			

Seat	
No.	

## S.E. (Part -I) (New/Old) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DATA COMMUNICATION** Day & Date: Thursday, 12-12-2019 Max. Marks: 56 Time: 10.00 AM To 01.00 PM **Instructions:** 1) All questions are compulsory. 2) Assume the suitable data if necessary and state them clearly. Section - I 16 Q.2 Attempt any Four: Write differences between Parallel and Serial transmission. Explain CRC with suitable example. b) Write a function of Data link layer and Presentation layer. c) Write difference between LAN, MAN and WAN. d) Define Noise. Explain Different types of Noise. Q.3 **Attempt any One:** 06 Explain GO-Back N Protocol with Example. Explain twisted pair cable and its types. b) Attempt the following. 06 Explain TCP/IP Reference Model. Section - II Q.5 Attempt any Four. 16 Give two example computer application for which connection oriented Service as appropriate and two example for which connectionless service is best. Explain Binary count down protocol. b) Explain IEEE std.802.4. c) Write differences between Leaky Bucket and Token Bucket algorithm. d) Explain static channel allocation problem. e) Q.6 06 Attempt any One. Compare the different connecting Devices like Hub, Bridge and Switch. a) Explain IEEE std. 802.3 with frame format. b) 06 Q.7 Attempt the following.

Explain distance vector algorithm with example. Discuss count to infinity problem.

Seat	Set	D
No.	Set	L

# S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DIGITAL TECHNIQUES

Day & Date: Saturday, 14-12-2019	Max. Marks: 70
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Time: 10:00 AM To 01:00 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.

- 2) Figures to the right indicates full marks.
- 3) Illustrate your answers with sketches wherever necessary.
- 4) Assume suitable data if necessary.

### **MCQ/Objective Type Questions**

Duration: 30 Minutes Marks: 14

#### Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) Which statement below best describes a Karnaugh map?
  - a) A Karnaugh map can be used to replace Boolean rules
  - b) The Karnaugh map eliminates the need for using NAND and NOR gates
  - c) Variable complements can be eliminated by using Karnaugh maps
  - d) Karnaugh maps provide a visual approach to simplifying Boolean expressions
- 2) The Boolean equation for the exclusive-OR function is \_\_\_\_\_\_.
  - a)  $X = \overline{AB} + AB$

b)  $X = \overline{A}B + \overline{A}B$ 

c)  $X = \overline{A} \overline{B} + AB$ 

- d)  $X = \overline{A}B + A\overline{B}$
- 3) A full-adder adds \_\_\_\_\_.
  - a) two single bits and one carry bit
  - b) two 2-bit binary numbers
  - c) two 4-bit binary numbers
  - d) two 2-bit numbers and one carry bit
- 4) A 4-variable AND-OR circuit produces a 1 at its Y output. Which combination of inputs is correct?
  - a) A = 0, B = 0, C = 0, D = 0
- b) A = 0, B = 1, C = 1, D = 0
- c) A = 1, B = 1, C = 0, D = 0
- d) A = 1, B = 0, C = 0, D = 0
- 5) What is a multiplexer?
  - a) It is a type of decoder which decodes several inputs and gives one output
  - b) A multiplexer is a device which converts many signals into one
  - c) It takes one input and results into many output
  - d) None of the Mentioned
- 6) The output of an exclusive-NOR gate is 1. Which input combination is correct?
  - a) A = 1, B = 0

b) A = 0, B = 1

c) A = 0, B = 0

d) none of the above

## Set P

7)	outp	How many inputs of a four-input AND gate must be HIGH in order for the output of the logic gate to go HIGH?				
	,	any one of the inputs any three of the inputs	b) d)	any two of the inputs all four inputs		
8)	a)	00 \$finish" indicate end of simulation time end of simulation at 100 time unit	t			

- d) None
- 9) IC 7490 is .
  - a) MOD 5 followed by MOD 2 synchronous counter

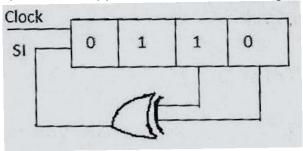
c) suspend the simulation at 100 time unit

- b) MOD 5 followed by MOD 2 Asynchronous counter
- c) MOD 2 followed by MOD 5 synchronous counter
- d) MOD 2 followed by MOD 5 Asynchronous counter
- 10) A MOD 12 and MOD 10 counters are cascaded. Determine the output frequency if input frequency is of 60 MHz.
  - a) 1500 KHz

b) 6 MHz

c) 500 KHz

- d) 5 MHz
- 11) In initial content of 4 bit SIPO, right shift, shift register shown in figure is 0110. After three clock pulses are applied contents of shift register will be \_\_\_\_\_.



a) 0101

b) 1010

c) 0011

- d) 1011
- 12) Flip is also called as \_\_\_\_\_ Device.
  - a) Astable

b) Bistable

c) Monostable

- d) Metastable
- 13) Which Flip flop is free from Race around condition?
  - a) SR flip flop

b) JK flip flop

c) MS JK flip flop

- d) D Flip flop
- 14) What is the system task to suspend simulation?
  - a) \$Stop

b) \$finish

c) \$monitor

d) \$hold

	OLIV	1 171 2	.00
Seat No.	t	Set	P
	S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2 Computer Science & Engineering DIGITAL TECHNIQUES	019	
	& Date: Saturday, 14-12-2019 Ma e: 10:00 AM To 01:00 PM	ax. Marks	s: 56
Instr	<ul> <li>auctions: 1) All questions are compulsory.</li> <li>2) Figures to the right indicates full marks.</li> <li>3) Illustrate your answers with sketches wherever necessary.</li> <li>4) Assume suitable data if necessary.</li> </ul>		
	Section – I		
Q.2	Solve any three.		12
	a) Given $Y = A\overline{B} + \overline{B}\overline{C} + \overline{A}C$		
	Implement the logical expression using NAND and NOR gates.		
	b) Minimize the following Boolean expression using K – map. $Y = \sum (m1, m3, m5, m7, m10, m11, m14, m15)$ .		
	c) Design 16:1 multiplexer using 4:1 multiplexers only. d) Short Note on : 1) Arithmetic and Logic Unit or		
	2) IC 74151		
Q.3	Solve any two.		16
	a) Simplify the Boolean Function: $F(w,x,y,z) = \sum (1,3,7,11,15)$ , the Don't care conditions $d(w,x,y,z) =$ and Implement using NAND gates.	$\sum (0,2,5)$	
	b) Design a 8 to 1 multiplexer by using the four variable function given $F(A, B, C, D) = \sum m(0.1, 3.4, 8.9, 15)$ .		
	c) State and prove De'Morgan's Theorems with the help of truth tables	S.	
	Section – II		
Q.4	<ul><li>Attempt any three.</li><li>a) Draw and explain SIPO shift register with waveform.</li></ul>		12
	b) Write the verilog code for JK flip flop using behavioral modeling.		
	<ul><li>c) Design 3 bit asynchronous down counter with waveform in detail.</li><li>d) Write the verilog code for full adder.</li></ul>		

Write a Verilog code for 3 line to 8 line decoder using behavioral modeling.

Explain the IC 7490. Also design MOD 9 counter using IC 7490 in detail.

Design synchronous counter which counts following sequence

---1-2-3-4-5-6-7-8-0-1-2--- using JK flip flop

Q.5 Attempt any two.

b)

c)

16

# S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DIGITAL TECHNIQUES

Day & Date: Saturday, 14-12-2019	Max. Marks: 70
----------------------------------	----------------

Time: 10:00 AM To 01:00 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.

- 2) Figures to the right indicates full marks.
- 3) Illustrate your answers with sketches wherever necessary.
- 4) Assume suitable data if necessary.

#### **MCQ/Objective Type Questions**

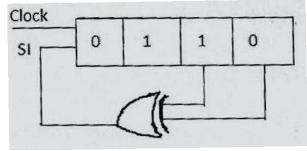
Duration: 30 Minutes Marks: 14

- Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14
  - 1) "#100 \$finish" indicate \_\_\_\_\_.
    - a) end of simulation time
    - b) end of simulation at 100 time unit
    - c) suspend the simulation at 100 time unit
    - d) None
  - 2) IC 7490 is \_\_\_\_\_.
    - a) MOD 5 followed by MOD 2 synchronous counter
    - b) MOD 5 followed by MOD 2 Asynchronous counter
    - c) MOD 2 followed by MOD 5 synchronous counter
    - d) MOD 2 followed by MOD 5 Asynchronous counter
  - 3) A MOD 12 and MOD 10 counters are cascaded. Determine the output frequency if input frequency is of 60 MHz.
    - a) 1500 KHz

b) 6 MHz

c) 500 KHz

- d) 5 MHz
- 4) In initial content of 4 bit SIPO, right shift, shift register shown in figure is 0110. After three clock pulses are applied contents of shift register will be \_\_\_\_\_.



a) 0101

b) 1010

c) 0011

- d) 1011
- 5) Flip is also called as \_\_\_\_\_ Device.
  - a) Astable

b) Bistable

c) Monostable

d) Metastable

# Set Q

6)	a)	SR flip flop is free from Race ard SR flip flop MS JK flip flop	buna d b) d)	
7)	Wh a) c)	at is the system task to suspend \$\$Stop \$monitor	simul b) d)	ation? \$finish \$hold
8)	a) b)	ich statement below best describ A Karnaugh map can be used to The Karnaugh map eliminates th gates Variable complements can be el Karnaugh maps provide a visual expressions	repla ne neo imina	ace Boolean rules ed for using NAND and NOR ted by using Karnaugh maps
9)	a)	Boolean equation for the exclus $X = \overline{AB} + AB$ $X = \overline{A}  \overline{B} + AB$	b)	R function is $X = \overline{A}B + \overline{A}\overline{B}$ $X = \overline{A}B + A\overline{B}$
10)	a) b) c)	ull-adder adds  two single bits and one carry bit two 2-bit binary numbers two 4-bit binary numbers two 2-bit numbers and one carry	bit	
11)	of in a)	-variable AND-OR circuit produce nputs is correct? A = 0, B = 0, C = 0, D = 0 A = 1, B = 1, C = 0, D = 0	b)	
12)	a)	at is a multiplexer? It is a type of decoder which decoutput A multiplexer is a device which of takes one input and results into None of the Mentioned	onve	rts many signals into one
13)	cor	e output of an exclusive-NOR gate rect? A = 1, B = 0 A = 0, B = 0	e is 1. b) d)	Which input combination is $A = 0, B = 1$ none of the above
14)		w many inputs of a four-input ANI put of the logic gate to go HIGH? any one of the inputs any three of the inputs	b) d)	e must be HIGH in order for the any two of the inputs all four inputs

Seat No.			Set	Q
		 -		

## S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DIGITAL TECHNIQUES** Day & Date: Saturday, 14-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. 3) Illustrate your answers with sketches wherever necessary. 4) Assume suitable data if necessary. Section - I Q.2 Solve any three. 12 Given a)  $Y = A\overline{B} + \overline{B}\overline{C} + \overline{A}C$ Implement the logical expression using NAND and NOR gates. Minimize the following Boolean expression using K – map. b)  $Y = \sum_{m=0}^{\infty} (m1, m3, m5, m7, m10, m11, m14, m15).$ Design 16:1 multiplexer using 4:1 multiplexers only. c) Short Note on: d) Arithmetic and Logic Unit 2) IC 74151 Q.3 Solve any two. 16 Simplify the Boolean Function:  $F(w, x, y, z) = \sum (1,3,7,11,15)$ , the Don't care conditions  $d(w, x, y, z) = \sum (0,2,5)$ and Implement using NAND gates. Design a 8 to 1 multiplexer by using the four variable function given by b)  $F(A, B, C, D) = \sum m(0,1,3,4,8,9,15).$ State and prove De'Morgan's Theorems with the help of truth tables. c) Section - II Attempt any three. 12 Q.4 Draw and explain SIPO shift register with waveform. Write the verilog code for JK flip flop using behavioral modeling. b) Design 3 bit asynchronous down counter with waveform in detail. c) Write the verilog code for full adder. d) Q.5 Attempt any two. 16 Write a Verilog code for 3 line to 8 line decoder using behavioral modeling.

Design synchronous counter which counts following sequence

Explain the IC 7490. Also design MOD 9 counter using IC 7490 in detail.

---1-2-3-4-5-6-7-8-0-1-2--- using JK flip flop

b)

c)

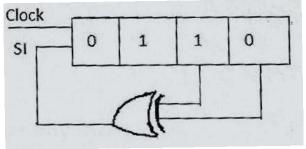
Seat	Set	D
No.	Set	N

# S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019

		·	Computer Science DIGITAL TECI		
•			turday, 14-12-2019 I To 01:00 PM		Max. Marks: 70
Instr	uctior	2	) Q. No. 1 is compulsory and sho Book. 2) Figures to the right indicates ful 3) Illustrate your answers with ske 4) Assume suitable data if necess	l mar	
			MCQ/Objective Ty	pe (	Questions
Dura	tion: 3	0 Mi	nutes		Marks: 14
Q.1	<b>Choo</b> 1) 2)	Wha) b) c) d) The corr	the correct alternatives from the at is a multiplexer?  It is a type of decoder which decoutput  A multiplexer is a device which of takes one input and results into None of the Mentioned e output of an exclusive-NOR gate rect?  A = 1, B = 0  A = 0, B = 0	odes conve o ma e is 1	several inputs and gives one erts many signals into one ny output
	3)		w many inputs of a four-input ANE put of the logic gate to go HIGH? any one of the inputs any three of the inputs	b) d)	e must be HIGH in order for the any two of the inputs all four inputs
	4)	" #1 a) b) c) d)	100 \$finish" indicate  end of simulation time end of simulation at 100 time unit suspend the simulation at 100 tir None		nit
	5)	IC 7 a) b) c) d)	7490 is  MOD 5 followed by MOD 2 sync  MOD 5 followed by MOD 2 Asyn  MOD 2 followed by MOD 5 sync  MOD 2 followed by MOD 5 Asyn	chro hron	nous counter ous counter
	6)		MOD 12 and MOD 10 counters are quency if input frequency is of 60 1500 KHz 500 KHz		

## Set R

7) In initial content of 4 bit SIPO, right shift, shift register shown in figure is 0110. After three clock pulses are applied contents of shift register will be \_\_\_\_\_.



a) 0101

b) 1010

c) 0011

- d) 1011
- 8) Flip is also called as \_\_\_\_\_ Device.
  - a) Astable

b) Bistable

c) Monostable

- d) Metastable
- 9) Which Flip flop is free from Race around condition?
  - a) SR flip flop

b) JK flip flop

c) MS JK flip flop

- d) D Flip flop
- 10) What is the system task to suspend simulation?
  - a) \$Stop

b) \$finish

c) \$monitor

- d) \$hold
- 11) Which statement below best describes a Karnaugh map?
  - a) A Karnaugh map can be used to replace Boolean rules
  - b) The Karnaugh map eliminates the need for using NAND and NOR gates
  - c) Variable complements can be eliminated by using Karnaugh maps
  - d) Karnaugh maps provide a visual approach to simplifying Boolean expressions
- 12) The Boolean equation for the exclusive-OR function is \_\_\_\_\_
  - a)  $X = \overline{AB} + AB$

b)  $X = \overline{A}B + \overline{A}B$ 

c)  $X = \overline{A} \overline{B} + AB$ 

- d)  $X = \overline{A}B + A\overline{B}$
- 13) A full-adder adds \_\_\_\_\_
  - a) two single bits and one carry bit
  - b) two 2-bit binary numbers
  - c) two 4-bit binary numbers
  - d) two 2-bit numbers and one carry bit
- 14) A 4-variable AND-OR circuit produces a 1 at its Y output. Which combination of inputs is correct?
  - a) A = 0, B = 0, C = 0, D = 0
- b) A = 0, B = 1, C = 1, D = 0
- c) A = 1, B = 1, C = 0, D = 0
- d) A = 1, B = 0, C = 0, D = 0

	<b>92</b> .( ) .		
Seat No.	t S	et	R
	S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DIGITAL TECHNIQUES	_	
•	& Date: Saturday, 14-12-2019 Max. M e: 10:00 AM To 01:00 PM	larks	: 56
Instr	ructions: 1) All questions are compulsory. 2) Figures to the right indicates full marks. 3) Illustrate your answers with sketches wherever necessary. 4) Assume suitable data if necessary.		
	Section – I		
Q.2	Solve any three.  a) Given $Y = A\overline{B} + \overline{B}\overline{C} + \overline{A}C$ Implement the logical expression using NAND and NOR gates.  b) Minimize the following Boolean expression using K – map. $Y = \sum (m1, m3, m5, m7, m10, m11, m14, m15).$ c) Design 16:1 multiplexer using 4:1 multiplexers only.  d) Short Note on:  1) Arithmetic and Logic Unit or		12
	2) IC 74151		
Q.3	<ul> <li>Solve any two.</li> <li>a) Simplify the Boolean Function:     F(w,x,y,z) = ∑(1,3,7,11,15), the Don't care conditions d(w,x,y,z) = ∑(0, and Implement using NAND gates.</li> <li>b) Design a 8 to 1 multiplexer by using the four variable function given by F(A, B, C, D) = ∑m(0,1,3,4,8,9,15).</li> <li>c) State and prove De'Morgan's Theorems with the help of truth tables.</li> </ul>	,2,5)	16
	Section – II		
0.4	Attempt any three		12

a) Draw and explain SIPO shift register with waveform.

---1-2-3-4-5-6-7-8-0-1-2--- using JK flip flop

Write the verilog code for full adder.

b)

c)

b)

c)

Attempt any two.

Q.5

Write the verilog code for JK flip flop using behavioral modeling.

Design synchronous counter which counts following sequence

Design 3 bit asynchronous down counter with waveform in detail.

Write a Verilog code for 3 line to 8 line decoder using behavioral modeling.

Explain the IC 7490. Also design MOD 9 counter using IC 7490 in detail.

16

Seat	Set	9
No.	Set	3

# S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DIGITAL TECHNIQUES

Day & Date: Saturday, 14-12-2019 Max. Marks: 70

Time: 10:00 AM To 01:00 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.

- 2) Figures to the right indicates full marks.
- 3) Illustrate your answers with sketches wherever necessary.
- 4) Assume suitable data if necessary.

#### **MCQ/Objective Type Questions**

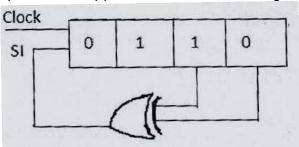
Duration: 30 Minutes Marks: 14

- Q.1 Choose the correct alternatives from the options and rewrite the sentence.
  - 1) A MOD 12 and MOD 10 counters are cascaded. Determine the output frequency if input frequency is of 60 MHz.
    - a) 1500 KHz

b) 6 MHz

c) 500 KHz

- d) 5 MHz
- 2) In initial content of 4 bit SIPO, right shift, shift register shown in figure is 0110. After three clock pulses are applied contents of shift register will be \_\_\_\_\_.



a) 0101

b) 1010

c) 0011

- d) 1011
- 3) Flip is also called as \_\_\_\_\_ Device.
  - a) Astable

b) Bistable

c) Monostable

- d) Metastable
- 4) Which Flip flop is free from Race around condition?
  - a) SR flip flop

b) JK flip flop

c) MS JK flip flop

- d) D Flip flop
- 5) What is the system task to suspend simulation?
  - a) \$Stop

b) \$finish

c) \$monitor

- d) \$hold
- 6) Which statement below best describes a Karnaugh map?
  - a) A Karnaugh map can be used to replace Boolean rules
  - b) The Karnaugh map eliminates the need for using NAND and NOR gates
  - c) Variable complements can be eliminated by using Karnaugh maps
  - d) Karnaugh maps provide a visual approach to simplifying Boolean expressions

## Set S

7) The Boolean equation for the exclusive-OR function is				R function is
	,	$X = \overline{AB} + AB$	•	$X = \overline{A}B + \overline{A}\overline{B}$
	c)	$X = \overline{A}  \overline{B} + AB$	d)	$X = \overline{A}B + A\overline{B}$
8)	a) b) c)	ull-adder adds  two single bits and one carry bit two 2-bit binary numbers two 4-bit binary numbers two 2-bit numbers and one carry	, bit	
9)		•	es a 1	at its Y output. Which combination
	a)	nputs is correct? A = 0, B = 0, C = 0, D = 0 A = 1, B = 1, C = 0, D = 0	,	
10)	Wh a)	at is a multiplexer? It is a type of decoder which decoutput	odes	several inputs and gives one
	c)	A multiplexer is a device which of It takes one input and results into None of the Mentioned		· •
11)		e output of an exclusive-NOR gate rect?	e is 1.	Which input combination is
	a)	A = 1, B = 0	,	A = 0, B = 1
	c)	A = 0, B = 0	d)	none of the above
12)		w many inputs of a four-input ANI put of the logic gate to go HIGH?	) gate	e must be HIGH in order for the
	,	any one of the inputs any three of the inputs	b) d)	any two of the inputs all four inputs
13)	a)	100 \$finish" indicate  end of simulation time  end of simulation at 100 time un  suspend the simulation at 100 til  None		nit
14)	IC 7	7490 is		
	a)	MOD 5 followed by MOD 2 sync		
	b) c)	MOD 5 followed by MOD 2 Asyr MOD 2 followed by MOD 5 sync		
	d)	MOD 2 followed by MOD 5 syric		
	,	•		

		SLR-FIVI-2	203
Seat No.	t	Set	S
	\$	S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DIGITAL TECHNIQUES	
•		te: Saturday, 14-12-2019 Max. Marks 00 AM To 01:00 PM	s: 56
Instr	uctio	<ul> <li>2) All questions are compulsory.</li> <li>2) Figures to the right indicates full marks.</li> <li>3) Illustrate your answers with sketches wherever necessary.</li> <li>4) Assume suitable data if necessary.</li> </ul>	
		Section – I	
Q.2	Sol a) b) c) d)	ve any three. Given $Y = A\overline{B} + \overline{B}\overline{C} + \overline{A}C$ Implement the logical expression using NAND and NOR gates. Minimize the following Boolean expression using K – map. $Y = \sum (m1, m3, m5, m7, m10, m11, m14, m15).$ Design 16:1 multiplexer using 4:1 multiplexers only. Short Note on :  1) Arithmetic and Logic Unit or	12
Q.3	Sol a) b)	2) IC 74151 <b>ve any two.</b> Simplify the Boolean Function: $F(w,x,y,z) = \sum (1,3,7,11,15), \text{ the Don't care conditions } d(w,x,y,z) = \sum (0,2,5)$ and Implement using NAND gates. Design a 8 to 1 multiplexer by using the four variable function given by $F(A,B,C,D) = \sum m(0,1,3,4,8,9,15).$ State and prove De'Morgan's Theorems with the help of truth tables.	16
		Section – II	
Q.4	Atto a) b)	empt any three. Draw and explain SIPO shift register with waveform. Write the verilog code for JK flip flop using behavioral modeling.	12

c) Design 3 bit asynchronous down counter with waveform in detail.

Design synchronous counter which counts following sequence

Write a Verilog code for 3 line to 8 line decoder using behavioral modeling.

Explain the IC 7490. Also design MOD 9 counter using IC 7490 in detail.

**d)** Write the verilog code for full adder.

---1-2-3-4-5-6-7-8-0-1-2--- using JK flip flop

Attempt any two.

Q.5

b)

c)

16

	_	
Seat	Set	Р
No.		

	S.	.E. (	(Part – I) (New/Old) (CBCS) Computer Science COMPUTER 0	& E	ngineering
			uesday, 17-12-2019 // To 01:00 PM	,	Max. Marks: 70
Instr	uction	าร: 1	) Q. No. 1 is compulsory and sho Book.	ould b	e solved in first 30 minutes in answer
		2	2) Figures to the right indicates fu	ll mar	ks.
_			MCQ/Objective Ty	/pe (	
	tion: 3				Marks: 14
Q.1	<b>Choo</b> 1)	The	the correct alternatives from the property that adjacent pixels on aracteristics is called spatial coherence coherence		
	2)	by a	e process of changing the sizes, on a mathematical operation is calle Rotation Transformation		•
	3)		ixel from where we start filling is PEL Seed	know b) d)	n as Root None of the above
	4)	a)	tance between the actual line and Error term Resolution	d nea b) d)	rest grid location is Rasterization Intensity
	5)	In _ a) c)	Scaling, always Sx=Sy. Uniform Complex	b) d)	Non uniform None of these
	6)	Tou a) c)	uch panels are in nature. Electrical Acoustic	b) d)	Optical All of the above
	7)	Ref	flection matrix $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ is used for _		
		a)	Y = X X = 0	b)	Y = -X Y = 0
	8)	The a) c)	e line segment is, visible if both e 0000 0101	nd po b) d)	ints codes are 1111 1010
	9)	The a) c)	e Bezier curve is contained with the Concave Elliptical	he b) d)	

Set P

10)	represented as of a sign a) precision		•		
	c) procedure	d)	function		
11)	The window co-ordinates are	e called as	Co-ordinates.		
	a) World	b)	Screen		
	c) Normal	d)	Scalar		
12)	is a unit of display file				
,	a) Segment	b)	Byte		
	c) LOC	ď)	None of these		
13)	algorithm is used for o	clipping the lir	ne.		
,	a) Sutherland-Cohen	b)	DDA		
	c) Bresenham's	d)	Iran-Sutherland		
14)	Z-Buffer algorithm consists of frame buffer &				
	a) pixel buffer	b)	depth buffer		
	c) image buffer	d)	none of these		

Seat	Set	Р
No.		

# S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER GRAPHICS

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Q.2 Attempt any three 12 Draw and explain refresh CRT. Explain fence fill algorithm. b) Describe 2D shearing with diagram. c) Describe 3D rotation about axis parallel to co-ordinate axis. d) Consider an object ABC with co-ordinates A(1,1) b(10, 0) and c(5, 5). Perform 80 Q.3 following transformation on the object in given order. 1) Translate object by 3 and 2 factors in X and Y direction respectively Compress the object by 65% 2) Reflect the object about Y-axis OR What is an error term? Write and explain generalized Bresenham's line drawing algorithm and plot intermediate points for line from (0, 0) to (-5, -4). Q.4 Explain 2D rotation about an arbitrary point with example. 80 Section - II 12 Q.5 Attempt any three Explain display file compilation in detail. Explain parametric curves in detail. b) Explain midpoint sub division algo in detail. c) State advantages and disadvantages of Z-Buffer. What is segment? Explain segmented display files in detail with all its functions. 80 **Q.6** OR Explain antialiasing & half toning techniques in detail. Write a note on. 80 Q.7 Back face removal algorithm a) Painter's algorithm b)

	S	.E. (	Computer	(CBCS) Exa Science & E PUTER GRAF	
-			uesday, 17-12-2019 // To 01:00 PM		Max. Marks: 70
Insti	uctio		I) Q. No. 1 is compulso Book. 2) Figures to the right in		e solved in first 30 minutes in answer
		-	, ,	ective Type (	
Dura	ition: 3	30 M	inutes	cuve Type (	Marks: 14
Q.1	<b>Cho</b> (1)		the correct alternative e line segment is, visible 0000 0101	•	
	2)	a)	e Bezier curve is contai Concave Elliptical	ned with the b) d)	hull of defining polygon.  Convex  All
	3)		orogrammatic curve ead resented as of a precision procedure		•
	4)		e window co-ordinates a World Normal	are called as b) d)	Co-ordinates. Screen Scalar
	5)		is a unit of display f Segment LOC	ile. b) d)	Byte None of these
	6)	a) c)	algorithm is used for Sutherland-Cohen Bresenham's		
	7)	Z-E a) c)	Buffer algorithm consists pixel buffer image buffer	s of frame buffe b) d)	
	8)		e property that adjacent aracteristics is called spatial coherence coherence	•	an line are likely to have same area coherence pixel coherence
	9)		e process of changing t a mathematical operation Rotation Transformation		ations or positions of any object Scaling None of these
	10)	-	oixel from where we sta	_	n as Root

c) Seed

None of the above

Set Q

11)	Distance between the actual line and		rest grid location is
	a) Error term	b)	Rasterization
	c) Resolution	ď)	Intensity
12)	In Scaling, always Sx=Sy.		
	a) Uniform	b)	Non uniform
	c) Complex	ď)	None of these
13)	Touch panels are in nature.		
	a) Electrical	b)	Optical
	c) Acoustic	ď)	All of the above
14)	Reflection matrix $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ is used for _		<u>.</u>
	a) Y = X	b)	Y = -X
	c) $X = 0$	,	Y = 0
	$O_j  A = 0$	u)	1 – 0

Seat No.	Set Q
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# S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER GRAPHICS

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Q.2 Attempt any three 12 Draw and explain refresh CRT. Explain fence fill algorithm. b) Describe 2D shearing with diagram. c) Describe 3D rotation about axis parallel to co-ordinate axis. d) Consider an object ABC with co-ordinates A(1,1) b(10, 0) and c(5, 5). Perform 80 Q.3 following transformation on the object in given order. 1) Translate object by 3 and 2 factors in X and Y direction respectively Compress the object by 65% 2) Reflect the object about Y-axis OR What is an error term? Write and explain generalized Bresenham's line drawing algorithm and plot intermediate points for line from (0, 0) to (-5, -4). Q.4 Explain 2D rotation about an arbitrary point with example. 80 Section - II 12 Q.5 Attempt any three Explain display file compilation in detail. Explain parametric curves in detail. b) Explain midpoint sub division algo in detail. c) State advantages and disadvantages of Z-Buffer. What is segment? Explain segmented display files in detail with all its functions. 80 Q.6 OR Explain antialiasing & half toning techniques in detail. Q.7 Write a note on. 80 Back face removal algorithm a) Painter's algorithm b)

Seat	Set	R
No.	Jet l	11

# S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019

		Computer Scien COMPUTER		
•		e: Tuesday, 17-12-2019 00 AM To 01:00 PM		Max. Marks: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory and a	should I	pe solved in first 30 minutes in answer
		2) Figures to the right indicates	full ma	rks.
		MCQ/Objective	Туре	Questions
Dura	ition: 3	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	ose the correct alternatives from In Scaling, always Sx=Sy.	•	
		<ul><li>a) Uniform</li><li>c) Complex</li></ul>	b) d)	Non uniform None of these
	2)	Touch panels are in nature		
		<ul><li>a) Electrical</li><li>c) Acoustic</li></ul>	b) d)	Optical All of the above
	3)	Reflection matrix $\begin{vmatrix} 0 & 1 \\ 1 & 0 \end{vmatrix}$ is used for	,	
		a) Y = X c) X = 0	b)	Y = -X Y = 0
	4)	The line segment is, visible if both a) 0000 c) 0101	n end po b) d)	oints codes are 1111 1010
	5)	The Bezier curve is contained wit	h the _	hull of defining polygon.
		<ul><li>a) Concave</li><li>c) Elliptical</li></ul>	b) d)	Convex All
	6)	In programmatic curve each co-o represented as of a single a) precision c) procedure		· · · · · · · · · · · · · · · · · · ·
	7)	The window co-ordinates are call a) World c) Normal	ed as _ b) d)	Co-ordinates. Screen Scalar
	8)	is a unit of display file. a) Segment c) LOC	b) d)	Byte None of these
	9)	algorithm is used for clippi a) Sutherland-Cohen c) Bresenham's	ng the I b) d)	ine. DDA Iran-Sutherland
	10)	<ul><li>Z-Buffer algorithm consists of fram</li><li>a) pixel buffer</li><li>c) image buffer</li></ul>	me buffe b) d)	er & depth buffer none of these

Set R

11)	The property that adjacent pixels on characteristics is called	a sca	n line are likely to have same
	a) spatial coherence	b)	area coherence
	c) coherence	d)	pixel coherence
12)	The process of changing the sizes, of by a mathematical operation is called a) Rotation		
	c) Transformation	ď)	None of these
13)	A pixel from where we start filling is	knowr	n as
	a) PEL	b)	Root
	c) Seed	d)	None of the above
14)	Distance between the actual line and	d nea	rest grid location is
	a) Error term	b)	Rasterization
	c) Resolution	d)	Intensity

Seat No.		Set	R
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# S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER GRAPHICS

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Q.2 Attempt any three 12 Draw and explain refresh CRT. Explain fence fill algorithm. b) Describe 2D shearing with diagram. c) Describe 3D rotation about axis parallel to co-ordinate axis. d) Consider an object ABC with co-ordinates A(1,1) b(10, 0) and c(5, 5). Perform 80 Q.3 following transformation on the object in given order. 1) Translate object by 3 and 2 factors in X and Y direction respectively Compress the object by 65% 2) Reflect the object about Y-axis OR What is an error term? Write and explain generalized Bresenham's line drawing algorithm and plot intermediate points for line from (0, 0) to (-5, -4). Q.4 Explain 2D rotation about an arbitrary point with example. 80 Section - II 12 Q.5 Attempt any three Explain display file compilation in detail. Explain parametric curves in detail. b) Explain midpoint sub division algo in detail. c) State advantages and disadvantages of Z-Buffer. What is segment? Explain segmented display files in detail with all its functions. 80 **Q.6** OR Explain antialiasing & half toning techniques in detail. Q.7 Write a note on. 80 Back face removal algorithm a) Painter's algorithm b)

Seat		
No.	Set	S

	S.	E. (Part – I) (New/Old) (CBC). Computer Scienc	e & E	ingineering
		COMPUTER	GRA	
•		e: Tuesday, 17-12-2019 0 AM To 01:00 PM		Max. Marks: 70
Instr	uctior	ns: 1) Q. No. 1 is compulsory and sl Book.	hould b	be solved in first 30 minutes in answer
		2) Figures to the right indicates	full ma	rks.
		MCQ/Objective 7	Гуре	Questions
Dura	tion: 3	0 Minutes		Marks: 14
Q.1	<b>Choo</b> 1)	In programmatic curve each co-ord represented as of a single part a) precision  c) procedure	dinate	of a point on a curve is
	2)	The window co-ordinates are calle a) World c) Normal	d as _ b) d)	Co-ordinates. Screen Scalar
	3)	is a unit of display file. a) Segment c) LOC	b) d)	Byte None of these
	4)	<ul><li>algorithm is used for clippin</li><li>Sutherland-Cohen</li><li>Bresenham's</li></ul>	g the li b) d)	ine. DDA Iran-Sutherland
	5)	<ul><li>Z-Buffer algorithm consists of fram</li><li>a) pixel buffer</li><li>c) image buffer</li></ul>	e buffe b) d)	er & depth buffer none of these
	6)	The property that adjacent pixels of characteristics is called  a) spatial coherence c) coherence	on a sc b) d)	an line are likely to have same area coherence pixel coherence
	7)	The process of changing the sizes by a mathematical operation is cal a) Rotation c) Transformation		
	8)	A pixel from where we start filling is a) PEL c) Seed	s know b) d)	n as Root None of the above
	9)	Distance between the actual line a a) Error term c) Resolution	nd nea b) d)	arest grid location is Rasterization Intensity
	10)	In Scaling, always Sx=Sy. a) Uniform c) Complex	b) d)	Non uniform None of these

Set S

11)	Touch panels are in nature. a) Electrical c) Acoustic	b) d)	Optical All of the above
12)	Reflection matrix $\begin{vmatrix} 0 & 1 \\ 1 & 0 \end{vmatrix}$ is used for		<u>.</u>
	a) Y = X		Y = -X
	c) X = 0	,	Y = 0
13)	The line segment is, visible if both	end po	oints codes are
,	a) 0000	b)	1111
	c) 0101	ď)	1010
14)	The Bezier curve is contained with	the	hull of defining polygon.
	a) Concave	b)	Convex
	c) Elliptical	ď)	All

Seat No.	Set S
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# S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER GRAPHICS

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Q.2 Attempt any three 12 Draw and explain refresh CRT. Explain fence fill algorithm. b) Describe 2D shearing with diagram. c) Describe 3D rotation about axis parallel to co-ordinate axis. d) Consider an object ABC with co-ordinates A(1,1) b(10, 0) and c(5, 5). Perform 80 Q.3 following transformation on the object in given order. 1) Translate object by 3 and 2 factors in X and Y direction respectively Compress the object by 65% 2) Reflect the object about Y-axis OR What is an error term? Write and explain generalized Bresenham's line drawing algorithm and plot intermediate points for line from (0, 0) to (-5, -4). Q.4 Explain 2D rotation about an arbitrary point with example. 80 Section - II 12 Q.5 Attempt any three Explain display file compilation in detail. Explain parametric curves in detail. b) Explain midpoint sub division algo in detail. c) State advantages and disadvantages of Z-Buffer. What is segment? Explain segmented display files in detail with all its functions. 80 **Q.6** OR Explain antialiasing & half toning techniques in detail. Write a note on. 80 Q.7 Back face removal algorithm a) Painter's algorithm b)

Seat	Set	D
No.	Set	

#### S.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – II**

Day & Date: Friday,22-11-2019 Max. Marks: 70

Time: 02:30 PM To 05:30 PM

Instructions: 1) Q. No. 1 is compulsory. It should be solved in first 30 minutes in answer book.

- 2) Answer MCQ / objective type questions on page no 3 only. Don't forget to mention, Q. P. Set (P/Q/R/S) on Top of page.
- 3) Figures to the right indicates full marks.

		4) Use of non-programmable cal	culato	or is allowed.	
		MCQ/Objective T	ype	Questions	
Dura	tion: 3	30 Minutes	<b>,</b> ,		ks: 14
Q.1		ose the correct alternatives from tence.	he op	tions and rewrite the	14
	1)	The first approximation to real root Regula falsi method is a) 0.6851 c) 0.6581	of the b) d)	equation $x - \cos x = 0$ by  1.6851 0.8651	
	2)	Identify, which of the following methal a) Regula falsi method c) Both a and b	hod ha b) d)	as quadratic convergence? Newton - Raphson method Romberg's method	
	3)	The number of strips required in W a) A Multiple of 6 c) A Multiple of 3	eddel b) d)	s rule is A multiple of 10 A multiple of 2	
	4)	Identify the method of solving simu coefficient matrix is expressed as t triangular matrices.	he pro	duct of a lower and upper	
		a) Gauss-Jacobi's method	b)	Gauss-Jordan method	

- c) Gauss-Elimination method
- d) Factorization method

5) For the data

t:	0	0.5	1	1.5	2
f(t):	0	0.25	1	2.25	4

The value of  $\int_0^2 f(t)dt$  by Simpson's  $\frac{1}{3}^{rd}$  rule is \_\_\_\_\_.

a) 2.66668

2.66667

c) 2.66669

- d) None
- If  $I_1$  and  $I_2$  denotes approximate value of  $I = \int_a^b f(x) dx$  in the Romberg's 6) method then I = \_\_\_\_\_.
  - a)  $I_2 \left[ \frac{I_2 I_1}{3} \right]$

b)  $I_2 + \left[ \frac{I_1 + I_2}{3} \right]$ 

c)  $\frac{1}{4}[3I_2 - I_1]$ 

None

# Set P

7)	The	e dominant eigen value of the mat	trix A	$=\begin{bmatrix}1&2\\2&4\end{bmatrix}$ is
	a) c)	0.3722 5.3723	b)	-5.3723 10.7445
8)	Wh	ich of the following is true for fuzz $\overline{A \cup B} = \overline{A} \cup \overline{B}$	y set	
	c)	$\bar{A} \subseteq A$	,	$A \subseteq \bar{A}$
9)		e scalar cardinality of fuzzy set A $(x) = 1 + \frac{x}{10}, x \in \{0, -1, -2, -3, -4\}$		
	a) c)	3 4	b) d)	
10)	a) b) c)	extension principle the gradiation of $[f(A)](y) = \text{Max}\{A(x)\}\ y = f(x)$ $[f(A)](y) = \text{Min}\{A(x)\}\ y = f(x)$ [f(A)](y) = A(x) None of these	)	ages are defined as
11)	B(: a)	nsider the fuzzy set defined by the $x$ ) = $e^{-x}$ , $x \in [0, \infty)$ , then level se $(0,1)$ $(0,1]$		•
12)	If A a) c)	is a fuzzy number then boundary Unbounded Finite	of A b) d)	is Bounded None of these
13)	a)	asible solution satisfies Only constraints Both a and b	b) d)	Only non-negative restrictions None of these
14)	The a) c)	e assignment problem is said to b Rectangular matrix Unit matrix	e bala b) d)	anced if it is Triangular matrix Square matrix

Seat No.

#### S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – II**

Day & Date: Friday,22-11-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

- 2) Figures to the right indicates full marks.
- 3) Use of non-programmable calculator is allowed.

#### Section - I

#### **Q.2** Attempt any three.

09

- Find a real root of the equation  $e^x = x^3 + \cos 25x$  take  $x_0 = 4.5$  by using Newton – Raphson method correct to 3 decimal places.
- Find positive root of the equation  $x \log_{10} x = 1.2$  by using false-position b) method correct to 3 decimal places.
- Solve the system of equations by using Gauss-Jacobi method. c)

$$x - y + z = 1$$
,  $-3x + 2y - 3z = -6$ ,  $2x - 5y + 4z = 5$ 

d) Solve the system of equations by using Gauss-Jacobi method.

$$8x - 3y + 2z = 20$$
,  $4x + 11y - z = 33$ ,  $6x + 3y + 12z = 35$ 

Using Power method find eigen values and corresponding eigen vectors. e)

$$A = \begin{bmatrix} 5 & 0 & 1 \\ 0 & -2 & 0 \\ 1 & 0 & 5 \end{bmatrix} \qquad Take \ x_0 = \begin{bmatrix} 1 & 0 & 0 \end{bmatrix}^T$$

Perform 5 iterations.

#### Q.3 Attempt any three.

09

Solve the system of education by using Gauss-Seidal method (perform 3

$$83x + 11y - 4z = 95$$
,  $7x + 52y + 13z = 104$   $3x + 8y + 29z = 71$ 

- Evaluate  $\int_4^{5.2} \log_e x \ dx$  by using Trapezoidal rule take n = 6. Evaluate  $\int_0^{1/2} \int_0^{1/2} \frac{\sin xy}{1+xy} dx \ dy$

By using Simpson's rule with  $h = k = \frac{1}{4}$ 

- By using Weddel's rule find  $\int_0^{0.6} e^{-x^2} dx$  by taking n = 6 d)
- Find the double root of the equation  $x^3 x^2 x + 1 = 0$  Choosing  $x_0 = 0.8$ by using generalized Newton-Raphson method.

### Attempt any two.

10

Apply factorization method to solve the equations.

$$3x + 2y + 7z = 4$$
,  $2x + 3y + z = 5$ ,  $3x + 4y + z = 7$ 

b) Perform two iterations of Newton-Raphson method to find a solution of the

$$x^2 + xy = 6$$
,  $x^2 - y^2 = 3$  Take  $x_0 = y_0 = 1$   
**c)** Evaluate by using Romberg's method.

$$I = \int_0^1 \frac{dx}{1+x^2}$$
 Take h = 0.5, 0.25, 0.125 respectively.

09

#### Section - II

#### Attempt any three from the following Q.5

Let A, B be fuzzy sets defined on universal set  $X = \{-5, -4, -3, -2, -1, 0, 1, 2, 3\}$  as

$$A = \frac{1}{-5} + \frac{0.75}{-4} + \frac{0.20}{-3} + \frac{0.8}{-2} + \frac{0.32}{-1} + \frac{0.28}{0} + \frac{0.9}{1} + \frac{0.65}{2} + \frac{1}{3}$$

$$B = \frac{0}{-5} + \frac{0.80}{-4} + \frac{0.20}{-3} + \frac{0.70}{-2} + \frac{0.20}{-1} + \frac{0.15}{0} + \frac{1}{1} + \frac{0.60}{2} + \frac{1}{3}$$
  
Find S(A,B), S(B,A)

Find strong  $\alpha$  – cuts of the fuzzy set A defined by the membership function. b)

$$A(x) = \begin{cases} \frac{x - 10}{20}, & 10 \le x \le 30\\ \frac{40 - x}{10}, & 30 < x \le 40\\ 0, & \text{otherwise} \end{cases}$$

For  $\alpha = 0, 0.3, 0.9$ 

Verify which of the following fuzzy sets are fuzzy numbers. c)

i) 
$$A = \frac{1}{1} + \frac{0.5}{2} + \frac{0.6}{3} + \frac{0.7}{4} + \frac{0.8}{5}$$

- iii) Customer Relationship Management (CRM).

Let A be a Fuzzy set defined on universal set d)  $X = \{-3, -2, -1, 0, 1, 2, 3\}$  by the membership function.  $A(x) = \frac{x+3}{10}$ ,  $\forall x \in X$  and f be a function defined on X as  $f(x) = 2x^2 + 10$ . Then find f(A).

Solve  $\text{Max } Z = 3x_1 + 4x_2$  subject to constraints

$$x_1 - x_2 \le 1, -x_1 + x_2 \le 2, x_1, x_2 \ge 0$$

#### Attempt any three from the following **Q.6**

A building firm possesses four cranes each of which has a distance (km) from four different construction sites as shown in following table.

	I	ll	III	IV
C 1	90	75	75	80
C 2	35	85	55	65
C 3	125	95	90	105
C 4	45	110	95	115

Place the cranes [one for each construction site] in such a way that the overall distance required for the transfer is as small as possible.

Solve the fuzzy equation A + X = B where A, B are fuzzy numbers defined by the membership functions.

$$A(x) = \begin{cases} \frac{x-9}{2}, & 9 \le x \le 11\\ \frac{14-x}{3}, & 11 < x \le 14\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} x - 5, & 5 \le x \le 6\\ \frac{9 - x}{3}, & 6 < x \le 9\\ 0, & \text{otherwise} \end{cases}$$

09

- **c)** Let A be a fuzzy set defined on universal set  $x = \{0,1,2,3,4,5\}$  by the membership function  $A(x) = e^{-x}$ ,  $\forall x \in X$ . Then fuzzy cardinality of A.
- **d)** Let A, B be any two fuzzy sets defined on universal set X and  $\alpha, \beta \in [0,1]$ . Then prove that
  - i)  $\alpha(A \cap B) = \alpha A \cap \alpha B$
  - ii) If  $\alpha \leq \beta$  then  $\beta_A \subseteq \alpha_B$
- **e)** Let A be a fuzzy set defined on universal set [-1, 1] By the membership function

$$A(x) = \begin{cases} x + 1, & -1 \le x \le 0 \\ 1 - x, & 0 < x \le 1 \end{cases}$$

Find:

- i) Boundary of A.
- ii) Core of A.
- Q.7 Attempt any two from the following

10

- Solve  $Max\ Z = 3x_1 + 5x_2 + 4x_3$  subject to constraints  $2x_1 + 3x_2 \le 8$ ,  $2x_2 + 5x_3 \le 10$ ,  $3x_1 + 2x_2 + 4x_3 \le 15$   $x_1, x_2, x_3 \ge 0$
- b) Let A, B be the fuzzy numbers defined by the membership functions.

$$A(x) = \begin{cases} \frac{x-1}{4}, & 1 \le x \le 15\\ 6-x, & 5 < x \le 6\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x-6}{4}, & 6 \le x \le 10\\ 11-x, & 10 < x \le 11\\ 0, & \text{otherwise} \end{cases}$$

Find MAX(A, B)

c) Let A, B be the fuzzy numbers defined by the membership functions

$$A(x) = \begin{cases} \frac{x+5}{2}, & -5 \le x \le -3\\ \frac{-x}{3}, & -3 < x \le 0\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x}{2}, & 0 \le x \le 2\\ \frac{5-x}{3}, & 2 < x \le 5\\ 0, & \text{otherwise} \end{cases}$$

Find a fuzzy number A.B

Seat No.		Set	Q
	S E /Dort I	Now) (CBCS) Examination Nov/Dec 2010	

# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

			Computer Science APPLIED MATH		
•			day,22-11-2019 1 To 05:30 PM		Max. Marks: 70
Instr	uctior	ıs: 1	•	ld be	solved in first 30 minutes in answer
		3	book.  2) Answer MCQ / objective type of mention, Q. P. Set (P/Q/R/S) or Significant to the right indicates full the control of the control o	n Top II mai	·ks.
Б		O 1 4.	MCQ/Objective Ty	/pe (	
	tion: 3				Marks: 14
Q.1	Sente		the correct alternatives from the	e op	tions and rewrite the 14
	1)	Wh	ich of the following is true for fuz		
		,	$\overline{A \cup B} = \overline{A} \cup \overline{B}$	•	$\overline{A \cap B} = \overline{A} \cup \overline{B}$
	- \	,	$\bar{A} \subseteq A$	d)	$A \subseteq \bar{A}$
	2)		e scalar cardinality of fuzzy set A		
			$x(x) = 1 + \frac{x}{10}, x \in \{0, -1, -2, -3, -4\}$	b)	
		a) c)		d)	4.5
	3)	a) b) c)	extension principle the gradiation $[f(A)](y) = \text{Max}\{A(x)\}\ y = f(x)$ $[f(A)](y) = \text{Min}\{A(x)\}\ y = f(x)$ $[f(A)](y) = A(x)$ None of these	)	ages are defined as
	4)		nsider the fuzzy set defined by th		•
			$x)=e^{-x}, x\in [0,\infty),  ext{ then level set} \ (0,1)$		
		-	(0,1]	d)	[0,1)
	5)	If A a) c)	is a fuzzy number then boundary Unbounded Finite	y of A b) d)	is Bounded None of these
	6)	Fea	asible solution satisfies	_•	
		a) c)	Only constraints Both a and b	b) d)	Only non-negative restrictions  None of these
	7)		assignment problem is said to b		
		a) c)	Rectangular matrix Unit matrix	b) d)	Triangular matrix Square matrix

# Set Q

8)	The first approximation to real root of the equation $x - \cos x = 0$ by Regula falsi method is									
	a) c)	0.6851				b) d)	1.685 0.865			
9)	Identify, which of the following method  a) Regula falsi method  c) Both a and b					Newt		hson meth		
10)	The number of strips required in Wea a) A Multiple of 6 c) A Multiple of 3				b)	del's rule is b) A multiple of 10 d) A multiple of 2				
11)	Identify the method of solving simult coefficient matrix is expressed as th triangular matrices.  a) Gauss-Jacobi's method c) Gauss-Elimination method			d as the	e prod b)	duct of Gaus	f a lower	and upper	the	
12)		t: f(t): e value of	$ \begin{array}{c c} 0 \\ 0 \\ f \int_0^2 f(t) dt \end{array} $	0.5 0.25 dt by Sim	1 1 pson's	$\frac{1}{3}^{rd}$ ru	1.5 2.25 Ile is _ 2.666			
13)	c) If $I_1$ me a)	2.66669	denotes a $I = \underline{\qquad}$ $\left[ -\frac{I_1}{3} \right]$			d) ue of	None $I = \int_a^b$	$f(x)dx = \left[\frac{I_1 + I_2}{3}\right]$	n the Romb	perg's
14)	The a) c)	0.3722	nt eigen	value of	the ma	b)	$= \begin{bmatrix} 1 \\ 3 \\ -5.37 \\ 10.74 \end{bmatrix}$	23	·	

Seat No.

### S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – II**

Day & Date: Friday,22-11-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

- 2) Figures to the right indicates full marks.
- 3) Use of non-programmable calculator is allowed.

#### Section - I

#### **Q.2** Attempt any three.

09

- Find a real root of the equation  $e^x = x^3 + \cos 25x$  take  $x_0 = 4.5$  by using Newton – Raphson method correct to 3 decimal places.
- Find positive root of the equation  $x \log_{10} x = 1.2$  by using false-position b) method correct to 3 decimal places.
- Solve the system of equations by using Gauss-Jacobi method. c)

$$x - y + z = 1$$
,  $-3x + 2y - 3z = -6$ ,  $2x - 5y + 4z = 5$ 

d) Solve the system of equations by using Gauss-Jacobi method.

$$8x - 3y + 2z = 20$$
,  $4x + 11y - z = 33$ ,  $6x + 3y + 12z = 35$ 

Using Power method find eigen values and corresponding eigen vectors. e)

$$A = \begin{bmatrix} 5 & 0 & 1 \\ 0 & -2 & 0 \\ 1 & 0 & 5 \end{bmatrix} \qquad Take \ x_0 = \begin{bmatrix} 1 & 0 & 0 \end{bmatrix}^T$$

Perform 5 iterations.

#### Q.3 Attempt any three.

09

Solve the system of education by using Gauss-Seidal method (perform 3

$$83x + 11y - 4z = 95$$
,  $7x + 52y + 13z = 104$   $3x + 8y + 29z = 71$ 

- Evaluate  $\int_4^{5.2} \log_e x \ dx$  by using Trapezoidal rule take n = 6. Evaluate  $\int_0^{1/2} \int_0^{1/2} \frac{\sin xy}{1+xy} dx \ dy$

By using Simpson's rule with  $h = k = \frac{1}{4}$ 

- By using Weddel's rule find  $\int_0^{0.6} e^{-x^2} dx$  by taking n = 6 d)
- Find the double root of the equation  $x^3 x^2 x + 1 = 0$  Choosing  $x_0 = 0.8$ by using generalized Newton-Raphson method.

## Attempt any two.

10

Apply factorization method to solve the equations.

$$3x + 2y + 7z = 4$$
,  $2x + 3y + z = 5$ ,  $3x + 4y + z = 7$ 

b) Perform two iterations of Newton-Raphson method to find a solution of the

$$x^2 + xy = 6$$
,  $x^2 - y^2 = 3$  Take  $x_0 = y_0 = 1$   
**c)** Evaluate by using Romberg's method.

 $I = \int_0^1 \frac{dx}{1+x^2}$  Take h = 0.5, 0.25, 0.125 respectively.

09

#### Section - II

#### Attempt any three from the following Q.5

Let A, B be fuzzy sets defined on universal set  $X = \{-5, -4, -3, -2, -1, 0, 1, 2, 3\}$  as

$$A = \frac{1}{-5} + \frac{0.75}{-4} + \frac{0.20}{-3} + \frac{0.8}{-2} + \frac{0.32}{-1} + \frac{0.28}{0} + \frac{0.9}{1} + \frac{0.65}{2} + \frac{1}{3}$$

$$B = \frac{0}{-5} + \frac{0.80}{-4} + \frac{0.20}{-3} + \frac{0.70}{-2} + \frac{0.20}{-1} + \frac{0.15}{0} + \frac{1}{1} + \frac{0.60}{2} + \frac{1}{3}$$
  
Find S(A,B), S(B,A)

Find strong  $\alpha$  – cuts of the fuzzy set A defined by the membership function. b)

$$A(x) = \begin{cases} \frac{x - 10}{20}, & 10 \le x \le 30\\ \frac{40 - x}{10}, & 30 < x \le 40\\ 0, & \text{otherwise} \end{cases}$$

For  $\alpha = 0, 0.3, 0.9$ 

Verify which of the following fuzzy sets are fuzzy numbers. c)

i) 
$$A = \frac{1}{1} + \frac{0.5}{2} + \frac{0.6}{3} + \frac{0.7}{4} + \frac{0.8}{5}$$

iii) Customer Relationship Management (CRM).

Let A be a Fuzzy set defined on universal set d)

 $X = \{-3, -2, -1, 0, 1, 2, 3\}$  by the membership function.

 $A(x) = \frac{x+3}{10}$ ,  $\forall x \in X$  and f be a function defined on X as  $f(x) = 2x^2 + 10$ . Then find f(A).

Solve  $\text{Max } Z = 3x_1 + 4x_2$  subject to constraints

$$x_1 - x_2 \le 1, -x_1 + x_2 \le 2, x_1, x_2 \ge 0$$

#### Attempt any three from the following **Q.6**

A building firm possesses four cranes each of which has a distance (km) from four different construction sites as shown in following table.

	I	ll	III	IV
C 1	90	75	75	80
C 2	35	85	55	65
C 3	125	95	90	105
C 4	45	110	95	115

Place the cranes [one for each construction site] in such a way that the overall distance required for the transfer is as small as possible.

Solve the fuzzy equation A + X = B where A, B are fuzzy numbers defined by the membership functions.

$$A(x) = \begin{cases} \frac{x-9}{2}, & 9 \le x \le 11\\ \frac{14-x}{3}, & 11 < x \le 14\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} x - 5, & 5 \le x \le 6\\ \frac{9 - x}{3}, & 6 < x \le 9\\ 0, & \text{otherwise} \end{cases}$$

09

- **c)** Let A be a fuzzy set defined on universal set  $x = \{0,1,2,3,4,5\}$  by the membership function  $A(x) = e^{-x}$ ,  $\forall x \in X$ . Then fuzzy cardinality of A.
- **d)** Let A, B be any two fuzzy sets defined on universal set X and  $\alpha, \beta \in [0,1]$ . Then prove that
  - i)  $\alpha(A \cap B) = \alpha A \cap \alpha B$
  - ii) If  $\alpha \leq \beta$  then  $\beta_A \subseteq \alpha_B$
- **e)** Let A be a fuzzy set defined on universal set [-1, 1] By the membership function

$$A(x) = \begin{cases} x+1, & -1 \le x \le 0 \\ 1-x, & 0 < x \le 1 \end{cases}$$

Find:

- i) Boundary of A.
- ii) Core of A.

#### Q.7 Attempt any two from the following

10

- Solve  $Max\ Z = 3x_1 + 5x_2 + 4x_3$  subject to constraints  $2x_1 + 3x_2 \le 8$ ,  $2x_2 + 5x_3 \le 10$ ,  $3x_1 + 2x_2 + 4x_3 \le 15$   $x_1, x_2, x_3 \ge 0$
- b) Let A, B be the fuzzy numbers defined by the membership functions.

$$A(x) = \begin{cases} \frac{x-1}{4}, & 1 \le x \le 15\\ 6-x, & 5 < x \le 6\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x-6}{4}, & 6 \le x \le 10\\ 11-x, & 10 < x \le 11\\ 0, & \text{otherwise} \end{cases}$$

Find MAX(A, B)

c) Let A, B be the fuzzy numbers defined by the membership functions

$$A(x) = \begin{cases} \frac{x+5}{2}, & -5 \le x \le -3\\ \frac{-x}{3}, & -3 < x \le 0\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x}{2}, & 0 \le x \le 2\\ \frac{5-x}{3}, & 2 < x \le 5\\ 0, & \text{otherwise} \end{cases}$$

Find a fuzzy number A.B

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## S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – II**

Day & Date: Friday,22-11-2019

Max. Marks: 70

Time: 02:30 PM To 05:30 PM

Instructions: 1) Q. No. 1 is compulsory. It should be solved in first 30 minutes in answer book.

- 2) Answer MCQ / objective type questions on page no 3 only. Don't forget to mention, Q. P. Set (P/Q/R/S) on Top of page.
- Figures to the right indicates full marks.
- 4) Use of non-programmable calculator is allowed.

## MCQ/Objective Type Questions

**Duration: 30 Minutes** Marks: 14

#### Q.1 Choose the correct alternatives from the options and rewrite the sentence.

14

1) For the data

t:	0	0.5	1	1.5	2
f(t):	0	0.25	1	2.25	4

The value of  $\int_0^2 f(t)dt$  by Simpson's  $\frac{1}{3}^{rd}$  rule is \_\_\_\_\_

a) 2.66668

2.66667

c) 2.66669

- If  $I_1$  and  $I_2$  denotes approximate value of  $I = \int_a^b f(x) dx$  in the Romberg's 2) method then I =

a) 
$$I_2 - \left[\frac{I_2 - I_1}{3}\right]$$

b) 
$$I_2 + \left[ \frac{I_1 + I_2}{3} \right]$$
 d) None

c) 
$$\frac{1}{4}[3I_2 - I_1]$$

- 3) The dominant eigen value of the matrix  $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$  is \_\_\_\_\_.
  - a) 0.3722

-5.3723 b)

c) 5.3723

10.7445

Which of the following is true for fuzzy sets? 4)

a)  $\overline{A \cup B} = \overline{A} \cup \overline{B}$ 

 $\overline{A \cap B} = \overline{A} \cup \overline{B}$ b)

c)  $\bar{A} \subseteq A$ 

d)  $A \subseteq \bar{A}$ 

The scalar cardinality of fuzzy set A defined by the membership function 5)

 $A(x) = 1 + \frac{x}{10}, x \in \{0, -1, -2, -3, -4\} \text{ is } \underline{\hspace{1cm}}$ 

a) 3

3.5

c) 4

4.5

Set R

6)	a) b) c)	extension principle the gradiation of $[f(A)](y) = \text{Max}\{A(x)\}\ y = f(x)$ $[f(A)](y) = \text{Min}\{A(x)\}\ y = f(x)$ [f(A)](y) = A(x) None of these		ages are defined as
7)	B(z)	nsider the fuzzy set defined by the $x$ ) = $e^{-x}$ , $x \in [0, \infty)$ , then level se $(0,1)$ $(0,1]$		•
8)		is a fuzzy number then boundary Unbounded Finite	of A b) d)	is Bounded None of these
9)		asible solution satisfies Only constraints Both a and b	b) d)	Only non-negative restrictions None of these
10)		e assignment problem is said to b Rectangular matrix Unit matrix		anced if it is Triangular matrix Square matrix
11)		e first approximation to real root ogula falsi method is  0.6851  0.6581	f the 6 b) d)	equation $x - \cos x = 0$ by  1.6851 0.8651
12)	Idei a) c)	ntify, which of the following metho Regula falsi method Both a and b	bd has b) d)	s quadratic convergence? Newton - Raphson method Romberg's method
13)		e number of strips required in Wed A Multiple of 6 A Multiple of 3		rule is A multiple of 10 A multiple of 2
14)	coe tria	ntify the method of solving simulta fficient matrix is expressed as the ngular matrices.	proc	luct of a lower and upper
	a) c)	Gauss-Jacobi's method Gauss-Elimination method	b) d)	Gauss-Jordan method Factorization method

Seat No.

### S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – II**

Day & Date: Friday,22-11-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

- 2) Figures to the right indicates full marks.
- 3) Use of non-programmable calculator is allowed.

#### Section - I

#### **Q.2** Attempt any three.

09

- Find a real root of the equation  $e^x = x^3 + \cos 25x$  take  $x_0 = 4.5$  by using Newton – Raphson method correct to 3 decimal places.
- Find positive root of the equation  $x \log_{10} x = 1.2$  by using false-position b) method correct to 3 decimal places.
- Solve the system of equations by using Gauss-Jacobi method. c)

$$x - y + z = 1$$
,  $-3x + 2y - 3z = -6$ ,  $2x - 5y + 4z = 5$ 

d) Solve the system of equations by using Gauss-Jacobi method.

$$8x - 3y + 2z = 20$$
,  $4x + 11y - z = 33$ ,  $6x + 3y + 12z = 35$ 

Using Power method find eigen values and corresponding eigen vectors. e)

$$A = \begin{bmatrix} 5 & 0 & 1 \\ 0 & -2 & 0 \\ 1 & 0 & 5 \end{bmatrix} \qquad Take \ x_0 = \begin{bmatrix} 1 & 0 & 0 \end{bmatrix}^T$$

Perform 5 iterations.

#### Q.3 Attempt any three.

09

Solve the system of education by using Gauss-Seidal method (perform 3

$$83x + 11y - 4z = 95$$
,  $7x + 52y + 13z = 104$   $3x + 8y + 29z = 71$ 

- Evaluate  $\int_4^{5.2} \log_e x \ dx$  by using Trapezoidal rule take n = 6. Evaluate  $\int_0^{1/2} \int_0^{1/2} \frac{\sin xy}{1+xy} dx \ dy$

By using Simpson's rule with  $h = k = \frac{1}{4}$ 

- By using Weddel's rule find  $\int_0^{0.6} e^{-x^2} dx$  by taking n = 6 d)
- Find the double root of the equation  $x^3 x^2 x + 1 = 0$  Choosing  $x_0 = 0.8$ by using generalized Newton-Raphson method.

## Attempt any two.

10

Apply factorization method to solve the equations.

$$3x + 2y + 7z = 4$$
,  $2x + 3y + z = 5$ ,  $3x + 4y + z = 7$ 

b) Perform two iterations of Newton-Raphson method to find a solution of the

$$x^2 + xy = 6$$
,  $x^2 - y^2 = 3$  Take  $x_0 = y_0 = 1$   
**c)** Evaluate by using Romberg's method.

 $I = \int_0^1 \frac{dx}{1+x^2}$  Take h = 0.5, 0.25, 0.125 respectively.

09

#### Section - II

#### Attempt any three from the following Q.5

Let A, B be fuzzy sets defined on universal set  $X = \{-5, -4, -3, -2, -1, 0, 1, 2, 3\}$  as

$$A = \frac{1}{-5} + \frac{0.75}{-4} + \frac{0.20}{-3} + \frac{0.8}{-2} + \frac{0.32}{-1} + \frac{0.28}{0} + \frac{0.9}{1} + \frac{0.65}{2} + \frac{1}{3}$$

$$B = \frac{0}{-5} + \frac{0.80}{-4} + \frac{0.20}{-3} + \frac{0.70}{-2} + \frac{0.20}{-1} + \frac{0.15}{0} + \frac{1}{1} + \frac{0.60}{2} + \frac{1}{3}$$
  
Find S(A,B), S(B,A)

Find strong  $\alpha$  – cuts of the fuzzy set A defined by the membership function. b)

$$A(x) = \begin{cases} \frac{x - 10}{20}, & 10 \le x \le 30\\ \frac{40 - x}{10}, & 30 < x \le 40\\ 0, & \text{otherwise} \end{cases}$$

For  $\alpha = 0, 0.3, 0.9$ 

Verify which of the following fuzzy sets are fuzzy numbers. c)

i) 
$$A = \frac{1}{1} + \frac{0.5}{2} + \frac{0.6}{3} + \frac{0.7}{4} + \frac{0.8}{5}$$

- iii) Customer Relationship Management (CRM).
- d) Let A be a Fuzzy set defined on universal set

 $X = \{-3, -2, -1, 0, 1, 2, 3\}$  by the membership function.

 $A(x) = \frac{x+3}{10}$ ,  $\forall x \in X$  and f be a function defined on X as  $f(x) = 2x^2 + 10$ . Then find f(A).

Solve  $\text{Max } Z = 3x_1 + 4x_2$  subject to constraints

$$x_1 - x_2 \le 1, -x_1 + x_2 \le 2, x_1, x_2 \ge 0$$

#### Attempt any three from the following **Q.6**

A building firm possesses four cranes each of which has a distance (km) from four different construction sites as shown in following table.

	I	ll	III	IV
C 1	90	75	75	80
C 2	35	85	55	65
C 3	125	95	90	105
C 4	45	110	95	115

Place the cranes [one for each construction site] in such a way that the overall distance required for the transfer is as small as possible.

Solve the fuzzy equation A + X = B where A, B are fuzzy numbers defined by the membership functions.

$$A(x) = \begin{cases} \frac{x-9}{2}, & 9 \le x \le 11\\ \frac{14-x}{3}, & 11 < x \le 14\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} x - 5, & 5 \le x \le 6\\ \frac{9 - x}{3}, & 6 < x \le 9\\ 0, & \text{otherwise} \end{cases}$$

09

- **c)** Let A be a fuzzy set defined on universal set  $x = \{0,1,2,3,4,5\}$  by the membership function  $A(x) = e^{-x}$ ,  $\forall x \in X$ . Then fuzzy cardinality of A.
- **d)** Let A, B be any two fuzzy sets defined on universal set X and  $\alpha, \beta \in [0,1]$ . Then prove that
  - i)  $\alpha(A \cap B) = \alpha A \cap \alpha B$
  - ii) If  $\alpha \leq \beta$  then  $\beta_A \subseteq \alpha_B$
- **e)** Let A be a fuzzy set defined on universal set [-1, 1] By the membership function

$$A(x) = \begin{cases} x+1, & -1 \le x \le 0 \\ 1-x, & 0 < x \le 1 \end{cases}$$

Find:

- i) Boundary of A.
- ii) Core of A.

#### Q.7 Attempt any two from the following

10

- Solve  $Max\ Z = 3x_1 + 5x_2 + 4x_3$  subject to constraints  $2x_1 + 3x_2 \le 8$ ,  $2x_2 + 5x_3 \le 10$ ,  $3x_1 + 2x_2 + 4x_3 \le 15$   $x_1, x_2, x_3 \ge 0$
- b) Let A, B be the fuzzy numbers defined by the membership functions.

$$A(x) = \begin{cases} \frac{x-1}{4}, & 1 \le x \le 15\\ 6-x, & 5 < x \le 6\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x-6}{4}, & 6 \le x \le 10\\ 11-x, & 10 < x \le 11\\ 0, & \text{otherwise} \end{cases}$$

Find MAX(A, B)

c) Let A, B be the fuzzy numbers defined by the membership functions

$$A(x) = \begin{cases} \frac{x+5}{2}, & -5 \le x \le -3\\ \frac{-x}{3}, & -3 < x \le 0\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x}{2}, & 0 \le x \le 2\\ \frac{5-x}{3}, & 2 < x \le 5\\ 0, & \text{otherwise} \end{cases}$$

Find a fuzzy number A.B

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# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering APPLIED MATHEMATICS – II

		APPLIED MATH		
_		e: Friday,22-11-2019 0 PM To 05:30 PM		Max. Marks: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory. It should	ld be	solved in first 30 minutes in answer
		book. 2) Answer MCQ / objective type q mention, Q. P. Set (P/Q/R/S) or 3) Figures to the right indicates fu 4) Use of non-programmable calc	n Top II ma	rks.
_		MCQ/Objective Ty	/pe	
Dura	ition: 3	30 Minutes		Marks: 14
Q.1		ose the correct alternatives from the ence.  In extension principle the gradiation a) $[f(A)](y) = \text{Max}\{A(x)\}\ y = f(x)$ b) $[f(A)](y) = \text{Min}\{A(x)\}\ y = f(x)$ c) $[f(A)](y) = A(x)$ d) None of these	of im	
	2)	Consider the fuzzy set defined by the $B(x) = e^{-x}, x \in [0, \infty)$ , then level set a) (0,1) c) (0,1]		•
	3)	If A is a fuzzy number then boundary a) Unbounded c) Finite	of A b) d)	is Bounded None of these
	4)	Feasible solution satisfiesa) Only constraints c) Both a and b	b) d)	Only non-negative restrictions None of these
	5)	The assignment problem is said to b a) Rectangular matrix c) Unit matrix	e ba b) d)	lanced if it is Triangular matrix Square matrix
	6)	The first approximation to real root o Regula falsi method is  a) 0.6851 c) 0.6581	f the b) d)	equation $x - \cos x = 0$ by  1.6851 0.8651
	7)	Identify, which of the following method a) Regula falsi method c) Both a and b	od ha b) d)	ns quadratic convergence? Newton - Raphson method Romberg's method
	8)	The number of strips required in We a) A Multiple of 6 c) A Multiple of 3	ddel' b) d)	s rule is A multiple of 10 A multiple of 2

- 9) Identify the method of solving simultaneous linear equations in which the coefficient matrix is expressed as the product of a lower and upper triangular matrices.
  - a) Gauss-Jacobi's method
- b) Gauss-Jordan method
- c) Gauss-Elimination method
- d) Factorization method

10) For the data

t:	0	0.5	1	1.5	2
f(t):	0	0.25	1	2.25	4

The value of  $\int_0^2 f(t)dt$  by Simpson's  $\frac{1}{3}^{rd}$  rule is \_\_\_\_\_\_.

a) 2.66668

2.66667

c) 2.66669

- d) None
- If  $I_1$  and  $I_2$  denotes approximate value of  $I = \int_a^b f(x) dx$  in the Romberg's method then I = \_\_\_\_\_
  - a)  $I_2 \left[ \frac{I_2 I_1}{3} \right]$

b)  $I_2 + \left[ \frac{I_1 + I_2}{3} \right]$ 

c)  $\frac{1}{4}[3I_2 - I_1]$ 

- None
- The dominant eigen value of the matrix  $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$  is \_\_\_\_\_\_. 12)
  - a) 0.3722

c) 5.3723

- 10.7445
- Which of the following is true for fuzzy sets?
  - a)  $\overline{A \cup B} = \overline{A} \cup \overline{B}$

 $\overline{A \cap B} = \overline{A} \cup \overline{B}$ 

c)  $\bar{A} \subseteq A$ 

- $A \subseteq \bar{A}$
- The scalar cardinality of fuzzy set A defined by the membership function  $A(x) = 1 + \frac{x}{10}, x \in \{0, -1, -2, -3, -4\} \text{ is } \underline{\hspace{1cm}}$

3.5

c) 4

4.5

Seat No.

### S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – II**

Day & Date: Friday,22-11-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

- 2) Figures to the right indicates full marks.
- 3) Use of non-programmable calculator is allowed.

#### Section - I

#### **Q.2** Attempt any three.

09

- Find a real root of the equation  $e^x = x^3 + \cos 25x$  take  $x_0 = 4.5$  by using Newton – Raphson method correct to 3 decimal places.
- Find positive root of the equation  $x \log_{10} x = 1.2$  by using false-position b) method correct to 3 decimal places.
- Solve the system of equations by using Gauss-Jacobi method. c)

$$x - y + z = 1$$
,  $-3x + 2y - 3z = -6$ ,  $2x - 5y + 4z = 5$ 

d) Solve the system of equations by using Gauss-Jacobi method.

$$8x - 3y + 2z = 20$$
,  $4x + 11y - z = 33$ ,  $6x + 3y + 12z = 35$ 

Using Power method find eigen values and corresponding eigen vectors. e)

$$A = \begin{bmatrix} 5 & 0 & 1 \\ 0 & -2 & 0 \\ 1 & 0 & 5 \end{bmatrix} \qquad Take \ x_0 = \begin{bmatrix} 1 & 0 & 0 \end{bmatrix}^T$$

Perform 5 iterations.

#### Q.3 Attempt any three.

09

Solve the system of education by using Gauss-Seidal method (perform 3

$$83x + 11y - 4z = 95$$
,  $7x + 52y + 13z = 104$   $3x + 8y + 29z = 71$ 

- Evaluate  $\int_4^{5.2} \log_e x \ dx$  by using Trapezoidal rule take n = 6. Evaluate  $\int_0^{1/2} \int_0^{1/2} \frac{\sin xy}{1+xy} dx \ dy$

By using Simpson's rule with  $h = k = \frac{1}{4}$ 

- By using Weddel's rule find  $\int_0^{0.6} e^{-x^2} dx$  by taking n = 6 d)
- Find the double root of the equation  $x^3 x^2 x + 1 = 0$  Choosing  $x_0 = 0.8$ by using generalized Newton-Raphson method.

## Attempt any two.

10

Apply factorization method to solve the equations.

$$3x + 2y + 7z = 4$$
,  $2x + 3y + z = 5$ ,  $3x + 4y + z = 7$ 

b) Perform two iterations of Newton-Raphson method to find a solution of the

$$x^2 + xy = 6$$
,  $x^2 - y^2 = 3$  Take  $x_0 = y_0 = 1$   
**c)** Evaluate by using Romberg's method.

 $I = \int_0^1 \frac{dx}{1+x^2}$  Take h = 0.5, 0.25, 0.125 respectively.

09

#### Section - II

#### Attempt any three from the following Q.5

Let A, B be fuzzy sets defined on universal set  $X = \{-5, -4, -3, -2, -1, 0, 1, 2, 3\}$  as

$$A = \frac{1}{-5} + \frac{0.75}{-4} + \frac{0.20}{-3} + \frac{0.8}{-2} + \frac{0.32}{-1} + \frac{0.28}{0} + \frac{0.9}{1} + \frac{0.65}{2} + \frac{1}{3}$$

$$B = \frac{0}{-5} + \frac{0.80}{-4} + \frac{0.20}{-3} + \frac{0.70}{-2} + \frac{0.20}{-1} + \frac{0.15}{0} + \frac{1}{1} + \frac{0.60}{2} + \frac{1}{3}$$
  
Find S(A,B), S(B,A)

Find strong  $\alpha$  – cuts of the fuzzy set A defined by the membership function. b)

$$A(x) = \begin{cases} \frac{x - 10}{20}, & 10 \le x \le 30\\ \frac{40 - x}{10}, & 30 < x \le 40\\ 0, & \text{otherwise} \end{cases}$$

For  $\alpha = 0, 0.3, 0.9$ 

Verify which of the following fuzzy sets are fuzzy numbers. c)

i) 
$$A = \frac{1}{1} + \frac{0.5}{2} + \frac{0.6}{3} + \frac{0.7}{4} + \frac{0.8}{5}$$

- iii) Customer Relationship Management (CRM).
- d) Let A be a Fuzzy set defined on universal set

 $X = \{-3, -2, -1, 0, 1, 2, 3\}$  by the membership function.  $A(x) = \frac{x+3}{10}$ ,  $\forall x \in X$  and f be a function defined on X as  $f(x) = 2x^2 + 10$ .

Then find f(A).

Solve  $\text{Max } Z = 3x_1 + 4x_2$  subject to constraints

$$x_1 - x_2 \le 1, -x_1 + x_2 \le 2, x_1, x_2 \ge 0$$

#### Attempt any three from the following **Q.6**

A building firm possesses four cranes each of which has a distance (km) from four different construction sites as shown in following table.

	I	ll	Ш	IV
C 1	90	75	75	80
C 2	35	85	55	65
C 3	125	95	90	105
C 4	45	110	95	115

Place the cranes [one for each construction site] in such a way that the overall distance required for the transfer is as small as possible.

Solve the fuzzy equation A + X = B where A, B are fuzzy numbers defined by the membership functions.

$$A(x) = \begin{cases} \frac{x-9}{2}, & 9 \le x \le 11\\ \frac{14-x}{3}, & 11 < x \le 14\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} x - 5, & 5 \le x \le 6\\ \frac{9 - x}{3}, & 6 < x \le 9\\ 0, & \text{otherwise} \end{cases}$$

09

- **c)** Let A be a fuzzy set defined on universal set  $x = \{0,1,2,3,4,5\}$  by the membership function  $A(x) = e^{-x}$ ,  $\forall x \in X$ . Then fuzzy cardinality of A.
- **d)** Let A, B be any two fuzzy sets defined on universal set X and  $\alpha, \beta \in [0,1]$ . Then prove that
  - i)  $\alpha(A \cap B) = \alpha A \cap \alpha B$
  - ii) If  $\alpha \leq \beta$  then  $\beta_A \subseteq \alpha_B$
- **e)** Let A be a fuzzy set defined on universal set [-1, 1] By the membership function

$$A(x) = \begin{cases} x+1, & -1 \le x \le 0 \\ 1-x, & 0 < x \le 1 \end{cases}$$

Find:

- i) Boundary of A.
- ii) Core of A.

#### Q.7 Attempt any two from the following

10

- Solve  $Max\ Z = 3x_1 + 5x_2 + 4x_3$  subject to constraints  $2x_1 + 3x_2 \le 8$ ,  $2x_2 + 5x_3 \le 10$ ,  $3x_1 + 2x_2 + 4x_3 \le 15$   $x_1, x_2, x_3 \ge 0$
- **b)** Let A, B be the fuzzy numbers defined by the membership functions.

$$A(x) = \begin{cases} \frac{x-1}{4}, & 1 \le x \le 15\\ 6-x, & 5 < x \le 6\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x-6}{4}, & 6 \le x \le 10\\ 11-x, & 10 < x \le 11\\ 0, & \text{otherwise} \end{cases}$$

Find MAX(A, B)

c) Let A, B be the fuzzy numbers defined by the membership functions

$$A(x) = \begin{cases} \frac{x+5}{2}, & -5 \le x \le -3\\ \frac{-x}{3}, & -3 < x \le 0\\ 0, & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \frac{x}{2}, & 0 \le x \le 2\\ \frac{5-x}{3}, & 2 < x \le 5\\ 0, & \text{otherwise} \end{cases}$$

Find a fuzzy number A.B

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# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019

Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book. Each question carries one mark.

2) Answer MCQ/Objective type Question on page No.03 only. Don't Forget to mention, Q.P. set (P/Q/R/S) on top of the page.

### **MCQ/Objective Type Questions**

Duration: 30 Minutes Marks: 14

# Q.1 Choose the correct alternatives from the options and rewrite the sentence.

14

1) The basic limitation of FSM is that \_\_\_\_\_.

- a) It can't remember arbitrary large amount of information.
- b) It sometimes fails to recognize grammars that are not regular.
- c) It sometimes fails to recognize grammars that are regular.
- d) All of these
- 2) The string 1101 does not belong to the set represented by \_\_\_\_\_.
  - a) 110\*(0+1)

b) 1(0+1)\*101

c) (00+(11)\*0)\*1

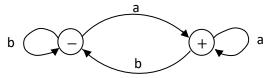
- d) (10)\*(01)\*(00+11)\*
- 3) What is the regular expression for the language generated by  $S \rightarrow as|bA, A \rightarrow d|ccA$ 
  - a) a\*bd

b)  $a^*(bd)(bcc)^*d$ 

c)  $a^*b(cc)^*d$ 

- d) None of these
- 4) Consider the FA shown in the figure given below, where "-" is the start and "+" is the ending state.

The language accepted by the FA is,



a) (a + b)\*b

b)  $(a + b)^*a$ 

c) a\*b

- d) a\*b\*
- 5) Consider the grammar 'G' as follows  $S \to aA$ ,  $A \to bbA$ ,  $A \to c$  L(G) = ?
  - a)  $L(G) = \{abbc\}$

- b)  $L(G) = \{ab^n c | n \ge 0\}$
- c)  $L(G) = \{ab^{2n}c|n > 0\}$
- d)  $L(G) = \{ab^{2n}c|n \ge 0\}$

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6)  $L_1$  has the following grammar.

 $S \rightarrow aB|BA$ 

 $A \rightarrow bAA|aS|a$ 

 $B \rightarrow b|bs|aBB$ 

L<sub>2</sub> has the following grammar.

 $S \rightarrow sbala$ 

Which of the following statement is true about?

 $L_3 = L_1 \cap L_2 \text{ and } L_4 = L_1.L_2^*$ ?

- a) Both L<sub>3</sub> and L<sub>4</sub> are not context free
- b) L<sub>3</sub> is context free but L<sub>4</sub> is not
- c) Both L<sub>3</sub> and L<sub>4</sub> are context free
- d) L<sub>4</sub> is context free, but not L<sub>3</sub>
- 7) What is regular expression corresponding to the language of strings of even length over the alphabet of {a,b}.
  - a)  $(aa + bb + ba + ab)^*$

b)  $(aa + bb)^*$ 

c)  $(ab + bb + ba)^*$ 

- d) a\*b\*a\*b\*
- 8) What is the addition in pushdown automata as compare to finite state automata?
  - a) Stack memory

b) f/p tape

c) Head

- d) None of these
- 9) CFLS are not closed under
  - a) Union

b) Kleene star

c) Complementation

d) Product

10) Consider grammar G

 $S \rightarrow AB$ ,  $A \rightarrow aAA|^{\wedge}$ ,  $B \rightarrow bBB|^{\wedge}$ 

Find the nullable symbols in the given grammar.

a) A

b) E

c) A, B and S

d) A and B

11) Consider the transition table of a TM given below. Here "b" represents the blank symbol.

The given turing machine accept

δ	0	1	b
$\rightarrow q_0$		$q_1, 0, R$	$q_2, 0, R$
$q_1$	$q_1, 0, R$	$q_0, 0, R$	1
$\overline{q_2}$	-	-	-

- a) Set of all even palindromes over {0,1}
- b) Strings over {0,1} containing even number of 1's
- c) String over {0,1} containing even no. of 1's & odd number of 0's
- d) Strings over {0,1} string with zero.
- 12) Pumping Lemma is used to prove \_\_\_\_\_.
  - a) Given language is not regular
  - b) Given language is not context free
  - c) Both (a) and (b)
  - d) None of these

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- 13) Language generated by type 2 grammar is \_\_\_\_\_.
  - a) Regular language
- Context free language b)
- c) Context sensitive language
- d) Turing recognizable language
- 14) Let  $L_1 = \{a^n b^n c^n | n \ge 0\}$   $L_2 = \{a^{2n} b^{2n} c^{2n} | n \ge 0\}$

$$L_2 = \{a^{2n}b^{2n}c^{2n}|n \ge 0\}$$

$$L_3 = \{a^{2n}b^{2n}c^n | n \ge 0\}$$

- a)  $L_1 \subseteq L_2$  and  $L_3 \subseteq L_2$
- c)  $L_2 \subseteq L_1$  and  $L_2 \nsubseteq L_3$
- b)  $L_2 \subseteq L_1$  and  $L_2 \subseteq L_3$
- d)  $L_1 \subseteq L_2$  and  $L_2 \subseteq L_3$

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		S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering THEORY OF COMPUTATION	
•		te: Saturday, 23-11-2019 Max. Marks: 30 PM To 05:30 PM	56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	Sol a) b) a) d)	ve any four.  Define DFA with suitable example.  Define Moore Machine with example.  Obtain a DFA to accept the lang. of 0's & 1's ending with 011.  Convert CFG to CNF.	16
	e)	$S \rightarrow 0A 1B$ $A \rightarrow 0AA 1S 1$ $B \rightarrow 1BB 0S 0$ Define the Regular Expression and find R.E. for	
		<ol> <li>Strings of a's &amp; b's having even length.</li> <li>Strings of a's &amp; b's whose second symbol from right end is a.</li> </ol>	
Q.3	Sol a) b)	<ul> <li>ve any one.</li> <li>What is NFA – Λ? Give the algorithm to convert NFA – Λ to NFA. Give example Give the steps to simplify CFG.</li> <li>1) Eliminating useless symbols</li> <li>2) Eliminating null- productions</li> <li>3) Eliminating unit- productions</li> </ul>	<b>06</b>
Q.4	Cor	,	06
	$S \rightarrow A \rightarrow $	bA aB bAA aS a Λ aBB bS b Λ Section – II	
Q.5	Sol		16
<b>Q.0</b>	a) b) c)	State and explain pumping lemma for CFL. Show that $L = \{a^nb^n n \ge 1\}$ is not regular. What is PDA? Explain with an example.	
	d) e)	Obtain a TM to accept the language $L = \{w w \leftarrow (0+1)^*\}$ containing the sub string 001 Construct a PDA to accept the language. $L = \{a^nb^n n \geq 1\}$	
Q.6	Sol a) b)	<b>ve any one.</b> Obtain a PDA to accept the language $L(M) = \{w   w \leftarrow (a + b)^* \text{ and } n_a(w) = n_b(w)\} \text{ by a final state.}$ Explain different types of variations in TM.	06

State and explain the block diagram of TM and construct a TM to accept the

Q.7

language.  $L(M) = \{a^n b^n c^n | n \ge 1\}$ 

06

Max. Marks: 70

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# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019 Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book. Each question carries one mark.

2) Answer MCQ/Objective type Question on page No.03 only. Don't Forget to mention, Q.P. set (P/Q/R/S) on top of the page.

### **MCQ/Objective Type Questions**

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the

- Q.1 Choose the correct alternatives from the options and rewrite the sentence.1) What is the addition in pushdown automata as compare to finite state
  - automata?
    a) Stack memory

b) f/p tape

c) Head

- d) None of these
- 2) CFLS are not closed under
  - a) Union

- b) Kleene star
- c) Complementation
- d) Product

3) Consider grammar G

$$S \rightarrow AB$$
,  $A \rightarrow aAA|^{\wedge}$ ,  $B \rightarrow bBB|^{\wedge}$ 

Find the nullable symbols in the given grammar.

a) A

b) E

c) A, B and S

- d) A and B
- 4) Consider the transition table of a TM given below. Here "b" represents the blank symbol.

The given turing machine accept

δ	0	1	b
$\rightarrow q_0$	$q_0, 0, R$	q <sub>1</sub> , 0, R	$q_2, 0, R$
$q_1$	q <sub>1</sub> , 0, R	$q_0, 0, R$	1
$q_2$	-	-	-

- a) Set of all even palindromes over {0,1}
- b) Strings over {0,1} containing even number of 1's
- c) String over {0,1} containing even no. of 1's & odd number of 0's
- d) Strings over  $\{0,1\}$  string with zero.
- 5) Pumping Lemma is used to prove \_\_\_\_\_.
  - a) Given language is not regular
  - b) Given language is not context free
  - c) Both (a) and (b)
  - d) None of these

- 6) Language generated by type 2 grammar is
  - a) Regular language
- Context free language b)
- Context sensitive language
- d) Turing recognizable language
- Let  $L_1 = \{a^n b^n c^n | n \ge 0\}$ 7)

$$L_2 = \{a^{2n}b^{2n}c^{2n}|n \ge 0\}$$

$$L_3 = \{a^{2n}b^{2n}c^n|n \ge 0\}$$

- a)  $L_1 \subseteq L_2$  and  $L_3 \subseteq L_2$
- $L_2 \subseteq L_1$  and  $L_2 \subseteq L_3$
- c)  $L_2 \subseteq L_1$  and  $L_2 \not\subseteq L_3$
- d)  $L_1 \subseteq L_2$  and  $L_2 \subseteq L_3$
- 8) The basic limitation of FSM is that
  - It can't remember arbitrary large amount of information.
  - It sometimes fails to recognize grammars that are not regular. b)
  - It sometimes fails to recognize grammars that are regular. c)
  - d) All of these
- 9) The string 1101 does not belong to the set represented by \_\_\_\_\_.
  - 110\*(0+1)

1(0+1)\*101 b)

c) (00+(11)\*0)\*1

- d) (10)\*(01)\*(00+11)\*
- 10) What is the regular expression for the language generated by

$$S \rightarrow as|bA, A \rightarrow d|ccA$$

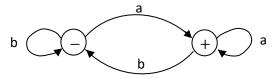
a) a\*bd

b)  $a^*(bd)(bcc)^*d$ 

c) a\*b(cc)\*d

- d) None of these
- Consider the FA shown in the figure given below, where "-" is the start 11) and " + " is the ending state.

The language accepted by the FA is.



a)  $(a + b)^*b$ 

b)  $(a + b)^*a$ 

c) a\*b

- d) a\*b\*
- 12) Consider the grammar 'G' as follows  $S \to aA$ ,  $A \to bbA$ ,  $A \to c$  L(G) = ?
  - a)  $L(G) = \{abbc\}$

- $L(G) = \{ab^n c | n \ge 0\}$ b)
- c)  $L(G) = \{ab^{2n}c|n > 0\}$
- $L(G) = \{ab^{2n}c|n \ge 0\}$ d)
- 13) L<sub>1</sub> has the following grammar.

 $S \rightarrow aB|BA$ 

 $A \rightarrow bAA|aS|a$ 

 $B \rightarrow b|bs|aBB$ 

L<sub>2</sub> has the following grammar.

 $S \rightarrow sba|a$ 

Which of the following statement is true about?

$$L_3 = L_1 \cap L_2 \text{ and } L_4 = L_1.L_2^*$$
?

- a) Both L<sub>3</sub> and L<sub>4</sub> are not context free
- b) L<sub>3</sub> is context free but L<sub>4</sub> is not
- c) Both L<sub>3</sub> and L<sub>4</sub> are context free
- d) L<sub>4</sub> is context free, but not L<sub>3</sub>

- 14) What is regular expression corresponding to the language of strings of even length over the alphabet of {a, b}.
  - a)  $(aa + bb + ba + ab)^*$
- b)  $(aa + bb)^*$

c)  $(ab + bb + ba)^*$ 

d) a\*b\*a\*b\*

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#### S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering** THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Solve any four. Q.2 16 Define DFA with suitable example. Define Moore Machine with example. b) a) Obtain a DFA to accept the lang. of 0's & 1's ending with 011. d) Convert CFG to CNF.  $S \rightarrow 0A|1B$  $A \rightarrow 0AA|1S|1$  $B \rightarrow 1BB|0S|0$ Define the Regular Expression and find R.E. for 1) Strings of a's & b's having even length. Strings of a's & b's whose second symbol from right end is a. Q.3 Solve any one. 06 a) What is NFA –  $\Lambda$ ? Give the algorithm to convert NFA –  $\Lambda$  to NFA. Give example. Give the steps to simplify CFG. Eliminating useless symbols Eliminating null-productions 2) 3) Eliminating unit- productions Convert the following CFG to CNF. Q.4 06  $S \rightarrow bA|aB$  $A \rightarrow bAA|aS|a|\Lambda$  $B \rightarrow aBB|bS|b|\Lambda$ Section - II Q.5 Solve any four: 16 State and explain pumping lemma for CFL. Show that  $L = \{a^n b^n | n \ge 1\}$  is not regular. b) What is PDA? Explain with an example. c) Obtain a TM to accept the language d)  $L = \{w | w \leftarrow (0+1)^*\}$  containing the sub string 001 Construct a PDA to accept the language.  $L = \{a^n b^n | n \ge 1\}$ e) Solve any one. 06 **Q.6** Obtain a PDA to accept the language  $L(M) = \{w | w \leftarrow (a + b)^* \text{ and } n_a(w) = n_b(w)\}$  by a final state. Explain different types of variations in TM. State and explain the block diagram of TM and construct a TM to accept the Q.7 06

language.  $L(M) = \{a^n b^n c^n | n \ge 1\}$ 

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# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019	Max. Marks: 70
Time: 02:30 PM To 05:30 PM	
Instructiona, 1) O. No. 1 is compulsory and should be solved in f	irat 20 minutas in anguar

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book. Each question carries one mark.

2) Answer MCQ/Objective type Question on page No.03 only. Don't Forget to mention, Q.P. set (P/Q/R/S) on top of the page.

### **MCQ/Objective Type Questions**

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the

14

- sentence.

  1) Consider the grammar 'G' as follows  $S \to aA$ ,  $A \to bbA$ ,  $A \to c$  L(G) = ?
  - a)  $L(G) = \{abbc\}$ c)  $L(G) = \{ab^{2n}c|n > 0\}$
- b)  $L(G) = \{ab^n c | n \ge 0\}$ d)  $L(G) = \{ab^{2n} c | n \ge 0\}$
- 2)  $L_1$  has the following grammar.

 $S \rightarrow aB|BA$ 

 $A \rightarrow bAA|aS|a$ 

 $B \rightarrow b|bs|aBB$ 

 $L_2\,$  has the following grammar.

 $S \rightarrow sba|a$ 

Which of the following statement is true about?

 $L_3 = L_1 \cap L_2 \text{ and } L_4 = L_1.L_2^*$ ?

- a) Both  $L_3$  and  $L_4$  are not context free
- b)  $L_3$  is context free but  $L_4$  is not
- c) Both L<sub>3</sub> and L<sub>4</sub> are context free
- d)  $L_4$  is context free, but not  $L_3$
- 3) What is regular expression corresponding to the language of strings of even length over the alphabet of {a, b}.
  - a)  $(aa + bb + ba + ab)^*$

b)  $(aa + bb)^*$ 

c)  $(ab + bb + ba)^*$ 

- d)  $a^*b^*a^*b^*$
- 4) What is the addition in pushdown automata as compare to finite state automata?
  - a) Stack memory

b) f/p tape

c) Head

- d) None of these
- 5) CFLS are not closed under
  - a) Union

b) Kleene star

c) Complementation

d) Product

6) Consider grammar G

$$S \rightarrow AB$$
,  $A \rightarrow aAA|^{\wedge}$ ,  $B \rightarrow bBB|^{\wedge}$ 

Find the nullable symbols in the given grammar.

a) A

b) B

c) A, B and S

d) A and B

7) Consider the transition table of a TM given below. Here "b" represents the blank symbol.

The given turing machine accept

δ	0	1	b
$\rightarrow$ q <sub>0</sub>	$q_0, 0, R$	q <sub>1</sub> , 0, R	$q_2, 0, R$
$q_1$	$q_1, 0, R$	$q_0, 0, R$	•
$\overline{q_2}$	-	-	-

- a) Set of all even palindromes over {0,1}
- b) Strings over {0,1} containing even number of 1's
- c) String over {0,1} containing even no. of 1's & odd number of 0's
- d) Strings over  $\{0,1\}$  string with zero.
- 8) Pumping Lemma is used to prove \_\_\_\_\_.
  - a) Given language is not regular
  - b) Given language is not context free
  - c) Both (a) and (b)
  - d) None of these
- 9) Language generated by type 2 grammar is \_\_\_\_\_.
  - a) Regular language
- b) Context free language
- c) Context sensitive language
- d) Turing recognizable language
- 10) Let  $L_1 = \{a^n b^n c^n | n \ge 0\}$

$$L_2 = \{a^{2n}b^{2n}c^{2n}|n \ge 0\}$$

$$L_3 = \{a^{2n}b^{2n}c^n | n \ge 0\}$$

- a)  $L_1 \subseteq L_2$  and  $L_3 \subseteq L_2$
- b)  $L_2 \subseteq L_1$  and  $L_2 \subseteq L_3$
- c)  $L_2 \subseteq L_1$  and  $L_2 \nsubseteq L_3$
- d)  $L_1 \subseteq L_2$  and  $L_2 \subseteq L_3$
- 11) The basic limitation of FSM is that \_\_\_\_\_.
  - a) It can't remember arbitrary large amount of information.
  - b) It sometimes fails to recognize grammars that are not regular.
  - c) It sometimes fails to recognize grammars that are regular.
  - d) All of these
- 12) The string 1101 does not belong to the set represented by \_\_\_\_\_.
  - a) 110\*(0+1)

b) 1(0+1)\*101

c) (00+(11)\*0)\*1

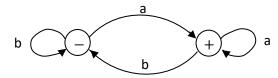
- d) (10)\*(01)\*(00+11)\*
- 13) What is the regular expression for the language generated by  $S \rightarrow as|bA$ ,  $A \rightarrow d|ccA$ 
  - a) a\*bd

b)  $a^*(bd)(bcc)^*d$ 

c) a\*b(cc)\*d

- d) None of these
- 14) Consider the FA shown in the figure given below, where " " is the start and " + " is the ending state.

The language accepted by the FA is,



a)  $(a + b)^*b$ 

b)  $(a + b)^*a$ 

c) a\*b

d) a\*b\*

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# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering THEORY OF COMPUTATION

THEORY OF COMPUTATION Day & Date: Saturday, 23-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Solve any four. Q.2 16 Define DFA with suitable example. b) Define Moore Machine with example. Obtain a DFA to accept the lang. of 0's & 1's ending with 011. a) Convert CFG to CNF. d)  $S \rightarrow 0A|1B$  $A \rightarrow 0AA|1S|1$  $B \rightarrow 1BB|0S|0$ Define the Regular Expression and find R.E. for e) Strings of a's & b's having even length. 2) Strings of a's & b's whose second symbol from right end is a. Q.3 Solve any one. 06 What is NFA –  $\Lambda$ ? Give the algorithm to convert NFA –  $\Lambda$  to NFA. Give example. Give the steps to simplify CFG. 1) Eliminating useless symbols 2) Eliminating null- productions Eliminating unit- productions Q.4 Convert the following CFG to CNF. 06  $S \rightarrow bA|aB$  $A \rightarrow bAA|aS|a|\Lambda$  $B \rightarrow aBB|bS|b|\Lambda$ Section - II 16 Q.5 Solve any four: State and explain pumping lemma for CFL. a) Show that  $L = \{a^n b^n | n \ge 1\}$  is not regular. b) What is PDA? Explain with an example. c) Obtain a TM to accept the language d)  $L = \{w | w \leftarrow (0+1)^*\}$  containing the sub string 001 Construct a PDA to accept the language.  $L = \{a^n b^n | n \ge 1\}$ e) Solve any one. 06 **Q.6** Obtain a PDA to accept the language  $L(M) = \{w | w \leftarrow (a + b)^* \text{ and } n_a(w) = n_b(w)\}$  by a final state. Explain different types of variations in TM. Q.7 State and explain the block diagram of TM and construct a TM to accept the 06 language.  $L(M) = \{a^n b^n c^n | n \ge 1\}$ 

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# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019

Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book. Each question carries one mark.

2) Answer MCQ/Objective type Question on page No.03 only. Don't Forget to mention, Q.P. set (P/Q/R/S) on top of the page.

### **MCQ/Objective Type Questions**

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the sentence.

14

1) Consider grammar G

 $S \rightarrow AB$ ,  $A \rightarrow aAA|^{\wedge}$ ,  $B \rightarrow bBB|^{\wedge}$ 

Find the nullable symbols in the given grammar.

a) A

b) E

c) A, B and S

- d) A and B
- 2) Consider the transition table of a TM given below. Here "b" represents the blank symbol.

The given turing machine accept

δ	0	1	b
$\rightarrow q_0$	$q_0, 0, R$	q <sub>1</sub> , 0, R	$q_2, 0, R$
$q_1$	q <sub>1</sub> , 0, R	$q_0, 0, R$	1
$\overline{q_2}$	-	-	-

- a) Set of all even palindromes over {0,1}
- b) Strings over  $\{0,1\}$  containing even number of 1's
- c) String over {0,1} containing even no. of 1's & odd number of 0's
- d) Strings over {0,1} string with zero.
- 3) Pumping Lemma is used to prove \_\_\_\_\_.
  - a) Given language is not regular
  - b) Given language is not context free
  - c) Both (a) and (b)
  - d) None of these
- 4) Language generated by type 2 grammar is
  - a) Regular language
- b) Context free language
- c) Context sensitive language
- d) Turing recognizable language
- 5) Let  $L_1 = \{a^n b^n c^n | n \ge 0\}$  $L_2 = \{a^{2n} b^{2n} c^{2n} | n \ge 0\}$

 $L_3 = \{a^{2n}b^{2n}c^n | n \ge 0\}$ 

- b)  $L_2 \subseteq L_1$  and  $L_2 \subseteq L_3$
- a)  $L_1 \subseteq L_2$  and  $L_3 \subseteq L_2$ c)  $L_2 \subseteq L_1$  and  $L_2 \nsubseteq L_3$
- d)  $L_1 \subseteq L_2$  and  $L_2 \subseteq L_3$

# Set S

- 6) The basic limitation of FSM is that \_\_\_\_\_.
  - a) It can't remember arbitrary large amount of information.
  - b) It sometimes fails to recognize grammars that are not regular.
  - c) It sometimes fails to recognize grammars that are regular.
  - d) All of these
- 7) The string 1101 does not belong to the set represented by \_\_\_\_\_.
  - a) 110\*(0+1)

b) 1(0+1)\*101

c) (00+(11)\*0)\*1

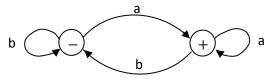
- d) (10)\*(01)\*(00+11)\*
- 8) What is the regular expression for the language generated by
  - $S \rightarrow as|bA, A \rightarrow d|ccA$
  - a) a\*bd

b)  $a^*(bd)(bcc)^*d$ 

c)  $a^*b(cc)^*d$ 

- d) None of these
- 9) Consider the FA shown in the figure given below, where "-" is the start and "+" is the ending state.

The language accepted by the FA is,



a)  $(a + b)^*b$ 

b)  $(a + b)^*a$ 

c) a\*b

- d) a\*b\*
- 10) Consider the grammar 'G' as follows  $S \rightarrow aA$ ,  $A \rightarrow bbA$ ,  $A \rightarrow c$  L(G) = ?
  - a)  $L(G) = \{abbc\}$

- b)  $L(G) = \{ab^n c | n \ge 0\}$
- c)  $L(G) = \{ab^{2n}c|n > 0\}$
- d)  $L(G) = \{ab^{2n}c | n \ge 0\}$
- 11)  $L_1$  has the following grammar.

 $S \rightarrow aB|BA$ 

 $A \rightarrow bAA|aS|a$ 

 $B \rightarrow b|bs|aBB$ 

L<sub>2</sub> has the following grammar.

 $S \rightarrow sba|a$ 

Which of the following statement is true about?

$$L_3 = L_1 \cap L_2 \text{ and } L_4 = L_1.L_2^*$$
?

- a) Both L<sub>3</sub> and L<sub>4</sub> are not context free
- b) L<sub>3</sub> is context free but L<sub>4</sub> is not
- c) Both L<sub>3</sub> and L<sub>4</sub> are context free
- d) L<sub>4</sub> is context free, but not L<sub>3</sub>
- 12) What is regular expression corresponding to the language of strings of even length over the alphabet of {a, b}.
  - a)  $(aa + bb + ba + ab)^*$
- b)  $(aa + bb)^*$

c)  $(ab + bb + ba)^*$ 

- d) a\*b\*a\*b\*
- 13) What is the addition in pushdown automata as compare to finite state automata?
  - a) Stack memory

b) f/p tape

c) Head

- d) None of these
- 14) CFLS are not closed under
  - a) Union

- b) Kleene star
- c) Complementation
- d) Product

Seat	Set	9
No.	Set	5

## S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

THEORY OF COMPUTATION Day & Date: Saturday, 23-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Solve any four. Q.2 16 Define DFA with suitable example. Define Moore Machine with example. Obtain a DFA to accept the lang. of 0's & 1's ending with 011. a) Convert CFG to CNF.  $S \rightarrow 0A|1B$  $A \rightarrow 0AA|1S|1$  $B \rightarrow 1BB|0S|0$ Define the Regular Expression and find R.E. for Strings of a's & b's having even length. 2) Strings of a's & b's whose second symbol from right end is a. Q.3 06 Solve any one. What is NFA –  $\Lambda$ ? Give the algorithm to convert NFA –  $\Lambda$  to NFA. Give example. Give the steps to simplify CFG. b) 1) Eliminating useless symbols 2) Eliminating null- productions 3) Eliminating unit- productions Q.4 Convert the following CFG to CNF. 06  $S \rightarrow bA|aB$  $A \rightarrow bAA|aS|a|\Lambda$  $B \rightarrow aBB|bS|b|\Lambda$ Section - II Q.5 Solve any four: 16 State and explain pumping lemma for CFL. Show that  $L = \{a^n b^n | n \ge 1\}$  is not regular. b) What is PDA? Explain with an example. c) Obtain a TM to accept the language d)  $L = \{w | w \leftarrow (0+1)^*\}$  containing the sub string 001 Construct a PDA to accept the language.  $L = \{a^n b^n | n \ge 1\}$ e) Q.6 Solve any one. 06 Obtain a PDA to accept the language  $L(M) = \{w | w \leftarrow (a + b)^* \text{ and } n_a(w) = n_b(w)\}$  by a final state. Explain different types of variations in TM. Q.7 State and explain the block diagram of TM and construct a TM to accept the 06 language.  $L(M) = \{a^n b^n c^n | n \ge 1\}$ 

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# S.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & MICROPROCE			
		e: Monday, 25-11-2019 D PM To 05:30 PM			Max. Marks: 70
Instr	uction	ns: 1) Q. No. 1 is compulsory and shoul book.		solved in first 30 mii	nutes in answer
		<ul><li>2) Figures to the right indicate full m</li><li>3) Assume suitable data wherever n</li></ul>		sary.	
		MCQ/Objective Typ	e Qı	<b>lestions</b>	
Dura		0 Minutes			Marks: 14
Q.1	<b>Choo</b> 1)	What is the purpose of using ALE sign a) To latch low order address from but b) To latch data D0- D7 from bus to second to disable data bus latch d) None of the above	al hig us to	h? separate A0- A7	sentence. 14
	2)	How many I/O ports can 8085 access? a) 16 c) 1024	b) d)	256 8	
	3)	Which of the following bus is multiplexed a) Address bus c) Control bus	ed in b) d)	8085? Data bus None of these	
	4)	What is the addressing mode used in i a) Direct c) Immediate	nstru b) d)	ction MOV M, C? Indirect None of the above	<b>;</b>
	5)	Microprocessor 8086 provide signal lik a) LOW c) MCMR		to indicate read MCMW MCMWR	operation.
	6)	In 8086 microprocessor, the address b a) 12 bit c) 16 bit	us is b) d)		
	7)	MPU stands for a) multi-processing unit c) mega-processing unit	b) d)	micro-processing major-processing	
	8)	<ul><li>HOLD and HLDA are of the following to</li><li>a) Dead signal</li><li>c) DMA signal</li></ul>	ype c b) d)	f signals. Serial I/O signal Status	
	9)	The term PSW stands for  a) Accumulator & flag register  c) Accumulator & instruction register	b) d)	H and L register B &C register	
	10)	How many instruction 8085 can suppo a) 74 c) 94	rt b) d)	 84 32	

Set P

11)	The width of program counter of 8085 <ul><li>a) 8bit</li><li>c) 32bit</li></ul>	is b) d)	 16bit 64bit
12)	How many port are these in 8255? a) Two port c) Three port	b) d)	Four port No port
13)	The work of EV in 8086 is a) Encoding c) Processing	b) d)	Decoding Calculation
14)	Which of these are non-maskable inte a) RST 7.5 c) RST 5.5	rrupt? b) d)	RST 6.5 TRAP

Seat	Set	Р
No.		

# S.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019

	Computer Science & Engineering MICROPROCESSORS	
•	Max. Marks 02:30 PM To 05:30 PM	: 56
Instr	uctions: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
	Section – I	
Q.2	<ul> <li>Attempt any three</li> <li>a) Explain fictional pins of 8085 microprocessor. Indicate their activation status.</li> <li>1) RST 7.5</li> <li>2) ALE</li> <li>3) Ready</li> <li>4) IO/ m̄</li> <li>5) Reset</li> <li>b) Explain condition flags and control flags of 8086.</li> <li>c) Define the term Directive. Explain in detail STRUCTURE &amp; RECORD directive.</li> <li>d) Write an assembly language program to multiply two hexadecimal number</li> </ul>	12
	(8 bit signal / unsigned) using 8086	
Q.3	Attempt any two a) Explain in detail with neat diagram the architecture of 8086 microprocessor. b) Draw and explain addressing mode of 8086. c) Explain the following instruction of 8086 with example. 1) IN AL, port_add 2) LEA reg 16, memptr 3) LDS reg 16, memptr 4) LAHF 5) SAHF	16
	Section – II	
Q.4	<ul> <li>Attempt any three</li> <li>a) Comment on Interrupt Priority of 8086.</li> <li>b) Explain status register of 8087 coprocessor in detail.</li> <li>c) Explain 8087 coprocessor stack in detail.</li> <li>d) Draw block diagram of 8255 PPI.</li> </ul>	12
Q.5	<ul> <li>Attempt any two</li> <li>a) Draw and explain Block diagram of DMA Controller 8257.</li> <li>b) Explain different mode of operation of 8255 PPI.</li> <li>c) Draw and explain 80486 architecture.</li> </ul>	16

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Seat	Set	Q
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# S.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019

		<b>U.L</b>	. (ı aı ı	Computer	Science & I	Eng	jineering		
<b>D</b> .	0 D. ( .	N.4.			ROPROCES	30	KS	N4 - N4 - J	. 70
-			nday, 25 I To 05:3	5-11-2019 0 PM				Max. Mark	(S: 70
			) Q. No.		ory and should	be s	solved in first 30 mi	nutes in an	swer
		2	book.	to the right	ndicate full ma	rkc			
			, .	_	ta wherever ne		sarv.		
			,		jective Type		•		
Dura	tion: 3	0 Mii	nutes	mo qrob	jooti to Typo			Mark	ks: 14
Q.1	Choc	ose t	he corre	ect alternativ	es from the o	ptio	ns and rewrite the	sentence.	14
	1)				he following typ	•			
		a)	,	•		p)	•		
		c)	DMA sig	gnal		d)	Status		
	2)			SW stands fo					
				llator & flag r	_	,	H and L register		
	-\	,			ction register	,	B &C register		
	3)		-	nstruction 80	85 can support		 		
		a) c)				b) d)	84 32		
	4)	,		nrogram co	unter of 8085 is	,	<b>02</b>		
	4)		8bit	program co	ariter or occoris	b)	 16bit		
		c)	32bit			d)	64bit		
	5)	Hov	w many p	ort are these	in 8255?				
	,		Two por	rt		b)	Four port		
		c)	Three p	ort		d)	No port		
	6)	The		EV in 8086 i	S				
		a)		•		p)	Decoding		
	_,	c)	Process	•		d)	Calculation		
	7)				naskable interr	• .			
		a) c)	RST 7.5 RST 5.5			b) d)	RST 6.5 TRAP		
	8)	,			sing ALE signal	,			
	0)	a)		•	-	_	separate A0- A7		
		b)			from bus to se				
		c)		ole data bus	atch				
		d)		the above					
	9)		•	O ports can	8085 access?		050		
		a)	16 1024			b) d)	256 8		
		c)	1024			u)	U		

Set Q

10)	<ul><li>a) Address bus</li><li>c) Control bus</li></ul>	b) d)	Data bus None of these
11)	What is the addressing mode used in insa) Direct c) Immediate	struc b) d)	tion MOV M, C? Indirect None of the above
12)	Microprocessor 8086 provide signal like a) LOW c) MCMR	b)	to indicate read operation. MCMW MCMWR
13)	In 8086 microprocessor, the address bu a) 12 bit c) 16 bit	s is <sub>-</sub> b) d)	bit wide. 10 bit 20 bit
14)	MPU stands for a) multi-processing unit c) mega-processing unit	b) d)	micro-processing unit major-processing unit

Seat	Sat	
No.	Set	Q

# S.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

**MICROPROCESSORS** Day & Date: Monday, 25-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to right indicate full marks. Section - I Q.2 Attempt any three 12 Explain fictional pins of 8085 microprocessor. Indicate their activation status. 1) **RST 7.5** 2) **ALE** Ready 3) 4) IO/m 5) Reset **b)** Explain condition flags and control flags of 8086. c) Define the term Directive. Explain in detail STRUCTURE & RECORD d) Write an assembly language program to multiply two hexadecimal number (8 bit signal/unsigned) using 8086 Q.3 Attempt any two 16 Explain in detail with neat diagram the architecture of 8086 microprocessor. **b)** Draw and explain addressing mode of 8086. c) Explain the following instruction of 8086 with example. IN AL, port\_add 1) LEA reg 16, memptr 2) LDS reg 16, memptr 3) **LAHF** 4) 5) SAHF Section - II Q.4 Attempt any three 12 a) Comment on Interrupt Priority of 8086. b) Explain status register of 8087 coprocessor in detail. c) Explain 8087 coprocessor stack in detail. d) Draw block diagram of 8255 PPI. Q.5 Attempt any two 16 a) Draw and explain Block diagram of DMA Controller 8257.

b) Explain different mode of operation of 8255 PPI.

c) Draw and explain 80486 architecture.

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Seat	Set	В
No.	OC:	1.

# S.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering MICROPROCESSORS

•		: Monday, 25-11-2019 ) PM To 05:30 PM	Max. Marks:	70
Instr	uctior	<ul><li>s: 1) Q. No. 1 is compulsory book.</li><li>2) Figures to the right indi</li><li>3) Assume suitable data v</li></ul>		er
_		_	tive Type Questions	
		) Minutes	Marks:	
Q.1	<b>Choo</b> 1)		from the options and rewrite the sentence. e signal like to indicate read operation. b) MCMW d) MCMWR	14
	2)	In 8086 microprocessor, the a) 12 bit c) 16 bit	address bus is bit wide. b) 10 bit d) 20 bit	
	3)	MPU stands for  a) multi-processing unit c) mega-processing unit	<ul><li>b) micro-processing unit</li><li>d) major-processing unit</li></ul>	
	4)	HOLD and HLDA are of the a) Dead signal c) DMA signal	following type of signals. b) Serial I/O signal d) Status	
	5)	The term PSW stands fora) Accumulator & flag regisc) Accumulator & instruction		
	6)	How many instruction 8085 a) 74 c) 94	can support b) 84 d) 32	
	7)	The width of program counter a) 8bit c) 32bit	er of 8085 is b) 16bit d) 64bit	
	8)	How many port are these in a) Two port c) Three port	8255? b) Four port d) No port	
	9)	The work of EV in 8086 is _ a) Encoding c) Processing	b) Decoding d) Calculation	
	10)	Which of these are non-mas a) RST 7.5 c) RST 5.5	kable interrupt? b) RST 6.5 d) TRAP	

d) None of the above

Set R

11) What is the purpose of using ALE signal high? a) To latch low order address from bus to separate A0- A7 b) To latch data D0- D7 from bus to separate data bus c) To disable data bus latch d) None of the above 12) How many I/O ports can 8085 access? a) 16 b) 256 c) 1024 d) 8 Which of the following bus is multiplexed in 8085? 13) a) Address bus b) Data bus c) Control bus d) None of these What is the addressing mode used in instruction MOV M, C? 14) a) Direct b) Indirect

c) Immediate

Seat	Sat	D
No.	Set	K

# S.E. (Part - II) (New) (CRCS) Examination Nov/Dec-2010

		Computer Science & Engineering	
Dov	0 Da	MICROPROCESSORS  May Mark	o. FG
•		ate: Monday, 25-11-2019 Max. Mark :30 PM To 05:30 PM	S. 50
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	<ul><li>a)</li><li>b)</li><li>c)</li></ul>	Explain fictional pins of 8085 microprocessor. Indicate their activation status.  1) RST 7.5  2) ALE  3) Ready  4) IO/ m  5) Reset Explain condition flags and control flags of 8086. Define the term Directive. Explain in detail STRUCTURE & RECORD directive. Write an assembly language program to multiply two hexadecimal number (8 bit signal/unsigned) using 8086	12
Q.3	Att a) b) c)	empt any two  Explain in detail with neat diagram the architecture of 8086 microprocessor.  Draw and explain addressing mode of 8086.  Explain the following instruction of 8086 with example.  1) IN AL, port_add  2) LEA reg 16, memptr  3) LDS reg 16, memptr  4) LAHF  5) SAHF  Section – II	16
Q.4	Att a) b) c) d)	empt any three Comment on Interrupt Priority of 8086. Explain status register of 8087 coprocessor in detail. Explain 8087 coprocessor stack in detail. Draw block diagram of 8255 PPI.	12
Q.5	Att	empt any two	16

- a) Draw and explain Block diagram of DMA Controller 8257.b) Explain different mode of operation of 8255 PPI.
- c) Draw and explain 80486 architecture.

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Seat	Set	9
No.	Set	3

# S.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019

		O.L. (i ait	Computer Sc MICRO	•	≣ng	ineering		
•		e: Monday, 25 0 PM To 05:3	5-11-2019				ax. Marks:	70
		<b>ns:</b> 1) Q. No.		and should	be s	solved in first 30 minute	s in answ	/er
		, -	s to the right indic e suitable data w			sary.		
			MCQ/Object	ive Type	Qu	estions		
Dura		0 Minutes					Marks:	: 14
Q.1	<b>Choo</b> 1)		ect alternatives for the struction 8085 c	-		ns and rewrite the se	ntence.	14
	1)	a) 74 c) 94	nstruction 0000 c	ан зарроп	b) d)	84 32		
	2)	The width o	f program counte	r of 8085 is				
		a) 8bit c) 32bit			b) d)	16bit 64bit		
	3)	How many pa) Two poc) Three p		3255?	b) d)	Four port No port		
	4)	The work of a) Encodir c) Process	•	·	b) d)	Decoding Calculation		
	5)	Which of the a) RST 7.5 c) RST 5.5		kable interru	upt? b) d)	RST 6.5 TRAP		
	<ul> <li>6) What is the purpose of using ALE signal high?</li> <li>a) To latch low order address from bus to separate A0- A7</li> <li>b) To latch data D0- D7 from bus to separate data bus</li> <li>c) To disable data bus latch</li> <li>d) None of the above</li> </ul>							
	7)	How many I a) 16 c) 1024	/O ports can 808	5 access?	b) d)	256 8		
	8)	Which of the a) Address c) Control		multiplexed	d in 8 b) d)	8085? Data bus None of these		
	9)	What is the a) Direct c) Immedia	addressing mode ate	used in ins	strud b) d)	ction MOV M, C? Indirect None of the above		

Set S

10)	Microprocessor 8086 provide signal like a) LOW c) MCMR	b) d)	•
11)	In 8086 microprocessor, the address but a) 12 bit c) 16 bit	s is <sub>.</sub> b) d)	bit wide. 10 bit 20 bit
12)	MPU stands for a) multi-processing unit c) mega-processing unit	b) d)	micro-processing unit major-processing unit
13)	HOLD and HLDA are of the following typa) Dead signal c) DMA signal	be of b) d)	
14)	,	,	H and L register B &C register

	<u></u>	
Seat	Set	U
No.	Set	3

# S.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering  MICROPROCESSORS	
-		ate: Monday, 25-11-2019 Max ::30 PM To 05:30 PM	. Marks: 56
Instr	ucti	ions: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	Att a)	tempt any three Explain fictional pins of 8085 microprocessor. Indicate their activation status.  1) RST 7.5 2) ALE 3) Ready 4) IO/ m 5) Reset	12
	b) c) d)	Explain condition flags and control flags of 8086.  Define the term Directive. Explain in detail STRUCTURE & RECORD directive.	nber
Q.3	a)	Explain in detail with neat diagram the architecture of 8086 microproces. Draw and explain addressing mode of 8086.  Explain the following instruction of 8086 with example.  1) IN AL, port_add  2) LEA reg 16, memptr  3) LDS reg 16, memptr  4) LAHF  5) SAHF	16 essor.
		Section – II	
Q.4	Att a) b) c) d)	tempt any three Comment on Interrupt Priority of 8086. Explain status register of 8087 coprocessor in detail. Explain 8087 coprocessor stack in detail. Draw block diagram of 8255 PPI.	12
Q.5	Att	tempt any two	16

- a) Draw and explain Block diagram of DMA Controller 8257.
  b) Explain different mode of operation of 8255 PPI.
  c) Draw and explain 80486 architecture.

Seat No.			Set	P
	S.E. (Part – II)	(New) (CBCS) Examination Nov/Dec-2019		

		J.L.	Computer	•	nd I	Engineering RES	
-			esday, 26-11-2019 To 05:30 PM			Max. Marks	: 70
Inst	ructio	ns: 1	) Q. No. 1 is compul book.	sory and sho	uld b	e solved in first 30 minutes in ansv	ver
		2	) Figures to the right	t indicate full	mark	S.	
Dura	dian. 1	O N 4:.		ojective Ty	pe C		. 11
	tion: 3			ivoo from the		Marks	14 14
Q.1	1)		ch of the following is Trees Array		-	cions and rewrite the sentence.  Structure?  Stacks  Linked List	14
	2)		ular queue. How is r ue? rear=(rear%1)+MA	ear manipula .X_SIZE	ted w	sed in the implementation of while inserting an element in the rear=rear%(MAX_SIZE+1) rear=rear+(1%MAX_SIZE)	
	3)	If th	e sequence of opera , pop, pop, push (2) ped out values 2,2,1,1,2	ations - push , pop are perf 	(1), porme	push (2), pop, push (1), push (2), ed on a stack, the sequence of 2,2,1,2,2 2,1,2,2,2	
	4)	In p a) b) c) d)	olynomial manipulat Coefficient, expone Previous item link, Coefficient, data ite None of the option	ential and link data item, ne em and link		ts of three field representing	_•
	5)		ST is traversed in th output sequence w Ascending order Bitomic sequence	ill be in	der r  b) d)	recursively: Right, root, left  Descending order  No specific order	
	6)	A co a) c)	omplete binary tree of 15 63		how b) d)	many nodes? 25 30	
	7)	and		espectively the	en th	pinary tree are D,B,F,E,G,H,A,C e postorder traversal of that tree F,H,D,G,E,B,C,A D,F,H,G,E,B,C,A	
	8)	,		has n items.	•	number of external nodes is $\frac{1}{n}$ $\frac{\log n}{n+1}$	_•

Set P

9)	Most widely used structure for index structures, is known to be						
	a)	B+-trees structure	b)	Balanced tree structure			
	c)	Unbalanced tree structure	d)	Sequential tree structure			
10)		nt is the maximum height of any and the single node		ree with 7 nodes? Assume that			
	a)	2	b)	3			
	c)	4	d)	5			
11)		an undirected graph G with n veree of each vertex is	rtices	and e edges, the sum of the			
	a)	ne	b)	2n			
	c)	2e	d)	e^n			
12)	A ba a) b) c) d)	llance factor in AVL tree is used what rotation to make if all child nodes are at same le when the last rotation occurred if the tree is unbalanced		eck			
13)	a)	ohs are represented using Adjacency tree Adjacency graph	 b) d)	Adjacency linked list Adjacency queue			
14)	If loca) c)	cality is a concern, you can use _ Breadth First Search Either BFS or DFS	b) d)	<b>.</b>			

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No.	Set	

## S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science and Engineering DATA STRUCTURES**

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any four. 16 a) Define data structure. Explain its types along with example. **b)** Define queue. Explain its operations using array. c) Explain in detail how stack is used to evaluate postfix expression. d) Write C code for insertion of Node at the end in Singly Linked List. (State all required variables and parameters)

e) Write a short note on Threaded Binary Tree.

Construct a Binary tree with following given orders.

Preorder= ABDGHEICFJK InOrder= GDHBEIACJFK (Write explanation to every step)

Attempt any two.

12

- a) Write a program to implement Stack using Linked List.
- b) Explain with example addition of polynomial using linked list.
- c) Explain in detail Types of Binary tree traversal techniques. With example.
- d) Write menu driven C code to implement Circular Queue using array.

### Section - II

#### Q.4 Attempt any four.

16

- a) Compare B tree with B+ Tree.
- **b)** Give a brief summary of M-way search tree.
- c) Write a note on Rotation types in AVL trees.
- d) Explain the procedure to delete a node from AVL tree.
- e) Explain how graph is represented with Adjaency Matrix.
- Define following terminologies in Graph
  - neighbors 1)
  - degree of a node
  - 3) regular graph
  - 4) path

#### Q.5 Attempt any two.

- a) Create a AVL tree for following values in given order. 63,9,19,27,18,108,99,81. Delete 19.
- **b)** Create a B-Tree of Order 5 by inserting following Keys. 3,14,7,1,8,5,11,17,13,6,23,12,20,26,4,16,18,24,25,19.
- c) Explain Dijkstra's algorithm to find shortest path.

		S.E.	Part – II) (New) (CB0). Computer Scie DATA S	nce a	nd l	•		
-			esday, 26-11-2019 To 05:30 PM		,,,		Marks:	70
nstr	uctio	·	book.			e solved in first 30 minutes in	า answ	er
		2	) Figures to the right indica					
Dura	tion: 3	30 Mir	MCQ/Objecti	ve Iy	pe (		Marks:	14
Q.1		ose t	he correct alternatives fr	items.	•	tions and rewrite the sente number of external nodes is $\log n$ n+1	nce.	14
	2)	,	st widely used structure for B+-trees structure Unbalanced tree structur		struc b) d)	tures, is known to be Balanced tree structure Sequential tree structure		
	3)		at is the maximum height on the standard the height of tree with a single at 2 at 4	node i		ree with 7 nodes? Assume to 3	nat	
	4)		an undirected graph G wit ree of each vertex is ne 2e	_•	tices b) d)	and e edges, the sum of the 2n e^n	,	
	5)	A baa) b) c) d)	alance factor in AVL tree is what rotation to make if all child nodes are at sa when the last rotation oc if the tree is unbalanced	ame lev		eck		
	6)		phs are represented using Adjacency tree Adjacency graph		b) d)	Adjacency linked list Adjacency queue		
	7)	If loo a) c)	cality is a concern, you ca Breadth First Search Either BFS or DFS		b) d)	to traverse the graph. Depth First Search None of these		
	8)	Whi a) c)	ch of the following is non-l Trees Array		ata s b) d)	structure? Stacks Linked List		

Set Q

9)	circular queue. How is rear manipulated while inserting an element in the queue?						
	a) c)	rear=(rear%1)+MAX_SIZE rear=(rear+1)%MAX_SIZE	b) d)	rear=rear%(MAX_SIZE+1) rear=rear+(1%MAX_SIZE)			
10)	pop,	e sequence of operations - push pop, pop, push (2), pop are per ped out values		oush (2), pop, push (1), push (2), ed on a stack, the sequence of			
	•	2,2,1,1,2 2,1,2,2,1		2,2,1,2,2 2,1,2,2,2			
11)	a) b)	Coefficient, exponential and link Previous item link, data item, no Coefficient, data item and link	k	ts of three field representing  em link			
12)	The a)	ST is traversed in the following o output sequence will be in Ascending order	 b)	Descending order			
13)	c)	Bitomic sequence of level 5 has	d)	No specific order			
10)	a) c)	15 63	b) d)	25 30			
14)	and	e inorder and preorder traversal A,B,D,E,F,G,H,C respectively th		inary tree are D,B,F,E,G,H,A,C e postorder traversal of that tree			
	a)	D,F,G,A,B,C,H,E C,G,H,F,E,D,B,A		F,H,D,G,E,B,C,A D,F,H,G,E,B,C,A			

Seat No.		Set	Q
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		S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2 Computer Science and Engineering DATA STRUCTURES	019
•		te: Tuesday, 26-11-2019 30 PM To 05:30 PM	Max. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section - I	
Q.2	a) b) c) d)	Define data structure. Explain its types along with example.  Define queue. Explain its operations using array.  Explain in detail how stack is used to evaluate postfix expression.  Write C code for insertion of Node at the end in Singly Linked List (State all required variables and parameters)  Write a short note on Threaded Binary Tree.  Construct a Binary tree with following given orders.  Preorder= ABDGHEICFJK InOrder= GDHBEIACJFK (Write explanation to every step)	
Q.3	a) b)	empt any two.  Write a program to implement Stack using Linked List.  Explain with example addition of polynomial using linked list.  Explain in detail Types of Binary tree traversal techniques. With example menu driven C code to implement Circular Queue using arra  Section - II	•
Q.4	a)	empt any four.  Compare B tree with B+ Tree.  Give a brief summary of M-way search tree.  Write a note on Rotation types in AVL trees.  Explain the procedure to delete a node from AVL tree.  Explain how graph is represented with Adjaency Matrix.  Define following terminologies in Graph  1) neighbors  2) degree of a node  3) regular graph  4) path	16
Q.5		empt any two.  Create a AVL tree for following values in given order.	12

63,9,19,27,18,108,99,81. Delete 19.

b) Create a B-Tree of Order 5 by inserting following Keys.

3,14,7,1,8,5,11,17,13,6,23,12,20,26,4,16,18,24,25,19. **c)** Explain Dijkstra's algorithm to find shortest path.

Seat	_	
No.	Set	R

		J.E.	Computer Scienc DATA STF	e and	Engineering	19
			esday, 26-11-2019 To 05:30 PM			lax. Marks: 70
Instr	uctio		Q. No. 1 is compulsory and book. ) Figures to the right indicate			tes in answer
			MCQ/Objective	Type (	Questions	
Dura	tion: 3	80 Mir	nutes			Marks: 14
Q.1	<b>Cho</b> (1)	AΒ	he correct alternatives from ST is traversed in the followin output sequence will be in Ascending order	g order		
		c)	Bitomic sequence	d)	No specific order	
	2)	A co a) c)	omplete binary tree of level 5 15 63	has how b) d)	many nodes? 25 30	
	3)	and is _		y then th	ne postorder traversal of	
		a) c)	D,F,G,A,B,C,H,E C,G,H,F,E,D,B,A	,	F,H,D,G,E,B,C,A D,F,H,G,E,B,C,A	
	4)	A m a) c)	ulti-way search tree has n ite n2 n	ms. The b) d)	number of external node $\log n$ n+1	es is
	5)	Mos a) c)	st widely used structure for ind B+-trees structure Unbalanced tree structure	dex strud b) d)	ctures, is known to be Balanced tree structure Sequential tree structu	)
	6)		at is the maximum height of a height of tree with a single no 2 4	-	tree with 7 nodes? Assu 3 5	me that
	7)		an undirected graph G with n ree of each vertex is ne 2e	vertices b) d)	s and e edges, the sum of 2n e^n	of the
	8)	A baa) b) c) d)	alance factor in AVL tree is us what rotation to make if all child nodes are at same when the last rotation occur if the tree is unbalanced	e level	neck	

Set R

9)		phs are represented using Adjacency tree Adjacency graph	 b) d)	Adjacency linked list Adjacency queue
10)	If loo a) c)	cality is a concern, you can use Breadth First Search Either BFS or DFS	b) d)	to traverse the graph. Depth First Search None of these
11)	Whi a) c)	ch of the following is non-linear o Trees Array	data s b) d)	tructure? Stacks Linked List
12)			ated w	hile inserting an element in the
13)	pop <sub>i</sub>	e sequence of operations - push, pop, pop, push (2), pop are per ped out values  2,2,1,1,2 2,1,2,2,1	forme	oush (2), pop, push (1), push (2), ed on a stack, the sequence of 2,2,1,2,2 2,1,2,2,2
14)	In poal a) b) c) d)	•	k	•

Seat No.		Set	R
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## S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science and Engineering DATA STRUCTURES**

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM 4 \ 4 \ 11

Instr	ucti	ons: 1) All questions are compulsory.	
		<ol><li>Figures to the right indicate full marks.</li></ol>	
		Section - I	
Q.2	_	empt any four.  Define data structure. Explain its types along with example	16
	a) b)	Define data structure. Explain its types along with example.  Define queue. Explain its operations using array.	
	c) d)	Explain in detail how stack is used to evaluate postfix expression.  Write C code for insertion of Node at the end in Singly Linked List.  (State all required variables and parameters)	
	e)	Write a short note on Threaded Binary Tree.	
	f)	Construct a Binary tree with following given orders.  Preorder= ABDGHEICFJK InOrder= GDHBEIACJFK (Write explanation to every step)	
Q.3		empt any two.  Write a program to implement Stack using Linked List	12

- Write a program to implement Stack using Linked List.
- b) Explain with example addition of polynomial using linked list.
- c) Explain in detail Types of Binary tree traversal techniques. With example.
- d) Write menu driven C code to implement Circular Queue using array.

### Section - II

## Attempt any four.

16

- a) Compare B tree with B+ Tree.
- **b)** Give a brief summary of M-way search tree.
- c) Write a note on Rotation types in AVL trees.
- d) Explain the procedure to delete a node from AVL tree.
- e) Explain how graph is represented with Adjaency Matrix.
- Define following terminologies in Graph
  - 1) neighbors
  - 2) degree of a node
  - 3) regular graph
  - 4) path

## Attempt any two.

- a) Create a AVL tree for following values in given order. 63,9,19,27,18,108,99,81. Delete 19.
- **b)** Create a B-Tree of Order 5 by inserting following Keys. 3,14,7,1,8,5,11,17,13,6,23,12,20,26,4,16,18,24,25,19.
- c) Explain Dijkstra's algorithm to find shortest path.

Seat		
No.	Set	S

		S.E.	Computer Scient	-	•	
•			esday, 26-11-2019 To 05:30 PM		Max	. Marks: 70
Instr	uctio	ns: 1)	Q. No. 1 is compulsory a book.	and should b	e solved in first 30 minutes	in answer
		2	) Figures to the right indic	ate full marl	KS.	
			MCQ/Object	ive Type	Questions	
Dura	ition: 3	O Mir	nutes			Marks: 14
Q.1	<b>Cho</b> (1)	Whathe la)		of any AVL- e node is 0. b)	tions and rewrite the sente tree with 7 nodes? Assume 3 5	
	2)	deg a)			s and e edges, the sum of the 2n en	ie
	3)	A ba a) b) c) d)	alance factor in AVL tree in what rotation to make if all child nodes are at such when the last rotation or if the tree is unbalanced	ame level	neck	
	4)	a)	phs are represented using Adjacency tree Adjacency graph	b) d)	Adjacency linked list Adjacency queue	
	5)		cality is a concern, you ca Breadth First Search Either BFS or DFS		_ to traverse the graph. Depth First Search None of these	
	6)	Whi a) c)	ch of the following is non- Trees Array	linear data : b) d)	structure? Stacks Linked List	
	7)		ular queue. How is rear m ue?	anipulated v	used in the implementation of while inserting an element in rear=rear%(MAX_SIZE+1) rear=rear+(1%MAX_SIZE	the
	8)	pop			push (2), pop, push (1), pused on a stack, the sequence 2,2,1,2,2 2,1,2,2,2	

Set S

9)	In pa a) b) c) d)	colynomial manipulation, nodes consists of three field representing  Coefficient, exponential and link  Previous item link, data item, next item link  Coefficient, data item and link  None of the option							
10)		ST is traversed in the following o output sequence will be in Ascending order Bitomic sequence	 b)	recursively: Right, root, left  Descending order  No specific order					
11)	A co a) c)	omplete binary tree of level 5 has 15 63		many nodes? 25 30					
12)	and is _ a)	 D,F,G,A,B,C,H,E	en th	pinary tree are D,B,F,E,G,H,A,C e postorder traversal of that tree F,H,D,G,E,B,C,A D,F,H,G,E,B,C,A					
13)	A m a) c)	ulti-way search tree has n items.  n2  n	b)	number of external nodes is $\_\_$ . $\log n$ $n+1$					
14)	Mos a) c)	st widely used structure for index B+-trees structure Unbalanced tree structure	b)	Balanced tree structure					

Seat		
No.	Set	S

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science and Engineering DATA STRUCTURES** Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any four. 16 a) Define data structure. Explain its types along with example. **b)** Define queue. Explain its operations using array. c) Explain in detail how stack is used to evaluate postfix expression. d) Write C code for insertion of Node at the end in Singly Linked List. (State all required variables and parameters) e) Write a short note on Threaded Binary Tree. Construct a Binary tree with following given orders. Preorder= ABDGHEICFJK InOrder= GDHBEIACJFK (Write explanation to every step) 12 Attempt any two. a) Write a program to implement Stack using Linked List. b) Explain with example addition of polynomial using linked list. c) Explain in detail Types of Binary tree traversal techniques. With example. d) Write menu driven C code to implement Circular Queue using array. Section - II Q.4 Attempt any four. 16 a) Compare B tree with B+ Tree. **b)** Give a brief summary of M-way search tree. c) Write a note on Rotation types in AVL trees. d) Explain the procedure to delete a node from AVL tree. e) Explain how graph is represented with Adjaency Matrix. Define following terminologies in Graph 1) neighbors degree of a node 3) regular graph 4) path 12 Attempt any two.

- a) Create a AVL tree for following values in given order. 63,9,19,27,18,108,99,81. Delete 19.
- **b)** Create a B-Tree of Order 5 by inserting following Keys. 3,14,7,1,8,5,11,17,13,6,23,12,20,26,4,16,18,24,25,19.
- c) Explain Dijkstra's algorithm to find shortest path.

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# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER NETWORKS

COMPUTER NETWORKS	
Day & Date: Wednesday, 27-11-2019 Time: 02:30 PM To 05:30 PM	Max. Marks: 70
<ul><li>Instructions: 1) Q 1 is of MCQ/ Objective type must be solved in a key should be written on page no. 3 in the answer to 2) All questions are compulsory.</li><li>3) Figures to the right indicate full marks for that questions</li></ul>	oook.
MCQ/Objective Type Questions	

			MCQ/Objective	Гуре	Questions	
Durat	tion: 3	80 Mi	nutes		Marks	s: 14
Q.1	<b>Cho</b> (1)		the correct alternatives from 4 address is bit long. 64 32	<b>the o</b> b) d)	ptions and rewrite the sentence.  128 48	14
	2)	pub	outgoing traffic NAT box conve lic IP address. TRUE FALSE	b)	ivate IP address to company's  Can't say  None of the above	
	3)	diffe	P uses the to handle inc erent process on the same host Queuing All		g user datagrams that go to  Multiplexing  Demultiplexing	
	4)	call	CP, one end can stop sending ed a Half-close Half-open	b)	while still receiving data. This is  One way termination  None of the above	
	5)	SC <sup>-</sup> a)	TP is reliable oriented p Character Number		Byte	
	6)		ed in byte order which is Little-endian		other pieces of information to be  Both A and C  None of the above	
	7)		lication layer. Stream	b) b) d)	•	
	8)	<u>a)</u>	CP server issues a passive ope and waits for a client. 65 67	b)	nmand on it's UDP port number  66 68	

Set P

9)		S has two types of message : Request and reply Question and answer	b)	Query and response
10)	acc a)	e translates data and comr eptable by remote computer. Terminal driver Server TELNET	b)	ds from NVT form into the form  Client TELNET  Pseduterminal driver
11)		H mechanism is sometime Encapsulation Multiplexing	b)	ferred to as SSH tunneling. port forwarding Numbering
12)	con	Puses two well-known TCP ports nection. Control Error	b) d)	Data
13)	TFT a) c)	P uses the services of on UDP TCP		well known port 69. SMTP HTTP
14)		is more powerful and more co POP3 SMTP	•	ex message access protocol. IMAP4 PGP

Max. Marks: 56

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Seat	Set	D
No.	Set	

# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER NETWORKS

Day & Date: Wednesday, 27-11-2019

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks for that question.

#### Section - I

## Q.2 Write answer any three of the following questions.

12

- a) Shortly describe with diagram and examples the four levels of addresses that are used in an internet employing the TCP/IP protocols.
- b) Write a short note on the multiplexing and demultiplexing service provided by UDP.
- c) Write a short note on the TCP timers.
- d) Shortly describe with diagram the concept of multihoming service offered by SCTP.
- e) Explain with diagram the structure of IPv4 socket address.

## Q.3 Write any two of the following questions.

16

- a) An organization is granted the block 194.122.13.0. The administrator wants to create 8 fixed length subnets. Find the subnet mask, Find the number of addresses in each subnet and Find the first and last address of the each subnet.
- b) What is silly window syndrome? Explain syndrome created by the receiver. Describe the Clark's solution to prevent the silly window syndrome.
- c) Describe with diagram the connectionless iterative server.

### Section - II

### Q.4 Write any three of the following questions.

12

- What is DHCP? Describe the DHCP operation when client and server are on the same network.
- b) With diagram describe the concept of remote login facilitated by TELNET.
- c) What is TFTP? List the names of five types of TFTP messages, draw and briefly describe TFTP ACK message format.
- d) Explain with diagram the concept of out-of-band signaling by TELNET.
- e) Explain with diagram the second scenario of electronic mail architecture.

## Q.5 Write any two of the following questions.

- With diagram describe the concept of recursive type name-address resolution by DNS.
- b) Draw the diagram of SSH packet format and briefly describe it's fields.
- c) With time line diagram describe an example of FTP usage for retrieving a list of items in a directory.

No.
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		Computer Scien	ce & E	ngineering
•		te: Wednesday, 27-11-2019 30 PM To 05:30 PM		Max. Marks: 70
Instr	uctio	key should be written on page 2) All questions are compulsor 3) Figures to the right indicate	ge no. 3 y.	
		MCQ/Objective	Type Q	uestions
Dura	tion: (	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	DOSE the correct alternatives from DHCP server issues a passive op and waits for a client.		
		a) 65 c) 67	,	66 68
	2)	DNS has two types of message : a) Request and reply c) Question and answer	b)	nd Query and response True and false
	3)	The translates data and confidence acceptable by remote computer.  a) Terminal driver c) Server TELNET	b)	s from NVT form into the form  Client TELNET  Pseduterminal driver
	4)	SSH mechanism is someti a) Encapsulation c) Multiplexing	b)	erred to as SSH tunneling. port forwarding Numbering
	5)	FTP uses two well-known TCP po connection. a) Control c) Error	b)	20 is used for the Data All above
	6)	TFTP uses the services of a) UDP c) TCP	b)	vell known port 69. SMTP HTTP
	7)	is more powerful and more a) POP3 c) SMTP	b)	x message access protocol. IMAP4 PGP
	8)	IPv4 address is bit long. a) 64 c) 32	,	128 48
	9)	For outgoing traffic NAT box conv public IP address. a) TRUE c) FALSE	b)	rate IP address to company's Can't say None of the above

Set Q

10)	UDP uses the to handle incordifferent process on the same host.	ning	user datagrams that go to
	a) Queuing c) All	b) d)	. •
11)	In TCP, one end can stop sending d called a	ata v	while still receiving data. This is
	<ul><li>a) Half-close</li><li>c) Half-open</li></ul>	,	One way termination None of the above
12)	SCTP is reliable oriented pre	otoc	ol.
,	a) Character	b)	Byte
	c) Number	d)	Message
13)	Network programming needs data a stored in byte order which is	nd o	ther pieces of information to be
	a) Little-endian	b)	Both A and C
	c) Big-endian	ď)	None of the above
14)	TCP uses type socket for corapplication layer.	nec	tion oriented communication with
	a) Stream	b)	Datagram
	c) Raw	d)	All above

Seat	Set	
No.	Set	Q

# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER NETWORKS

Day & Date: Wednesday, 27-11-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks for that question.

### Section - I

## Q.2 Write answer any three of the following questions.

12

- a) Shortly describe with diagram and examples the four levels of addresses that are used in an internet employing the TCP/IP protocols.
- b) Write a short note on the multiplexing and demultiplexing service provided by UDP.
- c) Write a short note on the TCP timers.
- d) Shortly describe with diagram the concept of multihoming service offered by SCTP.
- e) Explain with diagram the structure of IPv4 socket address.

## Q.3 Write any two of the following questions.

16

- a) An organization is granted the block 194.122.13.0. The administrator wants to create 8 fixed length subnets. Find the subnet mask, Find the number of addresses in each subnet and Find the first and last address of the each subnet.
- b) What is silly window syndrome? Explain syndrome created by the receiver. Describe the Clark's solution to prevent the silly window syndrome.
- c) Describe with diagram the connectionless iterative server.

### Section - II

### Q.4 Write any three of the following questions.

12

- What is DHCP? Describe the DHCP operation when client and server are on the same network.
- b) With diagram describe the concept of remote login facilitated by TELNET.
- c) What is TFTP? List the names of five types of TFTP messages, draw and briefly describe TFTP ACK message format.
- d) Explain with diagram the concept of out-of-band signaling by TELNET.
- e) Explain with diagram the second scenario of electronic mail architecture.

## Q.5 Write any two of the following questions.

- With diagram describe the concept of recursive type name-address resolution by DNS.
- b) Draw the diagram of SSH packet format and briefly describe it's fields.
- c) With time line diagram describe an example of FTP usage for retrieving a list of items in a directory.

Seat No.		Set	R
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# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER NETWORKS

Day & Date: Wednesday, 27-11-2019 Max. Marks: 70

Time	: 02:3	30 PM To 05:30 PM	
Instr	uctio	<ul> <li>cons: 1) Q 1 is of MCQ/ Objective type must be solved in 30 minute key should be written on page no. 3 in the answer book.</li> <li>2) All questions are compulsory.</li> <li>3) Figures to the right indicate full marks for that question.</li> </ul>	s and answer
		MCQ/Objective Type Questions	
Dura	tion: 3	30 Minutes	Marks: 14
Q.1	<b>Cho</b> (1)	Sose the correct alternatives from the options and rewrite the seasons and sewrite the sew	entence. 14
	2)	Network programming needs data and other pieces of information stored in byte order which is  a) Little-endian b) Both A and C c) Big-endian d) None of the above	to be
	3)	TCP uses type socket for connection oriented communicati application layer.  a) Stream b) Datagram c) Raw d) All above	on with
	4)	DHCP server issues a passive open command on it's UDP port nual and waits for a client.  a) 65 b) 66 c) 67 d) 68	mber
	5)	DNS has two types of message : and  a) Request and reply b) Query and response c) Question and answer d) True and false	
	6)	The translates data and commands from NVT form into the acceptable by remote computer.  a) Terminal driver b) Client TELNET  c) Server TELNET d) Pseduterminal driver	form
	7)	SSH mechanism is sometimes referred to as SSH tunneling a) Encapsulation b) port forwarding c) Multiplexing d) Numbering	<b>]</b> .
	8)	FTP uses two well-known TCP ports: port 20 is used for the connection. a) Control b) Data c) Error d) All above	-
	9)	TFTP uses the services of on the well known port 69.  a) UDP	

Set R

10)	<ul><li>a) POP3</li><li>c) SMTP</li></ul>	ompl b) d)	ex message access protocol. IMAP4 PGP
11)	IPv4 address is bit long. a) 64 c) 32	b) d)	128 48
12)	For outgoing traffic NAT box convergublic IP address.  a) TRUE c) FALSE	b)	vate IP address to company's  Can't say  None of the above
13)	UDP uses the to handle incordifferent process on the same host.  a) Queuing c) All	J	user datagrams that go to  Multiplexing  Demultiplexing
14)	In TCP, one end can stop sending decalled a  a) Half-close c) Half-open	ata v b) d)	

# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER NETWORKS

Day & Date: Wednesday, 27-11-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks for that question.

#### Section - I

## Q.2 Write answer any three of the following questions.

12

- a) Shortly describe with diagram and examples the four levels of addresses that are used in an internet employing the TCP/IP protocols.
- b) Write a short note on the multiplexing and demultiplexing service provided by UDP.
- c) Write a short note on the TCP timers.
- d) Shortly describe with diagram the concept of multihoming service offered by SCTP.
- e) Explain with diagram the structure of IPv4 socket address.

## Q.3 Write any two of the following questions.

16

- a) An organization is granted the block 194.122.13.0. The administrator wants to create 8 fixed length subnets. Find the subnet mask, Find the number of addresses in each subnet and Find the first and last address of the each subnet.
- b) What is silly window syndrome? Explain syndrome created by the receiver. Describe the Clark's solution to prevent the silly window syndrome.
- c) Describe with diagram the connectionless iterative server.

### Section - II

### Q.4 Write any three of the following questions.

12

- What is DHCP? Describe the DHCP operation when client and server are on the same network.
- b) With diagram describe the concept of remote login facilitated by TELNET.
- c) What is TFTP? List the names of five types of TFTP messages, draw and briefly describe TFTP ACK message format.
- d) Explain with diagram the concept of out-of-band signaling by TELNET.
- e) Explain with diagram the second scenario of electronic mail architecture.

## Q.5 Write any two of the following questions.

- With diagram describe the concept of recursive type name-address resolution by DNS.
- b) Draw the diagram of SSH packet format and briefly describe it's fields.
- c) With time line diagram describe an example of FTP usage for retrieving a list of items in a directory.

## S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER NETWORKS

Day & Date: Wednesday, 27-11-2019	Max. Marks:	70
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Time: 02:30 PM To 05:30 PM

Instructions: 1) Q 1 is of MCQ/ Objective type must be solved in 30 minutes and answer key should be written on page no. 3 in the answer book.

		<ul><li>2) All questions are compulsory.</li><li>3) Figures to the right indicate full</li></ul>	ma	rks for that question.	
		MCQ/Objective Ty	pe (	Questions	
Dura	tion: 3	30 Minutes		Marks:	14
Q.1	<b>Cho</b> 1)	The translates data and comracceptable by remote computer.  a) Terminal driver c) Server TELNET	nand b)		14
	2)	SSH mechanism is sometime a) Encapsulation c) Multiplexing		port forwarding	
	3)	FTP uses two well-known TCP ports connection.  a) Control c) Error	b) d)	rt 20 is used for the Data All above	
	4)	TFTP uses the services of on a) UDP c) TCP	the b) d)	well known port 69. SMTP HTTP	
	5)	is more powerful and more coa) POP3 c) SMTP	mpl b) d)	ex message access protocol. IMAP4 PGP	
	6)	IPv4 address is bit long. a) 64 c) 32	b) d)	128 48	
	7)	For outgoing traffic NAT box convert public IP address.  a) TRUE c) FALSE	s pri b) d)	ivate IP address to company's Can't say None of the above	
	8)	UDP uses the to handle incordifferent process on the same host.  a) Queuing c) All	ning b) d)		
	9)	In TCP, one end can stop sending decalled a  a) Half-close c) Half-open	ata v b) d)	while still receiving data. This is  One way termination  None of the above	

Set S

c) Number d) Message  11) Network programming needs data and other pieces of information stored in byte order which is  a) Little-endian b) Both A and C c) Big-endian d) None of the above	
c) Big-endian d) None of the above	on to be
, ,	
10) TOD	
<ol> <li>TCP uses type socket for connection oriented communical application layer.</li> </ol>	ation with
a) Stream b) Datagram	
c) Raw d) All above	
13) DHCP server issues a passive open command on it's UDP port and waits for a client.	number
a) 65 b) 66	
c) 67 d) 68	
14) DNS has two types of message : and a) Request and reply b) Query and response c) Question and answer d) True and false	

Seat	Sat	6
No.	Set	3

# S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER NETWORKS

Day & Date: Wednesday, 27-11-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks for that question.

### Section - I

## Q.2 Write answer any three of the following questions.

12

- a) Shortly describe with diagram and examples the four levels of addresses that are used in an internet employing the TCP/IP protocols.
- b) Write a short note on the multiplexing and demultiplexing service provided by UDP.
- c) Write a short note on the TCP timers.
- d) Shortly describe with diagram the concept of multihoming service offered by SCTP.
- e) Explain with diagram the structure of IPv4 socket address.

## Q.3 Write any two of the following questions.

16

- a) An organization is granted the block 194.122.13.0. The administrator wants to create 8 fixed length subnets. Find the subnet mask, Find the number of addresses in each subnet and Find the first and last address of the each subnet.
- b) What is silly window syndrome? Explain syndrome created by the receiver. Describe the Clark's solution to prevent the silly window syndrome.
- c) Describe with diagram the connectionless iterative server.

### Section - II

### Q.4 Write any three of the following questions.

12

- a) What is DHCP? Describe the DHCP operation when client and server are on the same network.
- b) With diagram describe the concept of remote login facilitated by TELNET.
- c) What is TFTP? List the names of five types of TFTP messages, draw and briefly describe TFTP ACK message format.
- d) Explain with diagram the concept of out-of-band signaling by TELNET.
- e) Explain with diagram the second scenario of electronic mail architecture.

## Q.5 Write any two of the following questions.

- With diagram describe the concept of recursive type name-address resolution by DNS.
- b) Draw the diagram of SSH packet format and briefly describe it's fields.
- c) With time line diagram describe an example of FTP usage for retrieving a list of items in a directory.

Seat	Set	D
No.	Set	L

		Computer Science OPERATING SYS	e & E	ingineering
_		e: Friday, 06-12-2019 0 PM To 05:30 PM		Max. Marks: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory should book. 2) Figures to the right indicate fu		
_		MCQ/Objective	Гуре	
		30 Minutes	_	Marks: 14
Q.1	<b>Cho</b> (1)	The address of the next instruction is provided by the  a) CPU registers c) Process stack		
	2)	<ul> <li>Which one of the following error with a) power failure</li> <li>b) lack of paper in printer</li> <li>c) connection failure in the netword</li> <li>d) all of the mentioned</li> </ul>		andle by the operating system?
	3)	The processes that are residing in waiting to execute are kept on a list a) job queue c) execution queue		•
	4)	There are 10 different processes reare waiting for an input event in the scheduled with the Round-Robin to following quantum times (tQ) is the the processes have a short runtime a) tQ = 15ms c) tQ = 45ms	e input ime sha e best v e, e.g. b)	queue. Busy processes are aring method. Which out of the value for small response times, if less than 10ms?
	5)	The segment of code in which the variables, update tables, write into a) Entry Section c) Exit section	•	s known as
	6)	If all processes I/O bound, the read and the Short term Scheduler will I a) full, little c) empty, little		

## Set P

7)	the o	S algorithm is non-preemptive in allocated to a process, other procers has finished. This situation called	oces	ses can get CPU time only after
	,	Belady's Effect	d)	Aging effect
8)	a)	ch of the following is the deadloc Banker's Algorithm RR Algorithm	k avo b) d)	<u> </u>
9)	a)	number of processes completed Output Efficiency	per u b) d)	unit time is known as Throughput Capacity
10)	a)	ch of the following is the address Physical address Logical Address		erated by CPU? Absolute address None of the above
11)	a) b) c)	ual exclusion can be provided by mutex locks binary semaphores both mutex locks and binary sen none of the mentioned		
12)	begi a)	disadvantage of a process being inning its execution is  Low CPU utilization  Very high resource utilization	b)	Low resource utilization None of these
13)	a)	ctive access time is directly prop page-fault rate memory access time	ortion b) d)	al to hit ratio none of the mentioned
14)	mes a)	a set of wires and a rigidly of sages that can be sent on the will port	res. b)	Node
	c)	bus	d)	none of these

	 ,	
Seat	Set	D
No.	Set	

## T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering OPERATING SYSTEM CONCEPTS

Day & Date: Friday, 06-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

### Section - I

## Q.2 Attempt any Three.

12

- a) What is spooling? Explain with example.
- **b)** Explain PCB With example.
- c) Explain Process Life Cycle with an example.
- d) Explain peterson's algorithm (Algorithm -3) for two process synchronization.
- e) Define:
  - 1) Throughput
  - 2) Response time
  - 3) Race Condition
  - 4) Waiting time

## Q.3 Attempt any Two.

16

- a) What is Process? Explain Shortest Remaining Time first and Round Robin Scheduling algorithm with example. (Use at least 4 Process)
- **b)** Describe the difference between Short term Scheduling, Long term scheduling and medium term scheduling
- **c)** Explain classical problems of Synchronization in terms of Dining Philosopher problem.

#### Section - II

## Q.4 Attempt any Three.

12

- a) Explain the steps process to perform DMA transfer.
- b) Explain overlay with an example.
- c) Explain the steps for page fault handling.
- d) Given five memory partitions of 100Kb, 500Kb, 200Kb, 300Kb, 600Kb (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of 212 Kb, 417 Kb,112 Kb, and 426 Kb (in order)? Which algorithm makes the most efficient use of memory?

### Q.5 Attempt any Two.

- a) Explain Paging in detail.
- **b)** Prove Belady's Anomaly with an example. (Draw graph)
- c) Explain Banker's algorithm with suitable example.

		T.E	. (Part – I) (New) (CBCS) E Computer Science OPERATING SYSTI	& E	ngineering
•			day, 06-12-2019 I To 05:30 PM		Max. Marks: 70
Instr	uctior		) Q. No. 1 is compulsory should be book. 2) Figures to the right indicate full		
			MCQ/Objective Ty	pe C	
Dura	tion: 3				Marks: 14
Q.1	<b>Choo</b> 1)		the correct alternatives from the ich of the following is the deadlood Banker's Algorithm RR Algorithm	•	ions and rewrite the sentence. 14 bidance algorithm? Bakery Algorithm Peterson's Algorithm
	2)		e number of processes completed Output Efficiency	l per ( b) d)	unit time is known as Throughput Capacity
	3)	Wh a) c)	ich of the following is the address Physical address Logical Address		erated by CPU? Absolute address None of the above
	4)	a)	tual exclusion can be provided by mutex locks binary semaphores both mutex locks and binary sen none of the mentioned		
	5)	beg a)	e disadvantage of a process being ginning its execution is  Low CPU utilization  Very high resource utilization	b)	Low resource utilization
	6)	Effe a) c)	ective access time is directly prop page-fault rate memory access time	ortior b) d)	nal to hit ratio none of the mentioned
	7)		a set of wires and a rigidly on sages that can be sent on the wife port bus		Node none of these
	8)	is p	e address of the next instruction to rovided by the  CPU registers  Process stack	b) d)	executed by the current process  Program counter  Pipe

Set Q

9)		connection failure in the network		andle by the operating system?
10)	wai	e processes that are residing in mating to execute are kept on a list of job queue execution queue		•
11)	are sch folk the	ere are 10 different processes run waiting for an input event in the i leduled with the Round-Robin tim lowing quantum times (tQ) is the b processes have a short runtime, tQ = 15ms tQ = 45ms	nput o e sha est v e.g. l	queue. Busy processes are tring method. Which out of the alue for small response times, if
12)	vari	e segment of code in which the priables, update tables, write into fil Entry Section Exit section		known as
13)		•		
14)	the to the a)	FS algorithm is non-preemptive in allocated to a process, other process has finished. This he situation called  Convoy Effect	roces s pro b)	ses can get CPU time only after perty of FCFS scheduling leads  Common Effect
	c)	Belady's Effect	d)	Aging effect

Seat	Set	
No.	Set	Q

## T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering OPERATING SYSTEM CONCEPTS

Day & Date: Friday, 06-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

### Section - I

## Q.2 Attempt any Three.

12

- a) What is spooling? Explain with example.
- **b)** Explain PCB With example.
- c) Explain Process Life Cycle with an example.
- d) Explain peterson's algorithm (Algorithm -3) for two process synchronization.
- e) Define:
  - 1) Throughput
  - 2) Response time
  - 3) Race Condition
  - 4) Waiting time

## Q.3 Attempt any Two.

16

- a) What is Process? Explain Shortest Remaining Time first and Round Robin Scheduling algorithm with example. (Use at least 4 Process)
- **b)** Describe the difference between Short term Scheduling, Long term scheduling and medium term scheduling
- **c)** Explain classical problems of Synchronization in terms of Dining Philosopher problem.

#### Section - II

## Q.4 Attempt any Three.

12

- a) Explain the steps process to perform DMA transfer.
- b) Explain overlay with an example.
- c) Explain the steps for page fault handling.
- **d)** Given five memory partitions of 100Kb, 500Kb, 200Kb, 300Kb, 600Kb (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of 212 Kb, 417 Kb,112 Kb, and 426 Kb (in order)? Which algorithm makes the most efficient use of memory?

### Q.5 Attempt any Two.

- a) Explain Paging in detail.
- **b)** Prove Belady's Anomaly with an example. (Draw graph)
- c) Explain Banker's algorithm with suitable example.

Seat	_	
No.	Set	R

## T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering OPERATING SYSTEM CONCEPTS**

Day & Date: Friday, 06-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Q. No. 1 is compulsory should be solved in first 30 minutes in answer book. 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the sentence. The segment of code in which the process may change common variables, update tables, write into files is known as a) Entry Section Critical section b) c) Exit section Remainder Section d) 2) If all processes I/O bound, the ready queue will almost always be \_\_\_\_\_ and the Short term Scheduler will have a \_\_\_\_\_ to do. a) full, little b) full, lot c) empty, little d) empty, lot FCFS algorithm is non-preemptive in nature, that is, once CPU time has 3) been allocated to a process, other processes can get CPU time only after the current process has finished. This property of FCFS scheduling leads to the situation called \_\_\_\_\_. a) Convoy Effect b) Common Effect c) Belady's Effect Aging effect d) 4) Which of the following is the deadlock avoidance algorithm? a) Banker's Algorithm **Bakery Algorithm** b) Peterson's Algorithm c) RR Algorithm d) 5) The number of processes completed per unit time is known as \_\_\_\_\_. a) Output Throughput b) c) Efficiency d) Capacity Which of the following is the address generated by CPU? 6) a) Physical address b) Absolute address c) Logical Address d) None of the above 7) Mutual exclusion can be provided by the \_\_\_\_\_. a) mutex locks b) binary semaphores c) both mutex locks and binary semaphores d) none of the mentioned 8) The disadvantage of a process being allocated all its resources before beginning its execution is . . a) Low CPU utilization Low resource utilization b)

d)

None of these

c) Very high resource utilization

Set R

9)	Effe a) c)		ortior b) d)	hit ratio
10)		a set of wires and a rigidly one sages that can be sent on the w		ed protocol that specifies a set of
	a) c)	port bus	b) d)	Node none of these
11)		e address of the next instruction to address of the	o be e	executed by the current process
	a)	CPU registers Process stack	b) d)	Program counter Pipe
12)	a) b) c)	ich one of the following error will power failure lack of paper in printer connection failure in the network all of the mentioned		andle by the operating system?
13)	wai a)	e processes that are residing in mating to execute are kept on a list job queue execution queue		
14)	are sch folk the a)	ere are 10 different processes rur waiting for an input event in the leduled with the Round-Robin time owing quantum times (tQ) is the b processes have a short runtime, tQ = 15ms tQ = 45ms	input e sha est v	queue. Busy processes are aring method. Which out of the alue for small response times, if

Seat	Sat	В
No.	Set	K

# T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering OPERATING SYSTEM CONCEPTS

Day & Date: Friday, 06-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

#### Section - I

## Q.2 Attempt any Three.

12

- a) What is spooling? Explain with example.
- **b)** Explain PCB With example.
- c) Explain Process Life Cycle with an example.
- d) Explain peterson's algorithm (Algorithm -3) for two process synchronization.
- e) Define:
  - 1) Throughput
  - 2) Response time
  - 3) Race Condition
  - 4) Waiting time

## Q.3 Attempt any Two.

16

- a) What is Process? Explain Shortest Remaining Time first and Round Robin Scheduling algorithm with example. (Use at least 4 Process)
- **b)** Describe the difference between Short term Scheduling, Long term scheduling and medium term scheduling
- **c)** Explain classical problems of Synchronization in terms of Dining Philosopher problem.

#### Section - II

## Q.4 Attempt any Three.

12

- a) Explain the steps process to perform DMA transfer.
- b) Explain overlay with an example.
- c) Explain the steps for page fault handling.
- d) Given five memory partitions of 100Kb, 500Kb, 200Kb, 300Kb, 600Kb (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of 212 Kb, 417 Kb,112 Kb, and 426 Kb (in order)? Which algorithm makes the most efficient use of memory?

#### Q.5 Attempt any Two.

16

- a) Explain Paging in detail.
- **b)** Prove Belady's Anomaly with an example. (Draw graph)
- c) Explain Banker's algorithm with suitable example.

Seat		
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# T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019

		1.6	Computer Science OPERATING SYS	e & E	ngineering	
			iday, 06-12-2019 И То 05:30 РМ		Max. Marks	s: 70
Instr	uctio	<b>ns:</b> 1	Q. No. 1 is compulsory should book.	d be so	olved in first 30 minutes in answer	
		2	2) Figures to the right indicate for	ull marl	S.	
D		O N 4	MCQ/Objective	Type		4 /
	ition: 3				Marks	
Q.1	1)		the correct alternatives from nich of the following is the addre Physical address Logical Address	ess gen b)	tions and rewrite the sentence. erated by CPU? Absolute address None of the above	14
	2)	Mu a) b) c) d)	tual exclusion can be provided mutex locks binary semaphores both mutex locks and binary s none of the mentioned	•		
	3)	beg	e disadvantage of a process be ginning its execution is  Low CPU utilization  Very high resource utilization	ing allo b) d)	Low resource utilization None of these	
	4)	Effe a) c)	ective access time is directly propage-fault rate memory access time	oportio b) d)	nal to hit ratio none of the mentioned	
	5)		ssages that can be sent on the	•	ed protocol that specifies a set of  Node  none of these	
	6)		e address of the next instruction provided by the  CPU registers  Process stack	to be b) d)	executed by the current process  Program counter  Pipe	
	7)	Wh a) b) c) d)	nich one of the following error w power failure lack of paper in printer connection failure in the netwo all of the mentioned		andle by the operating system?	
	8)		e processes that are residing in iting to execute are kept on a lis job queue execution queue			

Set S

9)	are sch folk the a)	ere are 10 different processes run waiting for an input event in the inteduced with the Round-Robin time bowing quantum times (tQ) is the bound-runtime, processes have a short runtime, tQ = 15ms tQ = 45ms	nput o e sha est v	queue. Busy processes are tring method. Which out of the alue for small response times, if
10)	vari	e segment of code in which the pripables, update tables, write into file Entry Section  Exit section	es is	
11)		'	-	
12)	the	FS algorithm is non-preemptive in allocated to a process, other process has finished. This he situation called  Convoy Effect Belady's Effect	roces	ses can get CPU time only after
13)	a)	ich of the following is the deadloo Banker's Algorithm RR Algorithm	k avo b) d)	oidance algorithm? Bakery Algorithm Peterson's Algorithm
14)	The a) c)	e number of processes completed Output Efficiency	l per ι b) d)	unit time is known as Throughput Capacity

Seat No.	Set S	S
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## T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering OPERATING SYSTEM CONCEPTS

Day & Date: Friday, 06-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

#### Section - I

### Q.2 Attempt any Three.

12

- a) What is spooling? Explain with example.
- **b)** Explain PCB With example.
- c) Explain Process Life Cycle with an example.
- d) Explain peterson's algorithm (Algorithm -3) for two process synchronization.
- e) Define:
  - 1) Throughput
  - 2) Response time
  - 3) Race Condition
  - 4) Waiting time

## Q.3 Attempt any Two.

16

- a) What is Process? Explain Shortest Remaining Time first and Round Robin Scheduling algorithm with example. (Use at least 4 Process)
- **b)** Describe the difference between Short term Scheduling, Long term scheduling and medium term scheduling
- **c)** Explain classical problems of Synchronization in terms of Dining Philosopher problem.

#### Section - II

## Q.4 Attempt any Three.

12

- a) Explain the steps process to perform DMA transfer.
- b) Explain overlay with an example.
- c) Explain the steps for page fault handling.
- **d)** Given five memory partitions of 100Kb, 500Kb, 200Kb, 300Kb, 600Kb (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of 212 Kb, 417 Kb,112 Kb, and 426 Kb (in order)? Which algorithm makes the most efficient use of memory?

#### Q.5 Attempt any Two.

16

- a) Explain Paging in detail.
- **b)** Prove Belady's Anomaly with an example. (Draw graph)
- c) Explain Banker's algorithm with suitable example.

	_	
Seat	Set	D
No.	Set	

## T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering SYSTEM PROGRAMMING

Day & Date: Monday, 09-12-2019 Time: 02:30 PM To 05:30 PM	Max. Marks: 70
<b>Instructions:</b> 1) Q. No. 1 is compulsory and should be solved in first 30 r book.	minutes in answer
O) = '	

Instr	uctio	ns: ′	Q. No. 1 is compulsory and shook.	ould I	be solved in first 30 minutes in answer
		2	2) Figures to right indicate full ma	rks.	
			MCQ/Objective Ty	pe Q	uestions
Dura	ition: 3	30 M	inutes		Marks: 14
Q.1	<b>Cho</b> e 1)		mpiler bridges the semantic gap b	etwe	tions and rewrite the sentence. 14 en which domains? Application and PL None of these
	2)	Sof a) c)	tware implementation using PL in Application Domain Execution Domain		ices new domain called PL Domain Program Generator Domain
	3)		e assembler in first pass reads the n offsets in a table Hash table Both a & b	b) d)	gram to collect symbols defined  Symbol table  None of these
	4)		e part of computer system which ped Interpreter OS	b) b) d)	rm the house keeping function is  Compiler  Assembler
	5)		nning time of a program depends Addressing mode The usage of machine idioms	on _ b) d)	Order of computations All of the mentioned
	6)	A m a) c)	nodel statement contains call for a Referential macro call Inbuilt macro call		er macro is called as  Nested macro call  Inherited macro call
	7)	call	e graph that shows basic blocks a ed DAG Control Graph		eir successor relationship is Flow Graph Hamilton Graph
	8)		e identification of common sub-ex nputations by compile-time compi Local optimization Constant folding	-	•
	9)	In c a) b) c) d)	compiler design 'reducing the stre reducing the range of values of code optimization using cheape reducing efficiency of program None of the above	input	variables

Set P

10)	Reloa)	ocation bits used by relocating loa Relocating loader itself Assembler	ader a b) d)	are specified by Linker Macro processor
11)	Stor a) c)	rage mapping is done by OS Linker	b) d)	Compiler Loader
12)		ker creates a link file containing bi taining address information on lin Link map Symbol map	•	•
13)		ary symbolic subroutine loader is Absolute loader Compile & Go loaders	b)	ple of Relocating Loaders Direct linking loader
14)	In Io a) c)	paders, location & length of each a ESD RLD	addre b) d)	ess constant is maintained by  TXT  FND

	_	
Seat	Set	D
No.	Sei	

		T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering SYSTEM PROGRAMMING	
•		ate: Monday, 09-12-2019 Max. Marks :30 PM To 05:30 PM	: 56
		ons: 1) All questions are compulsory. 2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Atte	<pre>empt any three.   Define Language Processing. Generate the Assembly language statements   for the following source statement:</pre>	12
	b) c)	Explain Assembler Directives and advanced Assembler Directives.  How forward references are handled in one pass and two pass assembler?  Explain.	
	d) e)	Provide the design overview of the Macro preprocessor with a diagram.  Explain nested macro call with example.	
Q.3	Atte	empt any one.  Explain the advanced macro facilities: AIF, AGO, ANOP, LCL & GBL.  OR	80
Q.4	<b>b)</b> Wh	Elaborate the front end of a Toy compiler with a schematic and its phases. at is intermediate code? Explain Variant-I and Variant-II forms with example.	08
		Section – II	
Q.5	Atta a)	empt any three.  Draw an Expression tree and show the best evaluation order for operators using RR label concept for the following expression. $((a+b)+(x/y))*((c+d)/(m+n))$	12
	b) c) d) e)	Explain Absolute loader scheme with its advantages and disadvantages. What is program Relocation, explain with example. Explain Overlay structured program with example. Write a short note on "Aspects of compilation".	
Q.6	Atte	empt any one. Write and explain linking algorithm with example. OR	80
	b)	Explain the following loader schemes.  1) Direct Linking Loader.  2) Relocating Loader.	
Q.7	con	plain with example, following Optimizing Transformations with respect to npilers.  Compile time evaluation  Elimination of common sub-expression  Dead code elimination  Frequency reduction	80

Seat	Set	0
No.	OCT	Q

		T.E	E. (Part – I) (New) (CBCS) E Computer Science SYSTEM PROC	& E	ingineering
•			onday, 09-12-2019 // To 05:30 PM		Max. Marks: 70
Instr	uctio		book.		be solved in first 30 minutes in answer
		4	2) Figures to right indicate full ma MCQ/Objective Ty		unetions
Dura	ition: ?	N OS	inutes	he a	Marks: 14
Q.1			the correct alternatives from the	o on	
Q. I	1)	The	e identification of common sub-ex nputations by compile-time compile compile compile compile compile compile compile compile compile constant folding	press	sion and replacement of run-time
	2)	In c a) b) c) d)	compiler design 'reducing the street reducing the range of values of code optimization using cheape reducing efficiency of program None of the above	input	variables
	3)	Rel a) c)	ocation bits used by relocating loa Relocating loader itself Assembler	ader b) d)	are specified by Linker Macro processor
	4)	Sto a) c)	rage mapping is done by OS Linker	b) d)	Compiler Loader
	5)		ker creates a link file containing b Itaining address information on lin Link map Symbol map		
	6)	Bin a) c)	ary symbolic subroutine loader is Absolute loader Compile & Go loaders		nple of Relocating Loaders Direct linking loader
	7)	In lo a) c)	paders, location & length of each ESD RLD	addr b) d)	ess constant is maintained by  TXT  END
	8)	,	npiler bridges the semantic gap be Application and Execution PL and Execution	,	en which domains?
	9)	Sof a) c)	tware implementation using PL in Application Domain Execution Domain	trodu b) d)	ices new domain called PL Domain Program Generator Domain

Set Q

10)		e assembler in first pass reads the n offsets in a table Hash table Both a & b	b) d)	Symbol table  None of these
11)	The	e part of computer system which ped .	,	
		Interpreter	b)	Compiler
	c)	OS	d)	Assembler
	٠)	80	u)	ASSCRIBICI
12)	Rur	nning time of a program depends	on	
	a)	Addressing mode	b)	Order of computations
	c)	The usage of machine idioms	ď	All of the mentioned
	,	· ·	,	
13)	Αm	nodel statement contains call for a		
	a)	Referential macro call	b)	Nested macro call
	c)	Inbuilt macro call	d)	Inherited macro call
14)	The	e graph that shows basic blocks a	nd th	oir cuccossor rolationship is
14)		•	na un	eli successoi relationship is
		ed		<b>-</b>
	a)	DAG	b)	Flow Graph
	c)	Control Graph	d)	Hamilton Graph

Seat No.		Set	Q
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# T.F. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering	
		SYSTEM PROGRAMMING	
•		Max. Marks: 30 PM To 05:30 PM	: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Att	empt any three.	12
	a)	Define Language Processing. Generate the Assembly language statements for the following source statement: <pre>percent_profit := (profit * 100) / cost_price;</pre>	
	b) c)	Explain Assembler Directives and advanced Assembler Directives.  How forward references are handled in one pass and two pass assembler?  Explain.	
	d) e)	Provide the design overview of the Macro preprocessor with a diagram.  Explain nested macro call with example.	
Q.3	Atta	empt any one.  Explain the advanced macro facilities: AIF, AGO, ANOP, LCL & GBL.  OR	80
	b)	Elaborate the front end of a Toy compiler with a schematic and its phases.	
Q.4	Wh	at is intermediate code? Explain Variant-I and Variant-II forms with example.	80
		Section – II	
Q.5	Att	empt any three.	12
	a)	Draw an Expression tree and show the best evaluation order for operators using RR label concept for the following expression. $((a + b) + (x/y))*((c + d)/(m + n))$	
	b) c) d) e)	Explain Absolute loader scheme with its advantages and disadvantages. What is program Relocation, explain with example. Explain Overlay structured program with example. Write a short note on "Aspects of compilation".	
Q.6	Atta)	empt any one. Write and explain linking algorithm with example. OR	80
	b)	Explain the following loader schemes.  1) Direct Linking Loader.  2) Relocating Loader.	
Q.7		plain with example, following Optimizing Transformations with respect to npilers.  Compile time evaluation  Elimination of common sub-expression  Dead code elimination  Frequency reduction	08

Seat	Sat	D
No.	Set	K

		T.E	E. (Part – I) (New) (CBCS) E Computer Science SYSTEM PROG	& E	ngineering
			onday, 09-12-2019 // To 05:30 PM		Max. Marks: 70
Instr	uctio	ns: 1	Q. No. 1 is compulsory and sho book.	ould b	be solved in first 30 minutes in answer
		2	2) Figures to right indicate full mai	rks.	
			MCQ/Objective Ty	pe Q	uestions
Dura	tion: 3	80 M	inutes		Marks: 14
Q.1	<b>Choo</b> 1)		the correct alternatives from the nning time of a program depends Addressing mode	-	
		c)	The usage of machine idioms	d)	All of the mentioned
	2)	A m a) c)	nodel statement contains call for a Referential macro call Inbuilt macro call	noth b) d)	er macro is called as  Nested macro call Inherited macro call
	3)	call	e graph that shows basic blocks a ed DAG		·
		a) c)	Control Graph	b) d)	Flow Graph Hamilton Graph
	4)		e identification of common sub-exp nputations by compile-time compu Local optimization Constant folding		•
	<ul><li>5)</li><li>6)</li></ul>	In c a) b) c) d)	compiler design 'reducing the streing reducing the range of values of it code optimization using cheaper reducing efficiency of program None of the above ocation bits used by relocating loa	ngth' input r mac	refers to variables thine instructions
	O)	a) c)	Relocating loader itself Assembler	b) d)	Linker  Macro processor
	7)	Sto a) c)	rage mapping is done by OS Linker	b) d)	Compiler Loader
	8)		ker creates a link file containing bi taining address information on lin Link map Symbol map	•	•
	9)	Bina a) c)	ary symbolic subroutine loader is Absolute loader Compile & Go loaders	exam b) d)	nple of Relocating Loaders Direct linking loader

Set R

10)	In load	ers, location & length of each a	addre	ss constant is maintained by
-	a) ES	SD	b)	TXT
	c) RI	_D	d)	END
11)	a) Ap	ler bridges the semantic gap be oplication and Execution and Execution	b)	
12)		re implementation using PL int		
	, .	pplication Domain		PL Domain
	c) Ex	ecution Domain	d)	Program Generator Domain
13)		sembler in first pass reads the fsets in a table	prog	ram to collect symbols defined
	a) Ha	ash table	b)	Symbol table
	c) Bo	oth a & b	d)	None of these
14)	-		erforr	m the house keeping function is
	called		<b>L</b> \	Compiler
	· · · · ·	terpreter	b)	Compiler
	c) OS	5	d)	Assembler

Seat	Sat	D
No.	Set	K

		T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019  Computer Science & Engineering  SYSTEM PROGRAMMING	
_		ate: Monday, 09-12-2019 Max. Marks	: 56
_	_	:30 PM To 05:30 PM	
instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figure to the right indicates full marks.</li></ul>	
		Section – I	
Q.2	_	empt any three.	12
	a)	Define Language Processing. Generate the Assembly language statements for the following source statement: <pre>percent_profit := (profit * 100) / cost_price;</pre>	
	b) c)	Explain Assembler Directives and advanced Assembler Directives.  How forward references are handled in one pass and two pass assembler?  Explain.	
	d) e)	Provide the design overview of the Macro preprocessor with a diagram.  Explain nested macro call with example.	
Q.3	Att	empt any one.	80
	a)	Explain the advanced macro facilities: AIF, AGO, ANOP, LCL & GBL.  OR	
	b)	Elaborate the front end of a Toy compiler with a schematic and its phases.	
Q.4	Wh	nat is intermediate code? Explain Variant-I and Variant-II forms with example.	80
		Section - II	
Q.5	Att	empt any three.	12
	a)	Draw an Expression tree and show the best evaluation order for operators using RR label concept for the following expression.	
	b)	((a+b)+(x/y))*((c+d)/(m+n)) Explain Absolute loader scheme with its advantages and disadvantages.	
	c)	What is program Relocation, explain with example.	
	d)	Explain Overlay structured program with example.	
	-	Write a short note on "Aspects of compilation".	
Q.6	Att a)	empt any one. Write and explain linking algorithm with example. OR	80
	b)	Explain the following loader schemes.  1) Direct Linking Loader.  2) Relocating Loader.	
Q.7	Fxr	plain with example, following Optimizing Transformations with respect to	08
Q.1	cor	npilers.	00
	1) 2)	Compile time evaluation Elimination of common sub-expression	
	3) 4)	Dead code elimination Frequency reduction	

Seat	Sat	6
No.	Set	3

## T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering** SYSTEM PROGRAMMING

Day & Date: Monday, 09-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer 2) Figures to right indicate full marks. **MCQ/Objective Type Questions Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the sentence. Q.1 14 Relocation bits used by relocating loader are specified by \_\_\_\_\_. Relocating loader itself b) Linker c) Assembler d) Macro processor Storage mapping is done by \_\_ 2) Compiler a) OS b) c) Linker d) Loader 3) Linker creates a link file containing binary codes and also produces \_\_\_\_\_ containing address information on linked files. Link map Map table Symbol map d) None of these c) 4) Binary symbolic subroutine loader is example of \_ a) Absolute loader Relocating Loaders b) c) Compile & Go loaders Direct linking loader d) In loaders, location & length of each address constant is maintained by \_\_\_\_\_. 5) a) ESD b) TXT **END** c) RLD d) 6) Compiler bridges the semantic gap between which domains? a) Application and Execution Application and PL b) c) PL and Execution d) None of these 7) Software implementation using PL introduces new domain called \_\_\_\_\_. a) Application Domain PL Domain b) c) Execution Domain d) Program Generator Domain 8) The assembler in first pass reads the program to collect symbols defined with offsets in a table \_\_\_\_\_. a) Hash table Symbol table b)

d)

b)

d)

The part of computer system which perform the house keeping function is

None of these

Compiler

Assembler

Both a & b

Interpreter

called .

OS

a) c)

9)

Set S

10)	a)	nning time of a program depends Addressing mode The usage of machine idioms	b)	Order of computations	
11)	a)	nodel statement contains call for a Referential macro call Inbuilt macro call	b)	er macro is called as  Nested macro call Inherited macro call	
12)	call	e graph that shows basic blocks a ed DAG Control Graph		eir successor relationship is Flow Graph Hamilton Graph	
13)	con	e identification of common sub-ex nputations by compile-time compi Local optimization Constant folding	utatio	ns is Loop optimization	
14)	In compiler design 'reducing the strength' refers to  a) reducing the range of values of input variables b) code optimization using cheaper machine instructions c) reducing efficiency of program d) None of the above				

Seat	Set	9
No.	Set	3

# T.E. (Part - I) (New) (CRCS) Examination Nov/Dec-2010

		Computer Science & Engineering	
		SYSTEM PROGRAMMING	
		ate: Monday, 09-12-2019 Max. Marks: 30 PM To 05:30 PM	: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Att a)	<pre>empt any three.   Define Language Processing. Generate the Assembly language statements   for the following source statement:</pre>	12
	b) c)	Explain Assembler Directives and advanced Assembler Directives.  How forward references are handled in one pass and two pass assembler?  Explain.	
	d) e)	Provide the design overview of the Macro preprocessor with a diagram. Explain nested macro call with example.	
Q.3	Att a)	empt any one.  Explain the advanced macro facilities: AIF, AGO, ANOP, LCL & GBL.  OR	80
	b)	Elaborate the front end of a Toy compiler with a schematic and its phases.	
Q.4	Wh	at is intermediate code? Explain Variant-I and Variant-II forms with example.	08
		Section – II	
Q.5	Atta)	empt any three.  Draw an Expression tree and show the best evaluation order for operators using RR label concept for the following expression. $((a+b)+(x/y))^*((c+d)/(m+n))$	12
	b) c) d) e)	Explain Absolute loader scheme with its advantages and disadvantages. What is program Relocation, explain with example. Explain Overlay structured program with example. Write a short note on "Aspects of compilation".	
Q.6	Att	empt any one.	08
	a)	Write and explain linking algorithm with example.  OR	
	b)	<ul><li>Explain the following loader schemes.</li><li>1) Direct Linking Loader.</li><li>2) Relocating Loader.</li></ul>	
Q.7	-	plain with example, following Optimizing Transformations with respect to npilers.  Compile time evaluation  Elimination of common sub-expression  Dead code elimination	80

**4)** Frequency reduction

Seat	Sat	D
No.	Set	

		T.E.	(Part - I) (New) (CBCS) Executed Computer Science & DATABASE ENG	& Eng	gineering
•			dnesday, 11-12-2019 To 05:30 PM		Max. Marks: 70
				ld be	solved in first 30 minutes in answer
			Figures to the right indicate full n Assume suitable data if necessa  MCQ/Objective Typ	ry.	
Durat	tion: 3	0 Min		c Que	Marks: 14
Q.1			e correct alternatives from the	ontio	
٠	1)		clause is used in SQL for	opo	
	,	a) c)	Selection operation Join operation	b) d)	Rename operation Projection operation
	2)	The 3 1) 2) 3) 4) 5)	SQL DDL allows specification of for the schema for each relation. The types of values associated was the integrity constraints. The set of indices to be maintain the security and authorization in	vith ea	ach attribute.
		a) c)	only 1,2,3, is true only 1 and 2	,	only 1,2,3,4 1,2,3,4,5 are true
	3)	An E a) c)	-R diagram can graphically repre- Physical structure View structure	sent t b) d)	he Logical structure Virtual structure
	4)	an al	u were collecting and storing infor bum would be considered a(n) _ Relation Instance		n about your music collection, Entity Attribute
	5)	Whica)	th of the following is not a Armstro Reflexivity rule Pseudo transitivity rule	ong's b) d)	Axiom? Transitivity rule Augmentation rule
	6)	peop poss I) SE FR WH II) SE FR WH (SEL Whice	oose we wish to find the ID's of the le who are managed by the emplible queries: LECT ee.empID  OM Emps ee, Emps ff HERE ee.mgrID = ff.empID AND fellow ELECT empID  OM Emps HERE mgrID IN LECT empID FROM Emps WHERE Sh, if any, of the two queries above oyee ID's?	oyee f.mgr	with ID 123. Here are two ID = 123; grID = 123);
		a) c)	Both I and II II only	b) d)	I only Neither I nor II

Set P

7)	An entity set that does not have sufficient attributes to form a primary key is a							
	a) c)	strong entity set			,	eak entity set mary entity set		
3)	Inde	xing based on a sorted	orde	r of valu	ues are	called		
	•	Sequenced indices			•	dered indices		
	c)	Hashing indices		(	d) St	ructured indices		
9)	Non	leaf nodes of B+- tree s	structi					
	,	Multilevel clustered in				parse indices		
	c)	Multilevel dense indic	es	d	) M	ultilevel sparse indices		
10)		ntegral part of database efore failure is called		can res	store da	atabase to consistent state		
	a)	Recovery, scheme		b	) Ba	ickup scheme		
	c)	Restoring scheme		d	) Tr	ansaction scheme		
11)		pproach named Lock t Deadlock detection Deadlock recovery		b	) De	eadlock elimination eadlock prevention		
4.0\	,	•			,	•		
12)	a) b) c)	Beginning of transacti During execution of transaction End of transaction Never in the life-time	on ansac	ction		eleasing all locks at the		
13)	State	e in which transaction s	stavs	while it	is exec	cuting is termed as		
,	a)	Active	•			rtially committed		
	c)	Initial		d	) W	aiting		
14)		tify the correct statement w	ent(s)	about	the loc	ck compatibility matrix given		
				S	Х			
			S	true		-		
			X	false	false	_		
				laide	iaioo			
	a)			de lock	, using	which data item can be		
	b)	both read and written.		lock on	an itan	n, other transaction will not		
	U)	be allowed to obtain a						
		as anomou to obtain t		5.	Junit	· 11-1111		

S denotes an shared mode lock, using which data item can only be

c)

d)

read

Both a and c

Seat	Sat	D
No.	Set	

		T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DATABASE ENGINEERING	
•		re: Wednesday, 11-12-2019 Max. Marks 80 PM To 05:30 PM	: 56
Instru	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li><li>3) Assume suitable data if necessary.</li></ul>	
		Section – I	
Q.2	Sol a) b) c) d)	ve any three: What is BCNF? Explain a decomposition example. Explain with example Group by and Having clause. Give and illustrate the symbols for ER Diagram. What is super key, candidate key, primary key and foreign key with example. Explain with example Closure of Attribute Sets (F+).	12
Q.3	Sol a) b)	Draw an ER Diagram for following schema? State the assumption about cardinality and other constraints in the answer.  teaches (ID, course id, sec id, semester, year) takes (ID, course id, sec id, semester, year, grade) prereq (course id, prereq id) advisor (s ID, i ID) sec course (course id, sec id, semester, year) sec time slot (course id, sec id, semester, year, time slot id) sec class (course id, sec id, semester, year, building, room number) inst dept (ID, dept name) stud dept (ID, dept name) course dept (course id, dept name) Define the following terms with an example.  1) Functional Dependency 2) Atomic Domain	08
Q.4	Coi	3) Lossless Decomposition 4) Armstrong Axioms  nsider the following schema: employee (employee name, street, city)	08

employee <u>(employee name,</u> street, city) works <u>(employee name,</u> company name, salary) company <u>(company name,</u> city) manages <u>(employee name,</u> manager name)

- manages (<u>employee name</u>, manager name)

  a) Find the names, street addresses, and cities of residence of all employees who work for "First Bank Corporation" and earn more than \$10,000.
- **b)** Find all employees in the database who do not work for "First Bank Corporation".

Set P

- c) Find all employees in the database who live in the same cities as the companies for which they work.
- **d)** Find all employees who earn more than the average salary of all employees of their company.

Write both SQL and Relational Algebra query for every question.

#### Section - II

## Q.5 Solve any three:

- 12
- a) Explain the concept of serializable schedule with proper example.
- **b)** Explain B+ tree with an example and how insertion works?
- **c)** Explain ACID properties with an example.
- **d)** Write a short note Storage structure.
- e) Explain different types of failures in transaction system.

## Q.6 Solve any one:

08

- **a)** Explain Following:
  - 1) Lock Modes
    - 2) Ordered Index
    - 3) Log Records
    - 4) Thomas Write Rule
- b) Explain log based recovery algorithm.

80

- **Q.7** Explain following concurrency protocols along with explanation of various terms associated with it.
  - a) Two phase locking
  - **b)** Time stamp

	<u></u>	
Seat	Sat	0
No.	Set	Q

## T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering** DATABASE ENGINEERING

Day & Date: Wednesday, 11-12-2019	Max. Marks: 70
Time: 02:30 PM To 05:30 PM	
	11 1 - 1'- ('- ( 00 '- ( '

Instructions:1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

			MCQ/Objective T	ype Qu	estions	
Dura	tion: 3	30 Mir	<del>_</del>		Marks	s: 14
Q.1	<b>Choo</b> 1)		he correct alternatives from the exing based on a sorted order o Sequenced indices Hashing indices	f values	Ordered indices	14
	2)	Non a) c)	leaf nodes of B+- tree structure Multilevel clustered indices Multilevel dense indices	b)	Sparse indices	
	3)	of be	ntegral part of database that ca efore failure is called Recovery, scheme Restoring scheme	b)		
	4)	An a a) c)	approach named Lock timeouts Deadlock detection Deadlock recovery	is used b) d)	Deadlock elimination	
	5)	Rigo a) b) c) d)	,	n	ts releasing all locks at the	_•
	6)	Stat a) c)	e in which transaction stays wh Active Initial	ile it is e b) d)	<u> </u>	
	7)		tify the correct statement(s) alw	out the	lock compatibility matrix given	
				9	Y	

	S	Х
S	true	false
X	false	false

- a) X denotes an exclusive mode lock, using which data item can be both read and written.
- If a transaction holds an S lock on an item, other transaction will not b) be allowed to obtain a S lock on the same item.
- S denotes an shared mode lock, using which data item can only be c) read
- d) Both a and c

Set Q

8)	'AS' a) c)	clause is used in SQL for Selection operation Join operation	b) d)	Rename operation Projection operation
9)	The 1) 2) 3) 4) 5)	SQL DDL allows specification of The schema for each relation. The types of values associated The integrity constraints. The set of indices to be maintain The security and authorization i	with e	ach attribute. r each relation.
	a) c)	only 1,2,3, is true only 1 and 2	,	only 1,2,3,4 1,2,3,4,5 are true
10)	An E a) c)	E-R diagram can graphically repre Physical structure View structure		the Logical structure Virtual structure
11)	If yo an a a) c)	ou were collecting and storing info album would be considered a(n) _ Relation Instance	rmatio  b) d)	on about your music collection,  Entity Attribute
12)	Whie a) c)	•	_	Axiom? Transitivity rule Augmentation rule
13)	peopposs I) SE FF W II) S FF W (SEI	pose we wish to find the ID's of the ple who are managed by the emptished who are managed by the emptished with the emptished with the emptished with the end of the work of the work of the two queries above to long the emptished with the emp	ff.mgi	with ID 123. Here are two rID = 123; grID = 123);
14)	Án e	entity set that does not have suffice	,	
	a) c)	strong entity set simple entity set	b) d)	weak entity set primary entity set

Seat	Set	0
No.	Jet	y

		T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DATABASE ENGINEERING	
•		re: Wednesday, 11-12-2019 Max. N 30 PM To 05:30 PM	/larks: 56
Instru	ıctio	<ul><li>2) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li><li>3) Assume suitable data if necessary.</li></ul>	
		Section – I	
Q.2	Solva) b) c) d)	What is BCNF? Explain a decomposition example. Explain with example Group by and Having clause. Give and illustrate the symbols for ER Diagram. What is super key, candidate key, primary key and foreign key with example. Explain with example Closure of Attribute Sets (F+).	12
Q.3	Soli a) b)	Draw an ER Diagram for following schema? State the assumption about cardinality and other constraints in the answer.  **teaches (ID, course id, sec id, semester, year)**  **takes (ID, course id, sec id, semester, year, grade)**  **prereq (course id, prereq id)**  **advisor (s ID, i ID)**  **sec course (course id, sec id, semester, year)**  **sec time slot (course id, sec id, semester, year, time slot id)**  **sec class (course id, sec id, semester, year, building, room numinal inst dept (ID, dept name)**  **stud dept (ID, dept name)**  **course dept (course id, dept name)**  Define the following terms with an example.  1) Functional Dependency  2) Atomic Domain  3) Lossless Decomposition	
Q.4	Cor	4) Armstrong Axioms  nsider the following schema: employee (employee name, street, city) works (employee name, company name, salary)	08

company (<u>company name</u>, city)
manages (<u>employee name</u>, manager name)
Find the names, street addresses, and cities of residence of all employees

- who work for "First Bank Corporation" and earn more than \$10,000.
- Find all employees in the database who do not work for "First Bank b) Corporation".

Set Q

- c) Find all employees in the database who live in the same cities as the companies for which they work.
- **d)** Find all employees who earn more than the average salary of all employees of their company.

Write both SQL and Relational Algebra query for every question.

#### Section - II

## Q.5 Solve any three:

- 12
- a) Explain the concept of serializable schedule with proper example.

Explain following concurrency protocols along with explanation of various

- **b)** Explain B+ tree with an example and how insertion works?
- c) Explain ACID properties with an example.
- d) Write a short note Storage structure.
- e) Explain different types of failures in transaction system.

### Q.6 Solve any one:

**Q.7** 

08

- **a)** Explain Following:
  - 1) Lock Modes
    - 2) Ordered Index
    - 3) Log Records
    - 4) Thomas Write Rule
- b) Explain log based recovery algorithm.

08

- terms associated with it.

  a) Two phase locking
  - **b)** Time stamp

Seat No. Set F	R
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		T.E	. (Part - I) (New) (CBCS) E Computer Science DATABASE EN	e & En	ngineering
•			dnesday, 11-12-2019		Max. Marks: 70
			To 05:30 PM	ould be	s calved in first 20 minutes in answer
เมอน	uctio	115.1)	book.	iouid be	e solved in first 30 minutes in answer
			Figures to the right indicate fu		S.
		3)	Assume suitable data if neces		rootions
Dura	ation: 3	30 Mir	MCQ/Objective T	ype Qu	Marks: 14
Q.1				he opti	ons and rewrite the sentence. 14
	1)		ch of the following is not a Arms Reflexivity rule Pseudo transitivity rule	•	
	2)	peopposs I) SE FR WI II) S FR WI (SEI	pose we wish to find the ID's of ole who are managed by the en- sible queries: ELECT ee.empID ROM Emps ee, Emps ff HERE ee.mgrID = ff.empID AN ELECT empID ROM Emps HERE mgrID IN LECT ·empID FROM Emps WH ch, if any, of the two queries ab loyee ID's? Both I and II II only	nployee <b>D</b> ff.mg	with ID 123. Here are two
	3)		entity set that does not have suf  strong entity set simple entity set	ficient a b) d)	
	4)	•	xing based on a sorted order of Sequenced indices Hashing indices	f values	
	5)	Non a) c)	leaf nodes of B+- tree structure Multilevel clustered indices Multilevel dense indices	b)	Sparse indices
	6)		ntegral part of database that ca efore failure is called Recovery, scheme Restoring scheme	n restor b) d)	
	7)	An a a) c)	approach named Lock timeouts Deadlock detection Deadlock recovery	is used b) d)	

Set R

8)	<ul> <li>Rigorous two-phase locking protocol permits releasing all locks at</li> <li>a) Beginning of transaction</li> <li>b) During execution of transaction</li> <li>c) End of transaction</li> <li>d) Never in the life-time of transaction</li> </ul>	the
9)	State in which transaction stays while it is executing is termed as a) Active b) Partially committed c) Initial d) Waiting	·
10)	Identify the correct statement(s) about the lock compatibility mabelow	trix given
	S X s true false	
	X false false	
	<ul> <li>a) X denotes an exclusive mode lock, using which data item can both read and written.</li> <li>b) If a transaction holds an S lock on an item, other transaction be allowed to obtain a S lock on the same item.</li> <li>c) S denotes an shared mode lock, using which data item can read</li> <li>d) Both a and c</li> </ul>	will not
11)	'AS' clause is used in SQL for  a) Selection operation b) Rename operation c) Join operation d) Projection operation	
12)	<ul> <li>The SQL DDL allows specification of following</li> <li>1) The schema for each relation.</li> <li>2) The types of values associated with each attribute.</li> <li>3) The integrity constraints.</li> <li>4) The set of indices to be maintained for each relation.</li> <li>5) The security and authorization information for each relation.</li> <li>a) only 1,2,3, is true</li></ul>	
13)	An E-R diagram can graphically represent the  a) Physical structure b) Logical structure c) View structure d) Virtual structure	
14)	If you were collecting and storing information about your music coan album would be considered a(n)  a) Relation b) Entity c) Instance d) Attribute	llection,

Seat	Sat	D
No.	Set	K

	T.E	E. (Part - I) (New) (CBCS) Examination Nov/Dec- Computer Science & Engineering DATABASE ENGINEERING	·2019
•		ednesday, 11-12-2019 M To 05:30 PM	Max. Marks: 56
Instruc	2	<ol> <li>All questions are compulsory.</li> <li>Figures to the right indicate full marks.</li> <li>Assume suitable data if necessary.</li> </ol>	
		Section – I	
( (	a) What b) Exp c) Give d) What exa	ny three: nat is BCNF? Explain a decomposition example. It is BCNF? Explain a decomposition example. It is all it is	<b>12</b> / with
•	card	aw an ER Diagram for following schema? State the assumpt dinality and other constraints in the answer.  teaches (ID, course id, sec id, semester, year) takes (ID, course id, sec id, semester, year, grade) prereq (course id, prereq id) advisor (s ID, i ID) sec course (course id, sec id, semester, year) sec time slot (course id, sec id, semester, year, time slot sec class (course id, sec id, semester, year, building, refinst dept (ID, dept name) stud dept (ID, dept name) course dept (course id, dept name) fine the following terms with an example. Functional Dependency Atomic Domain	ot id)
Q.4 (	3) 4) Conside ei w	Lossless Decomposition Armstrong Axioms  er the following schema:  mployee (employee name, street, city)  vorks (employee name, company name, salary)	08

company (<u>company name</u>, city)

- manages (<u>employee name</u>, manager name)
  Find the names, street addresses, and cities of residence of all employees who work for "First Bank Corporation" and earn more than \$10,000.
- Find all employees in the database who do not work for "First Bank Corporation".

Set R

- c) Find all employees in the database who live in the same cities as the companies for which they work.
- **d)** Find all employees who earn more than the average salary of all employees of their company.

Write both SQL and Relational Algebra query for every question.

#### Section - II

## Q.5 Solve any three:

12

- a) Explain the concept of serializable schedule with proper example.
- **b)** Explain B+ tree with an example and how insertion works?
- c) Explain ACID properties with an example.
- d) Write a short note Storage structure.
- e) Explain different types of failures in transaction system.

## Q.6 Solve any one:

08

- a) Explain Following:
  - 1) Lock Modes
    - 2) Ordered Index
    - 3) Log Records
    - 4) Thomas Write Rule
- b) Explain log based recovery algorithm.
- **Q.7** Explain following concurrency protocols along with explanation of various terms associated with it.

08

- a) Two phase locking
- **b)** Time stamp

	_	
Seat	Set	0
No.	Set	3

-	T.E.	(Part - I) (New) (CI Computer S DATABA	cience	& Er	gine	ering	
		dnesday, 11-12-2019 To 05:30 PM				Max. Ma	arks: 70
Instructi	ions:1)		and sho	uld be	solv	ed in first 30 minutes in a	answer
	,	book. Figures to the right ind Assume suitable data  MCQ/Obje	if necessa	ary.		ns	
Duration	: 30 Mir	-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-			arks: 14
<b>Q.1 Ch</b> 1)	An ir		that can		e dat Bac	nd rewrite the sentenc abase to consistent state kup scheme nsaction scheme	
2)	An a a) c)	pproach named Lock ti Deadlock detection Deadlock recovery	meouts is	used b) d)	Dea	dlock elimination dlock prevention	
3)	Rigo a) b) c) d)	rous two-phase locking Beginning of transaction During execution of tra End of transaction Never in the life-time of	on ansaction		ts rel	easing all locks at the	·
4)	State a) c)	e in which transaction s Active Initial	tays while	it is e b) d)		ting is termed as ially committed ting	
5)		tify the correct stateme $_{\scriptscriptstyle W}$	ent(s) abo	ut the	lock	compatibility matrix giv	en
			s true		X alse		
			X fals	e   fa	alse		
	a) b)	X denotes an exclusive both read and written. If a transaction holds a		·	Ū	which data item can be other transaction will no	ot
	c)	be allowed to obtain a S denotes an shared r read				item. ch data item can only be	:
	d)	Both a and c					
6)	'AS' a) c)	clause is used in SQL f Selection operation Join operation	or	b) d)		ame operation ection operation	

Set S

7)	The 1) 2) 3) 4) 5)	SQL DDL allows specification of The schema for each relation. The types of values associated the integrity constraints. The set of indices to be maintain The security and authorization in	with ea	ach attribute. r each relation.
	a) c)	only 1,2,3, is true only 1 and 2	b) d)	only 1,2,3,4 1,2,3,4,5 are true
8)	An E a) c)	-R diagram can graphically repre Physical structure View structure	esent t b) d)	he Logical structure Virtual structure
9)	-	u were collecting and storing infolloum would be considered a(n) _ Relation	rmatio  b)	on about your music collection,  Entity
	c)	Instance	d)	Attribute
10)	Whica)	ch of the following is not a Armstro Reflexivity rule Pseudo transitivity rule	ong's b) d)	Axiom? Transitivity rule Augmentation rule
11)	peopposs I) SE FR WI II) SI FR WH (SEL Whice empla) c)	II only	ff.mgr RE many re will b) d)	with ID 123. Here are two  ID = 123;  grID = 123); correctly get the desired set of  I only Neither I nor II
12)		ntity set that does not have suffice	ient a b) d)	ttributes to form a primary key weak entity set primary entity set
13)	•	xing based on a sorted order of v Sequenced indices Hashing indices	,	• •
14)	Nonl a) c)	eaf nodes of B+- tree structure for Multilevel clustered indices Multilevel dense indices	orm a <sub>.</sub> b) d)	Sparse indices Multilevel sparse indices

|--|

		T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DATABASE ENGINEERING	
•		e: Wednesday, 11-12-2019 Max. Marks 0 PM To 05:30 PM	: 56
Instru	ictio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li><li>3) Assume suitable data if necessary.</li></ul>	
		Section – I	
Q.2	Solva) b) c) d)	we any three: What is BCNF? Explain a decomposition example. Explain with example Group by and Having clause. Give and illustrate the symbols for ER Diagram. What is super key, candidate key, primary key and foreign key with example. Explain with example Closure of Attribute Sets (F+).	12
Q.3	Solva)	Ive any one  Draw an ER Diagram for following schema? State the assumption about cardinality and other constraints in the answer.  teaches (ID, course id, sec id, semester, year) takes (ID, course id, sec id, semester, year, grade) prereq (course id, prereq id) advisor (s ID, i ID) sec course (course id, sec id, semester, year) sec time slot (course id, sec id, semester, year, time slot id) sec class (course id, sec id, semester, year, building, room number) inst dept (ID, dept name) stud dept (ID, dept name) course dept (course id, dept name)  Define the following terms with an example.  1) Functional Dependency 2) Atomic Domain 3) Lossless Decomposition 4) Armstrong Axioms	
Q.4	Cor	nsider the following schema: employee (employee name, street, city) works (employee name, company name, salary)	08

company (company name, city)
manages (employee name, manager name)
Find the names, street addresses, and cities of residence of all employees

- who work for "First Bank Corporation" and earn more than \$10,000.
- Find all employees in the database who do not work for "First Bank b) Corporation".

Set S

- c) Find all employees in the database who live in the same cities as the companies for which they work.
- **d)** Find all employees who earn more than the average salary of all employees of their company.

Write both SQL and Relational Algebra query for every question.

#### Section - II

## Q.5 Solve any three:

- 12
- a) Explain the concept of serializable schedule with proper example.

Explain following concurrency protocols along with explanation of various

- **b)** Explain B+ tree with an example and how insertion works?
- **c)** Explain ACID properties with an example.
- d) Write a short note Storage structure.
- e) Explain different types of failures in transaction system.

### Q.6 Solve any one:

**Q.7** 

08

- **a)** Explain Following:
  - 1) Lock Modes
    - 2) Ordered Index
    - 3) Log Records
    - 4) Thomas Write Rule
- b) Explain log based recovery algorithm.

80

- terms associated with it. **a)** Two phase locking
- **b)** Time stamp

Seat	Set	D
No.	Set	

# T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DESIGN & ANALYSIS OF ALGORITHM

			DESIGN & ANALYSIS				
•			iday, 13-12-2019 И То 05:30 PM		Max. Marks: 70		
Insti	ructio	ns: ′	<ol> <li>Q.No.1 is compulsory and sho book.</li> </ol>	uld b	e solved in first 30 minutes in answer		
		2	) Figures to the right indicate full	mark	<s.< td=""></s.<>		
			MCQ/Objective Ty				
Dura	ation: 3	30 M	inutes	-	Marks: 14		
Q.1	<b>Cho</b> 1)		the correct alternatives from the ich of the following order of growt O(nlogn) <o(n2) o(n)<o(1)<="" td=""><td>•</td><td>tions and rewrite the sentence. 14 ncorrect? O(logn)<o(nlogn) none<="" td=""></o(nlogn)></td></o(n2)>	•	tions and rewrite the sentence. 14 ncorrect? O(logn) <o(nlogn) none<="" td=""></o(nlogn)>		
	2)	Algo { S for i	at is the time complexity for follow orithm Sum(n, A[]) S:=0; i:1 to n do S:=S+A[i]; urn (S); 2n+3 2n+1	ving p b) d)	2n+2 None		
	3)	· · · · · · · · · · · · · · · · · · ·					
		a) c)	T(n)=T(n/2)+b, b is a constant T(n)=T(n/2)+logn	b) d)	T(n)=2T(n/2)+b, b is a constant $T(n)=T(n/2)+n$		
	4)	and	e Time complexity of finding max a l conquer method T(n)=2T(n/2)+2 T(n)=1		nin element if n=2, using divide  T(n)=2  T(n)=0		
	5)		ng Greedy method, an object i is ution sector Xi.  0 or 1  0 and 1	place b) d)	ed into the knapsack, the value of  0<=xi<=1  None		
	6)	Whis _ a) b) c) d)	ile solving job sequencing probler  Jobs should be arranged in asce Jobs should be arranged in dese Jobs should be arranged in asce Jobs should be arranged in dese	endin cendi endin	g order of deadlines. ing order of deadlines. g order of profits		

## Set P

7)	In an optimal storage on tape problem if (I1,I2,I3)=(5,10,3) then the optimal ordering of program is					
	a) 1,2,3	b)	1,3,2			
	c) 3,1,2	d)	3,2,1			
8)	A. Multistage graph B. Kruskal Algorithm C. Merge Sort	j pai	<ol> <li>Greedy Method</li> <li>Dynamic Programming</li> <li>Backtracking</li> </ol>			
	D. Hamilton Cycle a) A-3,B-2,C-4,D-1	b)	4. Divide and Conquer A-4,B-3,C-1,D-2			
	c) A-2,B-1,C-4,D-3	d)	None			
0)	, , , ,	,				
9)	In flow shop scheduling OFT stands for a) Optimal Find Time	b)	 Organized Finish Time			
	c) Optimal Finish Time	d)	None			
10)	In dynamic programming 0/1 knapsac contains two pairs (Pj, Wj) and (Pk, W discarded, iff a) Pj<=Pk and Wj>=Wk c) Pj<=Wj and Pk> =Wk	/k) tl b)				
11\	, .	•				
11)	In NXN Queens's problems, the constraints are "No Two queens are placed" at					
	a) Same row c) Same diagonal	b) d)	Same column All of the above			
12)	Graph coloring problem is which type a) Dynamic Programming c) Backtracking	of a b) d)	0 0,			
13)	Travelling sales man problem belongs to which of the class?					
	a) P	b)	NP			
	c) Linear	d)	None of the mentioned			
14)	The hardest of NP problems can be					
	a) NP-complete	b)	NP-hard			
	c) P	d)	None of the mentioned			

Seat No.

Set

P

# T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DESIGN & ANALYSIS OF ALGORITHM

Day & Date: Friday, 13-12-2019 Time: 02:30 PM To 05:30 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.

2) Figure to the right indicates full marks.

### Section - I

### Q.2 Solve any three questions

12

- a) Explain Big Oh and Big Omega with the help of example.
- **b)** Find time complexity using steps count method for following code.

```
for (i=0;i<n;i++)
for (k=0;k<n;k++)
for (j=0;j<n;j++)
{
A=a+b;
}
```

- c) Prove that time complexity of merge sort is O(nlogn).
- d) Find an optimal solution to knapsack problem using greedy method. M=60. n=5

 $(p1.....p5)={30,20,100,90,160}$  and  $(w1.....w5)={5,10,20,30,40}$ 

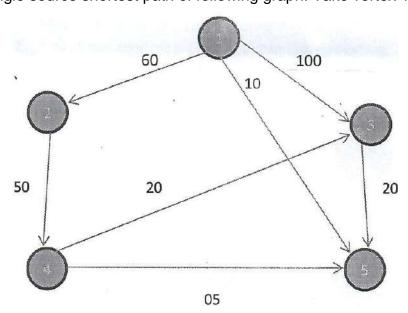
### Q.3 Solve any one

80

Write an algorithm based on divide and conquer methodology to find Max and Min element. Simulate the algorithm on the following nine elements. 22, 13,-5,-8, 15, 60,17,31,47

### **OR**

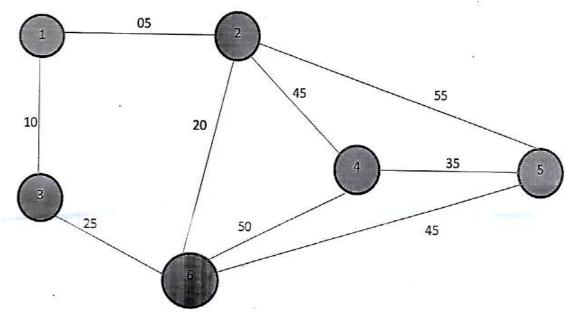
Find the single source shortest path of following graph. Take vertex 1 as vertex.



Set P

Q.4 Find minimum weight /cost spanning tree using prim's algorithm.

80



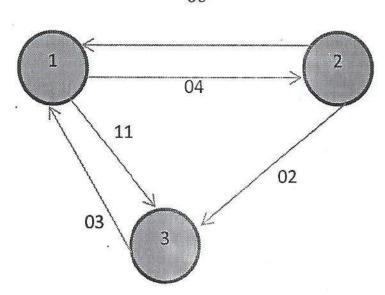
Section - II

### Q.5 Solve any three questions.

12

- a) Solve 0/1 Knapsack problem using dynamic programming. M=8, n=4 profit={1,2,5,6} and weight={2,3,4,5}
- b) Find all pair shortest path using dynamic programming.

06



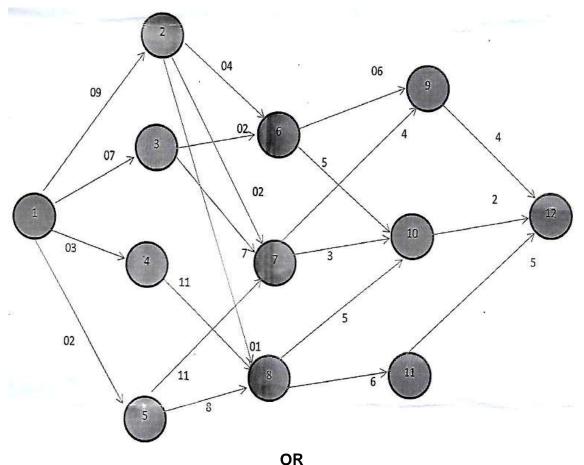
- c) State and explain Graph coloring problem.
- d) Write brief note on P, NP, NP -complete and NP Hard problems.

Set P

Q.6 Solve any one.

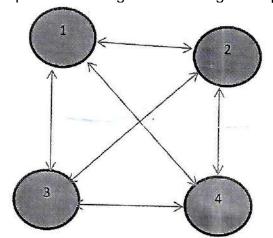
80

Find minimum cost path from s to t multistage graph using forward approach.



Given W[1:6]= $\{5,10,12,13,15,18\}$ , m=30 and n=6. Find all possible subsets of w that sum to m. draw the portion of the state space tree that is generated.

Q.7 Consider the following directed graph and edge length are given by matrix. Find optimal tour length of travelling sales person problem.



$\lceil 0 \rceil$	10	15	20
5	0	9	10
6	13	0	12
8	8	9	0

Seat	Set	
No.	Set	Q

		Computer Science	e & E	ingineering
•		te: Friday, 13-12-2019	5 OF	Max. Marks: 70
		30 PM To 05:30 PM ons: 1) Q.No.1 is compulsory and sh	ould t	pe solved in first 30 minutes in answer
		book. 2) Figures to the right indicate fu		
		MCQ/Objective T	ype C	luestions
Dura	ation: 3	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	The correct alternatives from to The correct matching for the following A. Multistage graph B. Kruskal Algorithm C. Merge Sort D. Hamilton Cycle a) A-3,B-2,C-4,D-1 c) A-2,B-1,C-4,D-3	ng pai 1. 2.	rs is Greedy Method Dynamic Programming Backtracking Divide and Conquer
	2)	In flow shop scheduling OFT stands <ul><li>a) Optimal Find Time</li><li>c) Optimal Finish Time</li></ul>	for b) d)	Organized Finish Time None
	3)	In dynamic programming 0/1 knaps: contains two pairs (Pj, Wj) and (Pk, discarded, iff  a) Pj<=Pk and Wj>=Wk  c) Pj<=Wj and Pk> =Wk	Wk) tl b)	
	4)	In NXN Queens's problems, the corplaced" at a) Same row c) Same diagonal	nstrain b) d)	Same column
	5)	Graph coloring problem is which typa) Dynamic Programming c) Backtracking		lgorithm design strategy Greedy Method None
	6)	Travelling sales man problem belon a) P c) Linear	gs to b) d)	which of the class? NP None of the mentioned
	7)	The hardest of NP problems can be a) NP-complete c) P	b)	 NP-hard None of the mentioned
	8)	Which of the following order of grow a) O(nlogn) <o(n2) c)="" o(1)<="" o(n)<="" td=""><td>rth is in b) d)</td><td>ncorrect? O(logn)<o(nlogn) None</o(nlogn) </td></o(n2)>	rth is in b) d)	ncorrect? O(logn) <o(nlogn) None</o(nlogn) 

Set Q

9)	What is the time complexity for following pseudocode Algorithm Sum(n, A[])					
	for i	8:=0; i:1 to n do 8:=S+A[i]; ırn (S);				
	a) c)	2n+3 2n+1	b) d)	2n+2 None		
10)	Red	currence relations for binary searc	h usi	ng divide and conquer is		
	a) c)	T(n)=T(n/2)+b, b is a constant $T(n)=T(n/2)+logn$		T(n)=2T(n/2)+b, b is a constant $T(n)=T(n/2)+n$		
11)		The Time complexity of finding max and min element if n=2, using divide and conquer method				
	a)	T(n)=2T(n/2)+2 T(n)=1	b) d)	T(n)=2 T(n)=0		
12)	Using Greedy method, an object i is placed into the knapsack, the value of solution sector Xi.					
	a) c)	0 or 1 0 and 1	b) d)	0<=xi<=1 None		
13)	While solving job sequencing problem using greedy method, requirement					
	is _ a) b) c) d)	Jobs should be arranged in asce Jobs should be arranged in desc Jobs should be arranged in asce Jobs should be arranged in desc	cendii endin	ng order of deadlines. g order of profits		
14)		n optimal storage on tape probler ering of program is	n if (l	1,l2,l3)=(5,10,3) then the optimal		
	a)	1,2,3	q)	1,3,2 3 2 1		

Seat	
No.	

Set

Q

# T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DESIGN & ANALYSIS OF ALGORITHM

Day & Date: Friday, 13-12-2019 Time: 02:30 PM To 05:30 PM

Max. Marks: 56

Instructions: 1) All question are compulsory.

2) Figure to the right indicates full marks.

### Section - I

### Q.2 Solve any three questions

12

- a) Explain Big Oh and Big Omega with the help of example.
- **b)** Find time complexity using steps count method for following code.

```
for (i=0;i<n;i++)
for (k=0;k<n;k++)
for (j=0;j<n;j++)
{
A=a+b;
}
```

- c) Prove that time complexity of merge sort is O(nlogn).
- d) Find an optimal solution to knapsack problem using greedy method. M=60. n=5

 $(p1....p5)={30,20,100,90,160}$  and  $(w1....w5)={5,10,20,30,40}$ 

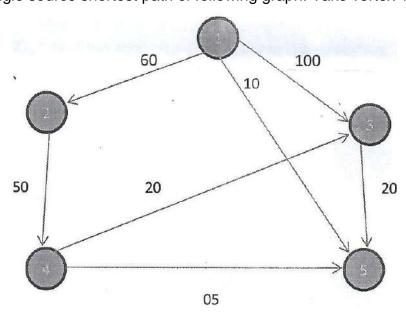
### Q.3 Solve any one

80

Write an algorithm based on divide and conquer methodology to find Max and Min element. Simulate the algorithm on the following nine elements. 22, 13,-5,-8, 15, 60,17,31,47

### **OR**

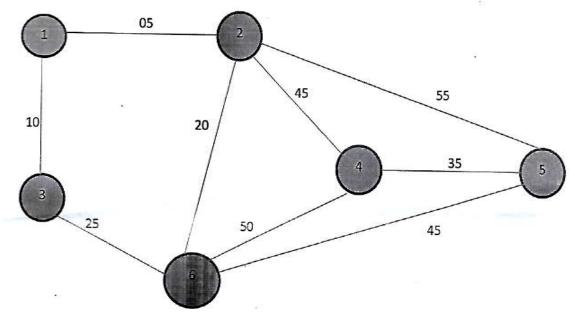
Find the single source shortest path of following graph. Take vertex 1 as vertex.



Set Q

Q.4 Find minimum weight /cost spanning tree using prim's algorithm.

80



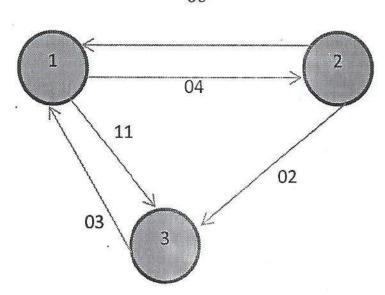
Section - II

### Q.5 Solve any three questions.

12

- a) Solve 0/1 Knapsack problem using dynamic programming. M=8, n=4 profit={1,2,5,6} and weight={2,3,4,5}
- b) Find all pair shortest path using dynamic programming.

06



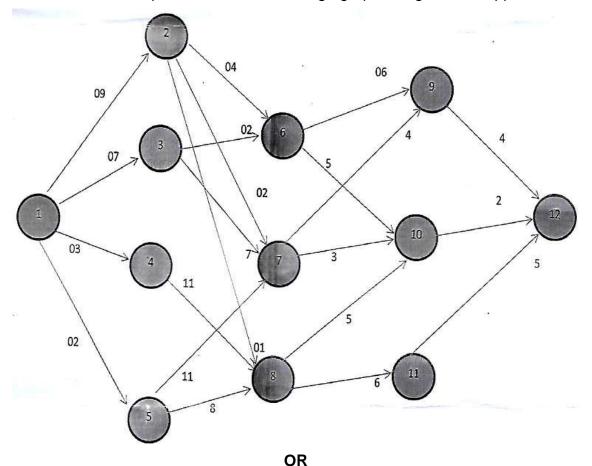
- c) State and explain Graph coloring problem.
- d) Write brief note on P, NP, NP -complete and NP Hard problems.

Set Q

Q.6 Solve any one.

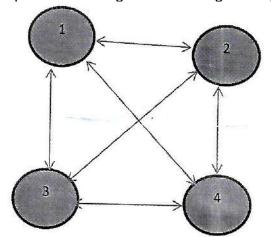
80

Find minimum cost path from s to t multistage graph using forward approach.



Given W[1:6]={5,10,12,13,15,18}, m=30 and n=6. Find all possible subsets of w that sum to m. draw the portion of the state space tree that is generated.

Q.7 Consider the following directed graph and edge length are given by matrix. Find optimal tour length of travelling sales person problem.



$\lceil 0 \rceil$	10	15	20
5	0	9	10
6	13	0	12
8	8	9	0

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# T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019

		Computer Scient DESIGN & ANALYS		
		te: Friday, 13-12-2019 30 PM To 05:30 PM		Max. Marks: 70
Insti	ructio	ons: 1) Q.No.1 is compulsory and s	should b	be solved in first 30 minutes in answer
		2) Figures to the right indicate	full marl	KS.
		MCQ/Objective	Type C	uestions
Dura	ation: (	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	Using Greedy method, an object i solution sector Xi.  a) 0 or 1	is place b)	ed into the knapsack, the value of 0<=xi<=1
	2)	<ul> <li>c) 0 and 1</li> <li>While solving job sequencing problems:</li> <li>is</li> <li>a) Jobs should be arranged in a company of the company of</li></ul>	scendin lescendi scendin	g order of deadlines. ing order of deadlines. g order of profits
	3)	In an optimal storage on tape prolordering of program is  a) 1,2,3 c) 3,1,2	olem if ( b) d)	
	4)	The correct matching for the follow A. Multistage graph B. Kruskal Algorithm C. Merge Sort D. Hamilton Cycle a) A-3,B-2,C-4,D-1 c) A-2,B-1,C-4,D-3	ving pai 1. 2. 3. 4. b) d)	Greedy Method
	5)	In flow shop scheduling OFT stan a) Optimal Find Time c) Optimal Finish Time	ds for _ b) d)	Organized Finish Time None
	6)	In dynamic programming 0/1 knap contains two pairs (Pj, Wj) and (Pdiscarded, iff a) Pj<=Pk and Wj>=Wk c) Pj<=Wj and Pk> =Wk	k, Wk) tl	
	7)	In NXN Queens's problems, the c placed" at  a) Same row	,	•

d)

Same diagonal

c)

All of the above

Set R

8)	Gra a) c)	nph coloring problem is which type Dynamic Programming Backtracking	e of al b) d)	gorithm design strategy Greedy Method None
9)	Tra a) c)	velling sales man problem belong P Linear	s to v b) d)	vhich of the class? NP None of the mentioned
10)	The a) c)	hardest of NP problems can be NP-complete P	b) d)	 NP-hard None of the mentioned
11)	<ul> <li>Which of the following order of growth is incorrect?</li> <li>a) O(nlogn)<o(n2)< li=""> <li>b) O(logn)<o(nlogn)< li=""> <li>c) O(n)<o(1)< li=""> <li>d) None</li> </o(1)<></li></o(nlogn)<></li></o(n2)<></li></ul>			
12)	Algo { for i	at is the time complexity for follow orithm Sum(n, A[])  S:=0; i:1 to n do  S:=S+A[i]; urn (S);	ving p	seudocode
	a) c)	2n+3 2n+1	b) d)	2n+2 None
13)	,			
	a) c)	T(n)=T(n/2)+b, b is a constant $T(n)=T(n/2)+logn$		T(n)=2T(n/2)+b, b is a constant $T(n)=T(n/2)+n$
14)		e Time complexity of finding max and the conquer method	and m	nin element if n=2, using divide
	a) c)	T(n)=2T(n/2)+2 T(n)=1	b) d)	T(n)=2 T(n)=0

Seat No.

Set

R

# T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DESIGN & ANALYSIS OF ALGORITHM

Day & Date: Friday, 13-12-2019 Time: 02:30 PM To 05:30 PM

Max. Marks: 56

**Instructions:** 1) All question are compulsory.

2) Figure to the right indicates full marks.

### Section - I

### Q.2 Solve any three questions

12

- a) Explain Big Oh and Big Omega with the help of example.
- **b)** Find time complexity using steps count method for following code.

```
for (i=0;i<n;i++)
for (k=0;k<n;k++)
for (j=0;j<n;j++)
{
A=a+b;
}
```

- c) Prove that time complexity of merge sort is O(nlogn).
- **d)** Find an optimal solution to knapsack problem using greedy method. M=60. n=5

 $(p1....p5)={30,20,100,90,160}$  and  $(w1....w5)={5,10,20,30,40}$ 

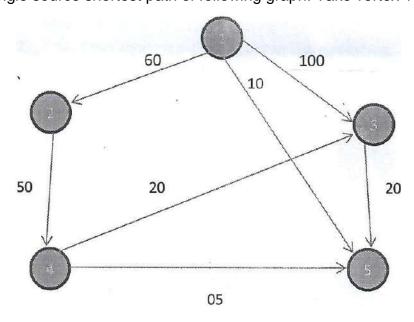
### Q.3 Solve any one

80

Write an algorithm based on divide and conquer methodology to find Max and Min element. Simulate the algorithm on the following nine elements. 22, 13,-5,-8, 15, 60,17,31,47

### **OR**

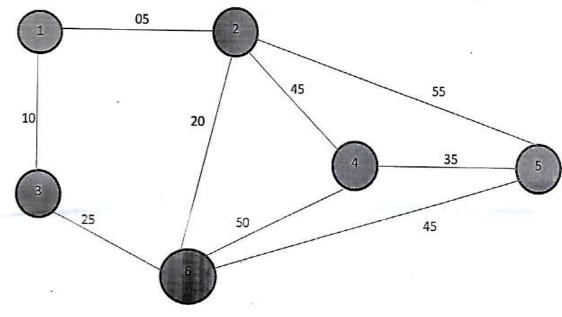
Find the single source shortest path of following graph. Take vertex 1 as vertex.



Set R

Q.4 Find minimum weight /cost spanning tree using prim's algorithm.

80



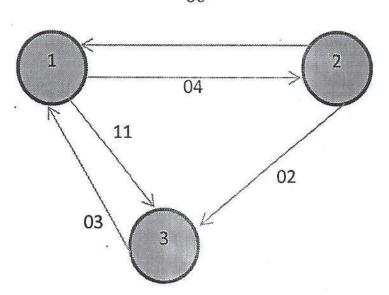
Section - II

### Q.5 Solve any three questions.

12

- **a)** Solve 0/1 Knapsack problem using dynamic programming. M=8, n=4 profit={1,2,5,6} and weight={2,3,4,5}
- b) Find all pair shortest path using dynamic programming.

06



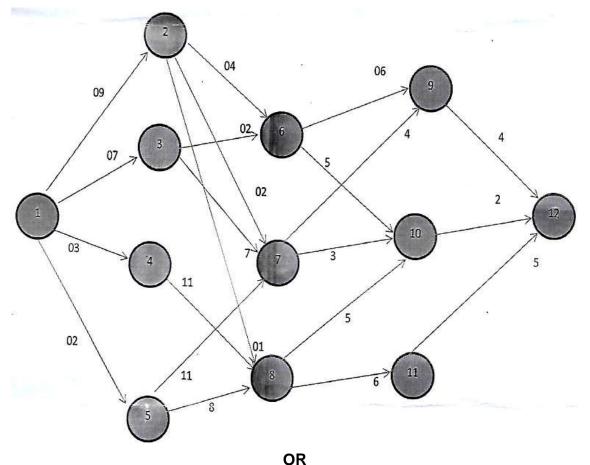
- c) State and explain Graph coloring problem.
- d) Write brief note on P, NP, NP -complete and NP Hard problems.

Set R

Q.6 Solve any one.

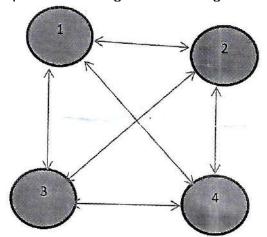
80

Find minimum cost path from s to t multistage graph using forward approach.



Given W[1:6]={5,10,12,13,15,18}, m=30 and n=6. Find all possible subsets of w that sum to m. draw the portion of the state space tree that is generated.

Q.7 Consider the following directed graph and edge length are given by matrix. Find optimal tour length of travelling sales person problem.



0	10	15	20
5	0	9	10
6	13	0	12
8	8	9	0

Seat No. Set	S
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		, , ,	er Science & E	Engineering
		DESIGN &	ANALYSIS OF	ALGORITHM
		e: Friday, 13-12-2019 0 PM To 05:30 PM		Max. Marks: 70
Inst	ructio	ns: 1) Q.No.1 is compul- book.	sory and should b	pe solved in first 30 minutes in answer
		<ol><li>Figures to the right</li></ol>	t indicate full mar	ks.
		MCQ/	Objective Type C	Questions
Dura	ation: 3	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	In dynamic programming contains two pairs (Pj, V discarded, iff  a) Pj<=Pk and Wj>=W	g 0/1 knapsack pr Vj) and (Pk, Wk) t /k b)	roblem Purging/Dominance rule hen pair (Pj, Wk) can be  Pj>=Pk and Wj<=Wk
		c) $Pj \le Wj$ and $Pk > = V$	,	•
	2)	In NXN Queens's proble placed" at  a) Same row c) Same diagonal		sts are "No Two queens are  Same column  All of the above
	3)	Graph coloring problem <ul><li>a) Dynamic Programm</li><li>c) Backtracking</li></ul>		algorithm design strategy Greedy Method None
	4)	Travelling sales man pro a) P c) Linear	oblem belongs to b) d)	which of the class? NP None of the mentioned
	5)	The hardest of NP problem a) NP-complete c) P	lems can be b) d)	 NP-hard None of the mentioned
	6)	Which of the following o a) O(nlogn) <o(n2) c) O(n)&lt; O(1)</o(n2) 	rder of growth is i b) d)	ncorrect? O(logn) <o(nlogn) None</o(nlogn) 
	7)	What is the time complete Algorithm Sum(n, A[]) {     S:=0; for i:1 to n do     S:=S+A[i]; return (S); } a) 2n+3	exity for following p	oseudocode 2n+2
		c) 2n+1	d)	None

# Set S

8)	Recurrence relations for binary search using divide and conquer is							
	a) $T(n)=T(n/2)+b$ , b is a constart c) $T(n)=T(n/2)+logn$	,	T(n)=2T(n/2)+b, b is a constant $T(n)=T(n/2)+n$					
9)	The Time complexity of finding max and min element if n=2, using divide and conquer method							
	a) T(n)=2T(n/2)+2 c) T(n)=1	b) d)	T(n)=2 T(n)=0					
10)	Using Greedy method, an object i solution sector Xi.	Using Greedy method, an object i is placed into the knapsack, the value of solution sector Xi.						
	a) 0 or 1 c) 0 and 1	b) d)	0<=xi<=1 None					
11)	While solving job sequencing problem using greedy method, requirement is							
	<ul> <li>a) Jobs should be arranged in a</li> <li>b) Jobs should be arranged in a</li> <li>c) Jobs should be arranged in a</li> <li>d) Jobs should be arranged in a</li> </ul>	descendii ascending	ng order of deadlines. g order of profits					
12)	In an optimal storage on tape problem if (I1,I2,I3)=(5,10,3) then the optimal ordering of program is							
	a) 1,2,3 c) 3,1,2	b) d)	1,3,2 3,2,1					
13)	The correct matching for the follow A. Multistage graph B. Kruskal Algorithm C. Merge Sort D. Hamilton Cycle a) A-3,B-2,C-4,D-1 c) A-2,B-1,C-4,D-3	wing pair 1. 2. 3. 4. b) d)	Greedy Method					
14)	In flow shop scheduling OFT stan <ul><li>a) Optimal Find Time</li><li>c) Optimal Finish Time</li></ul>	ds for b) d)	Organized Finish Time None					

Seat No.

Set

S

# T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DESIGN & ANALYSIS OF ALGORITHM

Day & Date: Friday, 13-12-2019 Time: 02:30 PM To 05:30 PM

Max. Marks: 56

**Instructions:** 1) All question are compulsory.

2) Figure to the right indicates full marks.

### Section - I

### Q.2 Solve any three questions

12

- a) Explain Big Oh and Big Omega with the help of example.
- **b)** Find time complexity using steps count method for following code.

```
for (i=0;i<n;i++)
for (k=0;k<n;k++)
for (j=0;j<n;j++)
{
A=a+b;
}
```

- c) Prove that time complexity of merge sort is O(nlogn).
- d) Find an optimal solution to knapsack problem using greedy method. M=60. n=5

 $(p1....p5)={30,20,100,90,160}$  and  $(w1....w5)={5,10,20,30,40}$ 

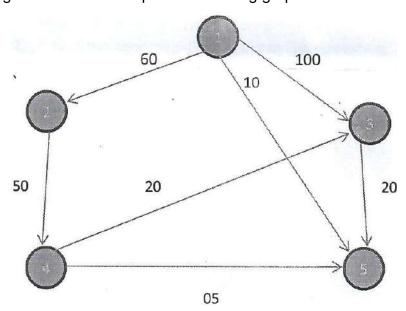
### Q.3 Solve any one

80

Write an algorithm based on divide and conquer methodology to find Max and Min element. Simulate the algorithm on the following nine elements. 22, 13,-5,-8, 15, 60,17,31,47

### **OR**

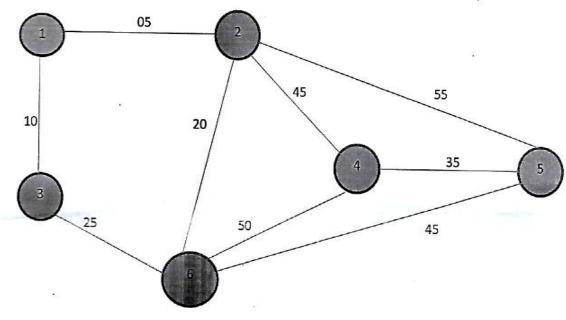
Find the single source shortest path of following graph. Take vertex 1 as vertex.



Set S

Q.4 Find minimum weight /cost spanning tree using prim's algorithm.

80



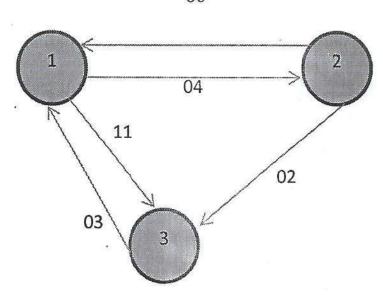
Section - II

### Q.5 Solve any three questions.

12

- a) Solve 0/1 Knapsack problem using dynamic programming. M=8, n=4 profit= $\{1,2,5,6\}$  and weight= $\{2,3,4,5\}$
- b) Find all pair shortest path using dynamic programming.

06



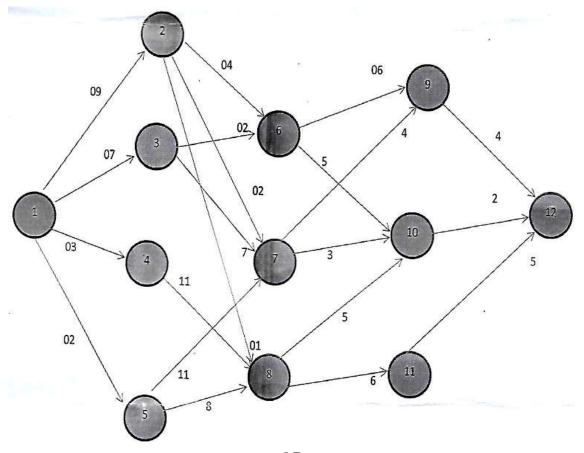
- State and explain Graph coloring problem. c)
- Write brief note on P, NP, NP -complete and NP Hard problems.

Set S

Q.6 Solve any one.

80

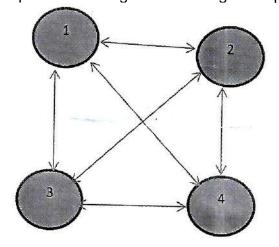
Find minimum cost path from s to t multistage graph using forward approach.



OR

Given W[1:6]={5,10,12,13,15,18}, m=30 and n=6. Find all possible subsets of w that sum to m. draw the portion of the state space tree that is generated.

Q.7 Consider the following directed graph and edge length are given by matrix. Find optimal tour length of travelling sales person problem.



$\lceil 0 \rceil$	10	15	20
5	0	9	10
6	13	0	12
8	8	9	0

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### T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering COMPUTER ORGANIZATION**

Day & Date: Monday, 16-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book. Figures to the right indicates full marks. Assume suitable data wherever necessary. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Q.1 Choose the correct alternatives from the options. 14 A term in computer terminology is a change in technology a computer is/was being used \_\_\_\_\_. a) development b) generation c) advancement d) growth 2) The generation based on VLSI microprocessor \_  $3^{\text{rd}}$ 4<sup>th</sup> d) c) Which of the following is not a weighted code? 3) a) Decimal Number system b) Excess 3-cod c) Binary number System d) None of these 4) The idea of cache memory is based a) on the property of locality of reference b) on the heuristic 90-10 rule c) on the fact that references generally tend to cluster d) all of the above 5) Von Neumann architecture is \_\_\_\_ a) SISD b) SIMD c) MIMD **MISD** d) 6) Generally Dynamic RAM is used as main memory in a computer system a) consumes less power b) has higher speed needs refreshing circuitary c) has lower cell density d) 7) Virtual memory consists of \_\_\_\_\_. a) Static RAM b) Dynamic RAM None of these c) Magnetic memory d)

A floating point number that has a O in the MSB of mantissa is said to

b)

d)

Underflow

Undefined

8)

have a) Overflow

Important number

Page **1** of **12** 

Set P

9)	An instruction pipeline can be implemented by means of						
	a)	LIFO buffer	b)	FIFO buffer			
	c)	Stack	d)	None of the above			
10)		is an extension of the proces	sor E	BUS.			
	a)	SCSI BUS	b)	USB			
	c)	PCI BUS	d)	None of the mentioned			
11)	The	video devices are connected to		_ BUS.			
	a)	PCI	b)	USB			
	c)	HDMI	d)	SCSI			
12)	The fetch and execution cycles are interleaved with the help of  a) Modification in processor architecture b) Clock c) Special unit d) Control unit						
13)	In D	MA transfers, the required signal	ls and	d addresses are given by the			
	a)	 Processor	b)	Device drivers			
	c)	DMA controllers	ď)	The program itself			
14)	, , ,						
	a)		b)	Program control instructions			
	c)	Input-output instructions	d)	Logical instructions			

Seat	Set	D
No.	Set	1

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering COMPUTER ORGANIZATION** Day & Date: Monday, 16-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Answer all the questions from Section-I & Section II. 2) Figures to the right indicates full marks. 3) Assume suitable data wherever necessary. Section - I Q.2 Attempt any three 12 Explain functional units of computer. Explain machine instruction format for assembly language instruction. b) Explain half adder circuit. c) Write note on SRAM & DRAM. d) What is Instruction? Explain any two types of instruction. e) **Q.3** Attempt any two. 16 Explain with example IEEE floating point Standard. b) x= axb +cxc solve this equation by zero, one, two, three address instruction processor. Enlist different memory mapping functions. Explain any one with neat c) diagram. Section - II 12 Q.4 Attempt any three Draw and explain the detailed hardwired control organization. Define and explain interrupt with example. b) Explain stages in pipelining. c) List out the types of multiprocessor and explain any one. d) Write a short note on I/O Channels. e) Q.5 Attempt any two.

16

- Define hazard in pipelining & Explain its types. a)
- Explain programmed control IO with examples. b)
- Draw and explain multiplier control unit. c)

		T.E	E. (Part – I) (New) (CBCS) E Computer Science COMPUTER OR	& E	ngineering
			onday, 16-12-2019 // To 05:30 PM		Max. Marks: 70
Instr	uctio	2	<ol> <li>Q. No. 1 is compulsory and sho book.</li> <li>Figures to the right indicates fu</li> <li>Assume suitable data whereve</li> </ol>	II ma	
		`	MCQ/Objective Ty		-
Dura	ition: 3	0 M	-	•	Marks: 14
Q.1	<b>Cho</b> (1)	A f	the correct alternatives from the loating point number that has a O re Overflow Important number	•	
	2)		instruction pipeline can be impler LIFO buffer Stack	mente b) d)	ed by means of  FIFO buffer  None of the above
	3)	a) c)	is an extension of the proces SCSI BUS PCI BUS	ssor I b) d)	BUS. USB None of the mentioned
	4)		e video devices are connected to PCI HDMI	b)	_ BUS. USB SCSI
	5)	The a) b) c) d)	e fetch and execution cycles are i Modification in processor archite Clock Special unit Control unit		
	6)	In [	DMA transfers, the required signa	ıls an	d addresses are given by the
		a) c)	Processor DMA controllers	b) d)	Device drivers The program itself
	7)	eith me	e instructions which copy informater in the processor's internal regmory are called  Data transfer instructions Input-output instructions	ister	
	8)		erm in computer terminology is a vas being used  development advancement	chan b) d)	ge in technology a computer generation growth

Set Q

9)	The a) c)	e generation based on VLSI micro 1 <sup>st</sup> 3 <sup>rd</sup>	proce b) d)	essor 2 <sup>nd</sup> 4 <sup>th</sup>	
10)		ich of the following is not a weigh Decimal Number system Binary number System	b)	Excess 3-cod	
11)	The idea of cache memory is based  a) on the property of locality of reference b) on the heuristic 90-10 rule c) on the fact that references generally tend to cluster d) all of the above				
12)	Vor a) c)	n Neumann architecture is SISD MIMD	 b) d)	SIMD MISD	
13)	as i	consumes less power	main b) d)	memory in a computer system has higher speed needs refreshing circuitary	
14)	Virt a) c)	ual memory consists of Static RAM Magnetic memory	b) d)	Dynamic RAM None of these	

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering COMPUTER ORGANIZATION** Day & Date: Monday, 16-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Answer all the questions from Section-I & Section II. 2) Figures to the right indicates full marks. 3) Assume suitable data wherever necessary. Section - I Q.2 Attempt any three. 12 Explain functional units of computer. Explain machine instruction format for assembly language instruction. b) Explain half adder circuit. c) Write note on SRAM & DRAM. d) What is Instruction? Explain any two types of instruction. e) **Q.3** Attempt any two. 16 Explain with example IEEE floating point Standard. b) x= axb +cxc solve this equation by zero, one, two, three address instruction processor. Enlist different memory mapping functions. Explain any one with neat c) diagram. Section - II 12 Q.4 Attempt any three. Draw and explain the detailed hardwired control organization. Define and explain interrupt with example. b) Explain stages in pipelining. c) List out the types of multiprocessor and explain any one. d) Write a short note on I/O Channels. e) Q.5 Attempt any two. 16 Define hazard in pipelining & Explain its types. a) Explain programmed control IO with examples. b)

Draw and explain multiplier control unit.

c)

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# T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019

			Computer Science COMPUTER ORG		•
			onday, 16-12-2019 I To 05:30 PM		Max. Marks: 70
Instr	uctior	2	<ul><li>Q. No. 1 is compulsory and sho book.</li><li>Figures to the right indicates ful</li><li>Assume suitable data wherever</li></ul>	l mar	
			MCQ/Objective Ty	pe C	
Dura	tion: 3	0 Mii	nutes		Marks: 14
Q.1	<b>Choo</b> 1)	Vor	he correct alternatives from the Neumann architecture isSISD MIMD	_	SIMD MISD
	2)	as i	nerally Dynamic RAM is used as a t consumes less power has lower cell density	b)	memory in a computer system has higher speed needs refreshing circuitary
	3)		ual memory consists of Static RAM Magnetic memory		Dynamic RAM None of these
	4)	hav	pating point number that has a O e Overflow Important number	in the b) d)	e MSB of mantissa is said to Underflow Undefined
	5)		instruction pipeline can be implen LIFO buffer Stack		ed by means of FIFO buffer None of the above
	6)	a) c)	is an extension of the proces SCSI BUS PCI BUS	ssor E b) d)	BUS. USB None of the mentioned
	7)		video devices are connected to PCI HDMI	b)	_BUS. USB SCSI
	8)	The a) b) c) d)	fetch and execution cycles are in Modification in processor archite Clock Special unit Control unit		•

Set R

9) In DMA transfers, the required signals ar			ls an	and addresses are given by the		
	a) c)	Processor DMA controllers	b) d)	Device drivers The program itself		
10)	The instructions which copy information from one location to another either in the processor's internal register set or in the external main memory are called					
	a)	Data transfer instructions Input-output instructions	b) d)	•		
11)	is/v	erm in computer terminology is a vas being used		-		
	,	development advancement	b) d)	generation growth		
12)	The a) c)	e generation based on VLSI micro 1 <sup>st</sup> 3 <sup>rd</sup>	proc b) d)	essor 2 <sup>nd</sup> 4 <sup>th</sup>		
13)	a)	nich of the following is not a weigh Decimal Number system Binary number System	b)	ode? Excess 3-cod None of these		
14)	The idea of cache memory is based  a) on the property of locality of reference b) on the heuristic 90-10 rule c) on the fact that references generally tend to cluster d) all of the above					

Seat	_	
No.	Set	R

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering COMPUTER ORGANIZATION** Day & Date: Monday, 16-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Answer all the questions from Section-I & Section II. 2) Figures to the right indicates full marks. 3) Assume suitable data wherever necessary. Section - I Q.2 Attempt any three. 12 Explain functional units of computer. Explain machine instruction format for assembly language instruction. b) Explain half adder circuit. c) Write note on SRAM & DRAM. d) What is Instruction? Explain any two types of instruction. e) **Q.3** Attempt any two. 16 Explain with example IEEE floating point Standard. b) x= axb +cxc solve this equation by zero, one, two, three address instruction processor. Enlist different memory mapping functions. Explain any one with neat c) diagram. Section - II 12 Q.4 Attempt any three. Draw and explain the detailed hardwired control organization. Define and explain interrupt with example. b) Explain stages in pipelining. c) List out the types of multiprocessor and explain any one. d) Write a short note on I/O Channels. e) Q.5 Attempt any two.

### a)

16

- Define hazard in pipelining & Explain its types.
- Explain programmed control IO with examples. b)
- Draw and explain multiplier control unit. c)

Seat	Set	U
No.	Set	7

		T.E	i. (Part – I) (New) (CBCS) E Computer Science COMPUTER ORC	& E	ngineering
•			onday, 16-12-2019		Max. Marks: 70
Time	: 02:30	) PN	1 To 05:30 PM		
Instr	uction	ıs: 1	) Q. No. 1 is compulsory and sho book.	uld b	e solved in first 30 minutes in answer
			<ul><li>Pigures to the right indicates full</li><li>Assume suitable data wherever</li></ul>		
			MCQ/Objective Ty	pe C	Questions
Dura	tion: 3	0 Mi	nutes		Marks: 14
Q.1		se t	the correct alternatives from th	-	
	1)	 a)	is an extension of the proces SCSI BUS	b)	USB
		c)	PCI BUS	d)	None of the mentioned
	2)	The	e video devices are connected to		_ BUS.
	·		PCI	b)	USB
		c)	HDMI	d)	SCSI
	3)		e fetch and execution cycles are in		
		a) b)	Modification in processor archite Clock	clure	
		c)	Special unit		
		d)	Control unit		
	4)	In [	DMA transfers, the required signa	ls and	d addresses are given by the
		a)	 Processor	b)	Device drivers
		c)	DMA controllers	d)	The program itself
	5)		e instructions which copy informat		
			ner in the processor's internal regi	ster s	set or in the external main
		a)	mory are called  Data transfer instructions	b)	Program control instructions
		c)	Input-output instructions	ď)	Logical instructions
	6)		erm in computer terminology is a vas being used	chanç	ge in technology a computer
		a)	development	b)	generation
		c)	advancement	d)	growth
	7)		e generation based on VLSI micro 1 <sup>st</sup>	-	essor 2 <sup>nd</sup>
		a) c)	3 <sup>rd</sup>	b) d)	2 4 <sup>th</sup>
	8)	•	ich of the following is not a weigh	•	
	٠,	a)	Decimal Number system	b)	Excess 3-cod
		c)	Binary number System	d)	None of these

Set S

9)	The idea of cache memory is based  a) on the property of locality of reference b) on the heuristic 90-10 rule c) on the fact that references generally tend to cluster d) all of the above				
10)		Neumann architecture is SISD MIMD	 b) d)	SIMD MISD	
11)	as i a)	nerally Dynamic RAM is used as to the consumes less power has lower cell density	main b) d)	memory in a computer system has higher speed needs refreshing circuitary	
12)	a)	ual memory consists of Static RAM Magnetic memory	b) d)	Dynamic RAM None of these	
13)	hav	oating point number that has a O re Overflow Important number	in the b) d)	e MSB of mantissa is said to Underflow Undefined	
14)		instruction pipeline can be implen LIFO buffer Stack		d by means of FIFO buffer None of the above	

Seat No.	Set S
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T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering COMPUTER ORGANIZATION** Day & Date: Monday, 16-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Answer all the questions from Section-I & Section II. 2) Figures to the right indicates full marks. 3) Assume suitable data wherever necessary. Section - I Q.2 Attempt any three 12 Explain functional units of computer. Explain machine instruction format for assembly language instruction. b) Explain half adder circuit. c) Write note on SRAM & DRAM. d) What is Instruction? Explain any two types of instruction. e) **Q.3** Attempt any two. 16 Explain with example IEEE floating point Standard. b) x= axb +cxc solve this equation by zero, one, two, three address instruction processor. Enlist different memory mapping functions. Explain any one with neat c) diagram. Section - II 12 Q.4 Attempt any three Draw and explain the detailed hardwired control organization. Define and explain interrupt with example. b) Explain stages in pipelining. c) List out the types of multiprocessor and explain any one. d) Write a short note on I/O Channels. e) Q.5 Attempt any two. 16

a)

b)

Define hazard in pipelining & Explain its types.

Explain programmed control IO with examples.

		<b>92</b> 11 1		
Seat No.			Set	Р
	•	(New) (CBCS) Examination Nov/Dec-2019 omputer Science & Engineering		

		T.E	Compute	• •	& E	ination Nov/Dec-2019 ngineering UCTION	
•			iday, 22-11-2019 // To 01:00 PM			Max	. Marks: 70
Instr	uctio	ns: 1	l) Q. No. 1 is compul book.	sory and sho	uld b	e solved in first 30 minutes	s in answer
			<ol> <li>Assume suitable d</li> <li>Figures to the right</li> </ol>			<s.< td=""><td></td></s.<>	
			MCQ/C	bjective Typ	e Q	uestions	
Dura	tion: 3	30 M	inutes				Marks: 14
Q.1	Choo 1)		the correct option: ntax checking of state Lexical analyzer Semantic analyzer	ment is the ta		of Parser None of these	14
	2)	Wh a) c)	ich of the following is The lexical analyzer The code optimizer		b)	g characters into tokens? Syntax analyzer The code generator	
	3)		ee address code invo Exactly three addres No unary operators			At least three address None of these	
	4)	a)	en the Grammar: E-> TE1 E1-> +TE1   ε T-> FT1 T1-> *FT1   ε F->(E)   id { + ,ε }	What is Follo	b)	{ + ,),\$ }	
	5)		{(,id } perator precedence per all pair of non-ter For all pair of termine To delimit the handle Only for certain pair	erminals ials e		{ + ,*,),\$ } ce relations are defined	
	6)	YA a) c)	AC builds up SLR parsing table LALR parsing table		b) d)	Canonical LR parsing tabl None of these	е
	7)	Typ a) c)	e checking is normal Lexical analysis Syntax directed tran		b)	Syntax analysis	
	8)		ictorial representatior ic block is Tree Graph	n of the value	b)	puted by each statement in DAG None of these	n the

Set P

9)		deciding the evaluation order from Topological sort Bubble sort	dep b) d)	Quick sort
10)	calle a)	graph that shows basic blocks an ed as DAG Control graph		eir successor relationship is Flow graph Hamiltonian graph
11)	a)	ch of the following is method of top LL(1) parsing both a and b		wn parser? Recursive descent parsing
12)	a)	ch among following is kernel item $E \rightarrow E + T$ . $E \rightarrow E + T$		R parser item set $S1 \rightarrow .S$ All of these
13)	a) b)	of control stack is for Use track of executed procedures Keep track of live procedure activ Both a and b None of these		าร
14)	Whi a) c)	ch of the following is not addressir Register Indirect absolute	ng m b) d)	ode? Absolute Indirect indexed

Seat	Set	D
No.	Set	

# T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPILER CONSTRUCTION

	COMPILER CONSTRUCTION	
,	& Date: Friday, 22-11-2019 Max. Mark e: 10:00 AM To 01:00 PM	s: 56
	ructions: 1) All questions are compulsory. 2) Assume suitable data if necessary. 3) Figures to the right indicate full marks.	
0.0	Section – I	40
Q.2	<ul> <li>Answer any three:</li> <li>a) Explain the language processing system with diagram.</li> <li>b) Write the algorithm for simulating a DFA and explain with example.</li> <li>c) Explain with example S-Attributed definition.</li> <li>d) Explain recursive descent parsing with example.</li> </ul>	12
Q.3	Answer any one:	80
	<ul> <li>a) Explain specification and recognition of tokens.</li> <li>b) Write the procedure to compute FIRST and FOLLOW set. Find the FIRST and FOLLOW for the following grammar:</li> <li>E → TE', E' → +TE'   e, T' → FT', T' →* FT'   e, F → (E)   Id, Where e stands for epsilon.</li> </ul>	
Q.4	Explain in detail the SLR parser with suitable example.	08
	Section – II	
Q.5	<ul> <li>Answer any three:</li> <li>a) What is the Activation tree? Explain it with example.</li> <li>b) Explain quadruple, triple and indirect triple with example.</li> <li>c) Explain next-use information with example.</li> <li>d) Explain issue in design of code generator.</li> </ul>	12
Q.6	<ul> <li>Attempt any one:</li> <li>a) Explain in detail the function preserving transformations.</li> <li>b) What is back patching? Explain back patching for Boolean expression.</li> </ul>	80
Q.7	Write the partitioning algorithm for the basic blocks. Apply this algorithm for the fragment of source code shown below to create basic blocks: $\begin{array}{l} \textbf{begin} \\ \text{prod} := 0; \\ \textbf{i:= 1;} \\ \textbf{do begin} \\ \text{prod} := \text{prod} + \text{a[i]} * \text{b[i];} \\ \textbf{i:= i+1;} \\ \textbf{end} \\ \text{while i<= 20} \end{array}$	08
	end	

Seat	Set	
No.	Set	Q

		T.E	. (Part – II) (New) (CBCS) Ex Computer Science COMPILER CONS	& E	ngineering
•			iday, 22-11-2019 /I To 01:00 PM		Max. Marks: 70
Instr	uctio		<ol> <li>Q. No. 1 is compulsory and sho book.</li> <li>Assume suitable data if necess</li> <li>Figures to the right indicate full</li> </ol>	ary.	be solved in first 30 minutes in answer
			MCQ/Objective Tyr		
Dura	ition: 3	30 Mi	inutes		Marks: 14
Q.1	<b>Cho</b> (1)	Ар	the correct option: ictorial representation of the value ic block is Tree Graph	b)	nputed by each statement in the  DAG  None of these
	2)	,	deciding the evaluation order from Topological sort Bubble sort	n de b)	
	3)		e graph that shows basic blocks ar ed as DAG Control graph	b)	eir successor relationship is Flow graph Hamiltonian graph
	4)	Wh a) c)	ich of the following is method of to LL(1) parsing both a and b	b)	own parser? Recursive descent parsing None of these
	5)	Wh a) c)	ich among following is kernel item $E \rightarrow E + T$ . $E \rightarrow E + T$		R parser item set $S1 \rightarrow .S$ All of these
	6)	Use a) b) c) d)	e of control stack is for  Use track of executed procedure  Keep track of live procedure active  Both a and b  None of these		ns
	7)	Wh a) c)	ich of the following is not addressi Register Indirect absolute	ng m b) d)	
	8)	Syr a) c)	ntax checking of statement is the ta Lexical analyzer Semantic analyzer	ask d b) d)	of Parser None of these
	9)	Wh a) c)	ich of the following is used for grou The lexical analyzer The code optimizer	uping b) d)	

Set Q

10)	Three address code involves a) Exactly three address c) No unary operators	b) At least three address d) None of these			
11)	Given the Grammar: E-> TE1 E1-> +TE1   ε T-> FT1 T1-> *FT1   ε				
	F->(E)   id What is Foll	ow (F )?			
	<ul><li>a) { + ,ε }</li><li>c) {(,id }</li></ul>	b) { + ,),\$ } d) { + ,*,),\$ }			
12)	<ul> <li>In operator precedence parsing, pred</li> <li>a) For all pair of non-terminals</li> <li>b) For all pair of terminals</li> <li>c) To delimit the handle</li> <li>d) Only for certain pair of terminals</li> </ul>				
13)	YAAC builds up  a) SLR parsing table c) LALR parsing table	<ul><li>b) Canonical LR parsing table</li><li>d) None of these</li></ul>			
14)	Type checking is normally done during a) Lexical analysis c) Syntax directed translation	ng b) Syntax analysis d) Code optimization			

Seat No.							Set	Q			
T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPILER CONSTRUCTION											
Day & Date: Friday, 22-11-2019 Max. Marks: 5 Time: 10:00 AM To 01:00 PM							s: 56				
Instructions: 1) All questions are compulsory. 2) Assume suitable data if necessary. 3) Figures to the right indicate full marks.											
Section – I											
Q.2	<ul> <li>Answer any three:</li> <li>a) Explain the language processing system with diagram.</li> <li>b) Write the algorithm for simulating a DFA and explain with example.</li> <li>c) Explain with example S-Attributed definition.</li> <li>d) Explain recursive descent parsing with example.</li> </ul>						12				
Q.3	<ul> <li>Answer any one:</li> <li>a) Explain specification and recognition of tokens.</li> <li>b) Write the procedure to compute FIRST and FOLLOW set. Find the FIRST and FOLLOW for the following grammar:</li> <li>E → TE', E' → +TE'   e, T' → FT', T' →* FT'   e, F → (E)   Id, Where e stands for epsilon.</li> </ul>						80				
Q.4	Explain in detail the SLR parser with suitable example.					08					
	Section – II										
Q.5	a)	wer any three: What is the Activ Explain quadrup Explain next-use Explain issue in	e, triple and i information v	indirect triple with example	with example.			12			
Q.6	Attera)	mpt any one: Explain in detail What is back pat	the function p	oreserving tra	ansformations.	n expressior	٦.	80			
Q.7		e the partitioning and the partitioning and the partitioning and the partitioning and the partition an				algorithm fo	r the	08			

do begin

while i<= 20

end

end

prod := prod + a[i] \* b[i]; i := i+1;

Seat	Sat	D
No.	Set	K

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

			Computer Science COMPILER CON		
•			iday, 22-11-2019 // To 01:00 PM		Max. Marks: 70
nstr	uctio		<ol> <li>Q. No. 1 is compulsory and sho book.</li> <li>Assume suitable data if necess</li> <li>Figures to the right indicate full</li> </ol>	sary.	be solved in first 30 minutes in answer
			MCQ/Objective Ty		
Dura	tion: 3	80 Mi	inutes		Marks: 14
Q.1	<b>Choo</b> 1)	In c a) b)	the correct option: operator precedence parsing, precedence parsing, precedence parsing, precedence all pair of non-terminals  To delimit the handle  Only for certain pair of terminals		nce relations are defined
	2)	a)	AC builds up SLR parsing table LALR parsing table		Canonical LR parsing table None of these
	3)		be checking is normally done during Lexical analysis Syntax directed translation	b)	Syntax analysis Code optimization
	4)	•	ictorial representation of the value sic block is Tree Graph	b) d)	nputed by each statement in the  DAG  None of these
	5)	a)	deciding the evaluation order from Topological sort Bubble sort	b)	Quick sort
	6)		e graph that shows basic blocks a ed as DAG Control graph	nd th b) d)	eir successor relationship is Flow graph Hamiltonian graph
	7)	Wh a) c)	ich of the following is method of to LL(1) parsing both a and b	pp-do b) d)	•
	8)	Wh a) c)	ich among following is kernel item $E \rightarrow E + T$ . $E \rightarrow E + T$	n in L b) d)	-

### Set R

9)	a) b) c)	e of control stack is for Use track of execut Keep track of live p Both a and b None of these	ed procedure		ns
10)	Wh a)	iich of the following is Register	not address	_	node? Absolute
	c)	Indirect absolute		ď)	Indirect indexed
11)	Syr	ntax checking of state	ement is the t	ask d	of
		Lexical analyzer		,	Parser
	c)	Semantic analyzer		d)	None of these
12)	Wh	ich of the following is	used for gro	uping	g characters into tokens?
,		The lexical analyze			Syntax analyzer
		The code optimizer		d)	The code generator
13)	Thr	ee address code inv	olves		
,		Exactly three addre		b)	At least three address
	c)	No unary operators		ď)	None of these
14)		ren the Grammar: E-> TE1 E1-> +TE1   ε T-> FT1 T1-> *FT1   ε			
		F->(E)   id	What is Foll	ow (F	= )?
	a)	$\{+, \hat{\epsilon}\}$		b)	{ + ,),\$ }
	c)	{(,id }			{ + ,*,),\$ }

	-							
Seat No.						Set	R	
	•	T.E. (Part – II	) (New) (CE	BCS) Exan	nination Nov	/Dec-2019		
	Computer Science & Engineering COMPILER CONSTRUCTION							
5 (		. 5:1 00.44		R CONSTI	RUCTION			
		ate: Friday, 22-11- 00 AM To 01:00 F				Max. Mark	S: 56	
Instr	uctio	,	ons are compoutable data if the tight indicate the	f necessary.	ks.			
			;	Section - I				
Q.2	_	swer any three:					12	
	a) b) c) d)	Explain the lang Write the algorit Explain with exa Explain recursiv	hm for simula mple S-Attrib	nting a DFA a outed definition	and explain with on.	example.		
Q.3	_	swer any one:					80	
	a) b)	and FOLLOW for	Hure to compute the following $+TE' \mid e$ ,	ute FIRST ar g grammar:		. Find the FIRST $F \rightarrow (E) \mid Id,$		
Q.4	Exp	plain in detail the S		ith suitable e	xample.		08	
			•	Section - II	•			
Q.5	Ans	swer any three:					12	
	a) b) c) d)	What is the Active Explain quadrup Explain next-use Explain issue in	le, triple and information	indirect triple with example	e with example.			
Q.6	_	empt any one:					80	
	a) b)	Explain in detail What is back pa				n expression.		
Q.7		te the partitioning gment of source co begin	•			algorithm for the	80	
		prod := 0;						
		i:= 1; do begin						
		pro	d := prod + a[	[i] * b[i];				
		i := end	i+1;					

while i<= 20

end

Seat	Sat	9
No.	Set	3

### T.F. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

			Computer Science COMPILER CON	& E	ngineering	
•			iday, 22-11-2019 // To 01:00 PM		Max.	Marks: 70
nstr	uctio		<ol> <li>Q. No. 1 is compulsory and sh book.</li> <li>Assume suitable data if neces</li> <li>Figures to the right indicate fu</li> </ol>	sary.		in answer
			MCQ/Objective Ty	/pe Q	uestions	
Dura	tion: 3	80 Mi	inutes			Marks: 14
Q.1	<b>Choo</b> 1)	The	the correct option: e graph that shows basic blocks a ed as DAG		eir successor relationship is Flow graph	14
		,	Control graph	ď)	Hamiltonian graph	
	2)		ich of the following is method of t LL(1) parsing both a and b	•	own parser? Recursive descent parsing None of these	
	3)	a)	ich among following is kernel iter $E \to E + T$ . $E \to E + T$	b)	R parser item set $S1 \rightarrow S$ All of these	
	4)	a)	e of control stack is for  Use track of executed procedur  Keep track of live procedure ac  Both a and b  None of these		ns	
	5)	Wh a) c)	ich of the following is not address Register Indirect absolute	sing n b) d)	node? Absolute Indirect indexed	
	6)	Syr a) c)	ntax checking of statement is the Lexical analyzer Semantic analyzer	task ( b) d)		
	7)	Wh a) c)	ich of the following is used for gr The lexical analyzer The code optimizer	-	g characters into tokens? Syntax analyzer The code generator	
	8)	Thr a) c)	ee address code involves Exactly three address No unary operators	 b) d)	At least three address None of these	

### Set S

9)		en the Grammar: E-> TE1			
	,	E1-> +TE1			
		F->(E)   id	What is Follo	ow (F	<del>-</del> )?
		{ + ,ε } {(,id }		b) d)	{ + ,),\$ } { + ,*,),\$ }
10)	a) b) c)	perator precedence   For all pair of non-te For all pair of termir To delimit the handl Only for certain pair	erminals nals le	eder	nce relations are defined
11)	a)	AC builds up SLR parsing table LALR parsing table		b) d)	Canonical LR parsing table None of these
12)	Тур	e checking is normal	lly done durin	q	
,	a)	Lexical analysis Syntax directed tran		b)	Syntax analysis
13)	-	ictorial representation ic block is	n of the value	com	nputed by each statement in the
	a)	Tree		b)	DAG
	c)	Graph		d)	None of these
14)	a)	Topological sort	ion order fron	b)	
	c)	Bubble sort		d)	Heap sort

Seat	Set	6
No.	Set	3

### T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering COMPILER CONSTRUCTION

Day & Date: Friday, 22-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Assume suitable data if necessary. 3) Figures to the right indicate full marks. Section - I Q.2 Answer any three: 12 Explain the language processing system with diagram. Write the algorithm for simulating a DFA and explain with example. b) Explain with example S-Attributed definition. c) Explain recursive descent parsing with example. Q.3 Answer any one: 08 Explain specification and recognition of tokens. Write the procedure to compute FIRST and FOLLOW set. Find the FIRST and FOLLOW for the following grammar:  $E \rightarrow TE', \quad E' \rightarrow +TE' \mid e, \quad \bar{T'} \rightarrow FT',$  $T' \rightarrow * FT' \mid e, F \rightarrow (E) \mid Id,$ Where e stands for epsilon. **Q.4** Explain in detail the SLR parser with suitable example. 80 Section - II 12 Q.5 Answer any three: What is the Activation tree? Explain it with example. Explain quadruple, triple and indirect triple with example. b) Explain next-use information with example. Explain issue in design of code generator. Q.6 Attempt any one: 80 Explain in detail the function preserving transformations. What is back patching? Explain back patching for Boolean expression. Write the partitioning algorithm for the basic blocks. Apply this algorithm for the 80 fragment of source code shown below to create basic blocks: begin prod := 0: i:=1; do begin prod := prod + a[i] \* b[i];i := i+1; end while i <= 20end

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Seat	Set	Р
No.		

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Scie UNIX OPER			
		e: Saturday, 23-11-2019 0 AM To 01:00 PM		Max. Marks:	70
Instr	uctio	ns: 1) Q. No. 1 is compulsory an Book.	d should b	e solved in first 30 minutes in answ	er
		2) Figures to the right indicat	e full mark	S.	
_		MCQ/Objective	e Type C		
		30 Minutes		Marks:	
Q.1	<b>Cho</b> (1)	ose the correct alternatives from The Kernel finds the block in the busy, this statement indicates _ a) First Scenario	e hash que	eions and rewrite the sentence. Eue, but its buffer is currently  Second Scenario	14
		c) Fifth Scenario	d)	Fourth Scenario	
	2)	H/W control is placed in	,		
	,	a) User level c) H/W level	b) d)	Kernel level None of above	
	3)	In case of algo. kernel ra a) brelse c) bwrite	aises proce b) d)	essor execution level. bread none of above	
	4)	The kernel uses algorith a) ifree c) free	m to free a b) d)	a disk Inode. Dealloc Namei	
	5)	Which process is called <i>init</i> pro a) Process 0 c) User Process	ocess? b) d)	Process 1 Swapper Process	
	6)	<ul><li>b) s/w interrupts, terminal, net</li><li>c) machine errors, network de</li></ul>	network de twork devices, terr	evels according to increasing evices, terminal, s/w interrupts ces, disk, clock, machine error ninal, s/w interrupts, clock, disk clock, machine error, terminal	
	7)	a) > c)	ct standard b) d)	d output to a file.	
	8)	Which algorithm is used for cor a) Namei c) Bmap	nversion of b) d)	byte offset to block number? Iput Iget	
	9)	Every file has inodes. a) One c) More than one	b) d)	Two None of above	

Set P

10)	A kea)	ernel attaches a new region usino Allocreg Attachreg	b) d)	 Dupreg all of these
11)	incu	en a process accesses a page thurs page fault.		
	a) c)	Validity Modification	b) d)	Invalid Recent
12)		e memory management hardware lal sized blocks called	divid	les physical memory into set of
	•	Region Pages	b) d)	Pregion Segments
13)		translates a file system addre nber and block number, to a parti Stream Strategy interface		
14)	S1: S2:	nsider the following statements: process in kernel mode can only Process in user mode can acces Process in Kernel mode can acc kernel data structures	s u-a	rea
	a) c)	All are true	b) d)	Only S1 & S2 is true Both S1 & S3 false

	<u>.                                      </u>	
Seat	Set	D
No.	Sei	

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering UNIX OPERATING SYSTEM	2013
•		e: Saturday,23-11-2019 00 AM To 01:00 PM	Max. Marks: 56
Instru	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li></ul>	
		Section – I	
Q.2	Solv	ve any three.	12
	a)	Draw & explain data structures of kernel related to file system are subsystem.	nd process
	b)	Explain dup() system call.	
	c)	Explain super block in detail.	
	d) d)	Explain dupreg() system call in detail.  Describe the actions taken by Kernel while allocating a buffer for	· a disk
	u,	block, when the kernel can not find the block on the hash queue list of buffers is empty.	
Q.3	Solv	ve any two.	16
	a) b)	Draw and Explain Structure of Buffer Pool system. List scenarios for retrieval of buffers. Draw & Explain first two scenarios.	enario in
	c) d)	Write and explain ialloc algorithm in detail. Write algorithm to read the buffer contents.	
		Section – II	
Q.4		e short note on any three of the following.	12
	a) b)	Swapping process out Detachreg	
	c)	Clists	
	d)	Wait system call	
	e)	The shell	
Q.5	Solv	ve any two.	16
	a)	Explain Demand Paging system.	
	b) c)	With a neat figure explain process state transition diagram. What is context of process? Explain different types of context of with the help of diagram.	process
	d)	Explain Swapping system.	

### T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Scien UNIX OPERA	ce & E	ngineering
		e: Saturday, 23-11-2019 0 AM To 01:00 PM		Max. Marks: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory and a	should b	e solved in first 30 minutes in answer
		2) Figures to the right indicate	full mark	KS.
D	·:	MCQ/Objective	Type (	
		30 Minutes		Marks: 14
Q.1	1)	ose the correct alternatives from Which algorithm is used for conver a) Namei c) Bmap		
	2)	Every file has inodes. a) One c) More than one	b) d)	Two None of above
	3)	A kernel attaches a new region use a) allocreg c) attachreg	sing b) d)	dupreg all of these
	4)	When a process accesses a page incurs page fault. a) validity c) modification	e that is b) d)	not part of its working set, it invalid recent
	5)	The memory management hardwequal sized blocks called a) Region c) Pages	are divid b) d)	des physical memory into set of  Pregion  Segments
	6)	translates a file system ad number and block number, to a p a) Stream c) Strategy interface	dress, c	onsisting of a logical device
	7)	Consider the following statements S1: process in kernel mode can of S2: Process in user mode can ac S3: Process in Kernel mode can ac kernel data structures a) All are true c) Only S3 is true	only acce cess u-a	area
	8)	The Kernel finds the block in the busy, this statement indicates a) First Scenario c) Fifth Scenario	•	eue, but its buffer is currently Second Scenario Fourth Scenario

Set Q

9)	H/W control is placed in		
	a) User level	b) Kernel level	
	c) H/W level	d) None of above	
10)	In case of algo. kerneral algo	I raises processor execution level. b) bread d) none of above	
11)	The kernel uses algo	ithm to free a disk Inode.	
ŕ	a) Ifree	b) dealloc	
	c) Free	d) namei	
12)	Which process is called init	orocess?	
,	a) Process 0	b) Process 1	
	c) User Process	d) Swapper Process	
13)	Identify the correct sequence priority.	e of interrupt levels according to increasing	ıg
		k, network devices, terminal, s/w interrup	ots
	b) s/w interrupts, terminal,	network devices, disk, clock, machine err	or
	c) machine errors, network	devices, terminal, s/w interrupts, clock, c	disk
	d) network devices, s/w int	errupts, disk, clock, machine error, termin	ıal
14)	symbol is used to red	rect standard output to a file.	
	a) >	b) <	
	c)	d) 2>	

Seat	Set	
No.	Set	Q

# T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering UNIX OPERATING SYSTEM	2019
•		e: Saturday,23-11-2019 00 AM To 01:00 PM	Max. Marks: 56
Instr	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li></ul>	
		Section – I	
Q.2	Solv	ve any three.	12
	a)	Draw & explain data structures of kernel related to file system ar subsystem.	nd process
	b)	Explain dup() system call.	
	c)	Explain super block in detail.	
	d) d)	Explain dupreg() system call in detail.  Describe the actions taken by Kernel while allocating a buffer for block, when the kernel can not find the block on the hash queue list of buffers is empty.	
Q.3	Solv	∕e any two.	16
۷٥	a) b)	Draw and Explain Structure of Buffer Pool system.  List scenarios for retrieval of buffers. Draw & Explain first two scenarios.	
	c) d)	Write and explain ialloc algorithm in detail. Write algorithm to read the buffer contents.	
		Section – II	
Q.4	Write a) b) c) d) e)	te short note on any three of the following. Swapping process out detachreg Clists Wait system call The shell	12
Q.5	Solv	ve any two.	16
	a) b) c)	Explain Demand Paging system.  With a neat figure explain process state transition diagram.  What is context of process? Explain different types of context of with the help of diagram.	process
	d)	Explain Swapping system.	

Seat	Set	R
No.	Jet l	11

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Scien UNIX OPERA		•
-		e: Saturday, 23-11-2019 0 AM To 01:00 PM		Max. Marks: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory and a Book.	should b	be solved in first 30 minutes in answer
		2) Figures to the right indicate	full marl	Ks.
		MCQ/Objective	Type (	
Dura	ition: 3	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	ose the correct alternatives from Which process is called <i>init</i> process 0 c) User Process	•	Process 1 Swapper Process
	2)	<ul><li>b) s/w interrupts, terminal, netw</li><li>c) machine errors, network devi</li></ul>	etwork d ork devi	• •
	3)	a) > c)	standar b) d)	d output to a file. < 2>
	4)	Which algorithm is used for conve a) namei c) bmap	ersion of b) d)	f byte offset to block number? iput iget
	5)	Every file has inodes. a) One c) More than one	b) d)	Two None of above
	6)	A kernel attaches a new region use a) allocreg c) attachreg	sing b) d)	dupreg all of these
	7)	When a process accesses a page incurs page fault. a) validity c) modification	e that is b) d)	not part of its working set, it invalid recent
	8)	The memory management hardw equal sized blocks called  a) Region c) Pages	are divid b) d)	des physical memory into set of  Pregion  Segments

Set R

9)	nur a)	translates a file system addre mber and block number, to a part Stream Strategy interface	icular b)	sector on a disk.
10)	S1: S2:	nsider the following statements: process in kernel mode can only Process in user mode can acces Process in Kernel mode can acces kernel data structures	ss u-a	area
	,	All are true Only S3 is true	b) d)	Only S1 & S2 is true Both S1 & S3 false
11)	bus a)	e Kernel finds the block in the has sy, this statement indicates First Scenario Fifth Scenario	 b)	Second Scenario Fourth Scenario
12)	a)	V control is placed in User level H/W level	b) d)	
13)		case of algo. kernel raises brelse bwrite	proce b) d)	
14)	The a) c)	e kernel uses algorithm to ifree free	free a b) d)	

Seat No.	Set	R
NO.		

		Computer Science & Engineering UNIX OPERATING SYSTEM	2019
•		te: Saturday,23-11-2019 00 AM To 01:00 PM	Max. Marks: 56
Instr	uctic	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	Sol	ve any three.	12
	a)	Draw & explain data structures of kernel related to file system an subsystem.	d process
	b)	Explain dup() system call.	
	c)	Explain super block in detail.	
	d) d)	Explain dupreg() system call in detail.  Describe the actions taken by Kernel while allocating a buffer for	a diek
	u)	block, when the kernel can not find the block on the hash queue list of buffers is empty.	
Q.3	Sol	ve any two.	16
	a) b)	Draw and Explain Structure of Buffer Pool system. List scenarios for retrieval of buffers. Draw & Explain first two scedetail.	enario in
	c) d)	Write and explain ialloc algorithm in detail. Write algorithm to read the buffer contents.	
		Section – II	
Q.4	Wri	te short note on any three of the following.	12
	a)	Swapping process out	
	b)	detachreg	
	c)	Clists	
	d) e)	Wait system call The shell	
Q.5	-	ve any two.	16
	a)	Explain Demand Paging system.	
	b)	With a neat figure explain process state transition diagram.	
	c)	What is context of process? Explain different types of context of with the help of diagram.	process
	d)	Explain Swapping system.	

Seat No.	Set S
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		T.E. (Part – II) (New) (CBCS Computer Scien UNIX OPERA	ce & E	ngineering
•		te: Saturday, 23-11-2019 00 AM To 01:00 PM		Max. Marks: 70
Insti	ructio	ons: 1) Q. No. 1 is compulsory and Book. 2) Figures to the right indicate		be solved in first 30 minutes in answer
		MCQ/Objective		
Dura	ation:	30 Minutes		Marks: 14
Q.1		oose the correct alternatives from	•	tions and rewrite the sentence. 14
	1)	<ul><li>A kernel attaches a new region u</li><li>a) allocreg</li><li>c) attachreg</li></ul>	sing b) d)	dupreg all of these
	2)	When a process accesses a pag incurs page fault.		· -
		<ul><li>a) validity</li><li>c) modification</li></ul>	b) d)	invalid recent
	3)	The memory management hardwequal sized blocks called	,	
		<ul><li>a) Region</li><li>c) Pages</li></ul>	b) d)	Pregion Segments
	4)	translates a file system ad number and block number, to a page a) Stream c) Strategy interface		onsisting of a logical device sector on a disk. Disk driver Kernel
	5)	Consider the following statement S1: process in kernel mode can of S2: Process in user mode can act S3: Process in Kernel mode can kernel data structures  a) All are true  c) Only S3 is true	only acce cess u-a	area
	6)	The Kernel finds the block in the busy, this statement indicates a) First Scenario c) Fifth Scenario	•	eue, but its buffer is currently Second Scenario Fourth Scenario
	7)	H/W control is placed in a) User level c) H/W level	b) d)	Kernel level None of above
	8)	In case of algo. kernel rais a) Brelse c) Bwrite	ses proc b) d)	essor execution level. bread none of above

Set S

9)	The a) c)	kernel uses algorithm to f Ifree Free	ree a b) d)	disk Inode. dealloc namei
10)	Wh	ich process is called <i>init</i> process	?	
,	a)	Process 0	b)	Process 1
	c)	User Process	d)	Swapper Process
11)	prio	ntify the correct sequence of interprity.	·	
	a) b)	machine error, clock, disk, network s/w interrupts, terminal, network		
	c)	machine errors, network devices		
	d)	network devices, s/w interrupts,		• • • • • • • • • • • • • • • • • • • •
12)		symbol is used to redirect sta	ndard	output to a file.
·	a)	>	b)	<
	c)		d)	2>
13)	Wh	ich algorithm is used for conversi	on of	byte offset to block number?
	a)	namei	b)	iput
	c)	bmap	d)	iget
14)	Eve	ery file has inodes.		
·	a)	Öne	b)	Two
	c)	More than one	d)	None of above

Seat	Set	9
No.	Set	<u> </u>

# T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering UNIX OPERATING SYSTEM	2013
•		e: Saturday,23-11-2019 00 AM To 01:00 PM	Max. Marks: 56
Instru	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li></ul>	
		Section – I	
Q.2	Solv	ve any three.	12
	a)	Draw & explain data structures of kernel related to file system ar subsystem.	nd process
	b)	Explain dup() system call.	
	c)	Explain super block in detail.	
	d) d)	Explain dupreg() system call in detail.  Describe the actions taken by Kernel while allocating a buffer for block, when the kernel can not find the block on the hash queue list of buffers is empty.	
Q.3	Solv	ve any two.	16
	a) b)	Draw and Explain Structure of Buffer Pool system. List scenarios for retrieval of buffers. Draw & Explain first two scenarios.	enario in
	c) d)	Write and explain ialloc algorithm in detail. Write algorithm to read the buffer contents.	
		Section – II	
Q.4	Write a) b) c) d) e)	e short note on any three of the following. Swapping process out detachreg Clists Wait system call The shell	12
Q.5		ve any two.	16
	a) b) c)	Explain Demand Paging system.  With a neat figure explain process state transition diagram.  What is context of process? Explain different types of context of with the help of diagram.	process
	d)	Explain Swapping system.	

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Seat	Set	Д
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## T.E. (Part - II) (New) (CRCS) Examination Nov/Dec-2010

		Computer Science 8  MOBILE COMF	k Er	ngineering		
		e: Monday, 25-11-2019		Max. Marks: 70		
		00 AM To 01:00 PM				
Insti	uctio	<ul><li>ns: 1) Q. No. 1 is compulsory and shoul book.</li><li>2) Figures to the right indicate full m</li></ul>				
		MCQ/Objective Typ	e Q	uestions		
Dura	ition: 3	30 Minutes		Marks: 14		
Q.1	<b>Cho</b> 1)	cose the correct alternatives from the describes schemes to subdividual several non-overlapping frequency bar a) SDM c) PSK	de th	ne frequency dimension into		
	<ul> <li>2) Pure Aloha</li> <li>a) does not require global time synchronization</li> <li>b) does require global time synchronization</li> <li>c) does divide time into discrete internals</li> <li>d) does not divide time into discrete intervals</li> </ul>					
	3)	Frequency modulation ranges between a) 5.9 MHz and 26.1 MHz c) 148.5 kHz and 283.5 kHz	b)	87.5 MHz and 108 MHz 174 and 230 MHz		
	4)	The monitors and controls all interface.  a) OMC c) OSS	othe b) d)	er network entities via the O  EIR  GSM		
	5)	<ul><li>protocol is used for signalling</li><li>a) LAPDm</li><li>c) PCM</li></ul>	b)	veen MSC and BSC. LAPD SS7		
	6)	PLCP in IEEE 802.11 stands for a) Physical Layer Communication probable Physical Layer Convergence Protoc) Primary Layer Communication prod) Primary Layer Convergence proto	ocol otoco			
	7)	Algorithm A8 is used for  a) Authentication c) Generation of a cipher key	b) d)	Encryption Decryption		
	8)	GPRS offers a packet transfer s a) point-to-point c) Data	serv b) d)	ice. peer-to-peer Network		

Set P

9)	Reason for handover is  a) load balancing c) traffic in one cell is less	b) d)	
10)	MSRN stands for  a) Mobile Station roaming number b) Module Station roaming number c) Modern Station roaming number d) Mode Station roaming number		
11)	,		
	a) TCP c) RFC	b) d)	ICMP
12)	A is an end-system or router to attachment to the internet using mobile a) Mobile node c) Home agent	e IP. b)	•
13)	The approach assumes a relati wireless network. a) Indirect TCP c) Mobile TCP	•	snooping TCP
14)	The is responsible for changing the proxy in I-TCP a) minimum host c) supervisory host	data b) d)	mobile host

Seat	Sat	D
No.	Set	<u> </u>

## T.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering MOBILE COMPUTING	
		ate: Monday, 25-11-2019 Max. M :00 AM To 01:00 PM	larks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	Atte a) b) c) d) e)	empt any three of the following questions.  Explain with example Packet Reservation Multiple Access.  What is Antenna? Draw & Explain Radiation pattern of Directed Antenna What is Hidden Terminal Problem? Explain why this problem cannot be solved by traditional MAC protocol.  Draw & Explain Mobile Terminated Call.  How the A3 algorithm is used in subscriber authentication in GSM.	<b>12</b>
Q.3	Atto a) b)	empt any one of the following questions.  What is Modulation? Explain with neat Diagram Digital Modulation & Analog Modulation.  Which technique is used to spread the narrowband data into broadband data with the help of chipping sequence? Explain its Transmitter & Recei system with the example.	<b>08</b> iver
Q.4	Dra	aw & Explain functional architecture of GSM system	08
		Section – II	
Q.5	Atto a) b) c) d) e)	empt any three of the following questions.  Explain Bluetooth Piconet & Scatternet with neat diagram.  Write a short note on HSCSD  Write a short note on Registration Process in Mobile IP communication.  Draw & Explain DHCP.  Write a short note Transaction-Oriented TCP	12
Q.6	Atte a) b)	empt any one of the following questions.  How the packet gets deliver to and from the mobile note with the help of mobile IP.  Write a short note on  1) I-TCP 2) S-TCP	08
0.7	Fyr	plain with neat diagram GPRS architecture reference model	08

Seat No.	Set	Q
INO.		

T.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering MOBILE COMPUTING** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 10:00 AM To 01:00 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the sentence. 14 Q.1 GPRS offers a \_\_\_\_\_ packet transfer service. a) point-to-point b) peer-to-peer c) data d) network 2) Reason for handover is \_\_\_\_\_. a) load balancing b) moves within the range c) traffic in one cell is less d) moves continuously 3) MSRN stands for a) Mobile Station roaming number b) Module Station roaming number c) Modern Station roaming number d) Mode Station roaming number For agent advertisements \_\_\_\_\_ protocol is used. 4) a) TCP b) IP c) RFC d) ICMP 5) A \_\_\_\_\_ is an end-system or router that can change its point of attachment to the internet using mobile IP. a) Mobile node b) Foreign agent c) Home agent d) Care-of address The \_\_\_\_\_ approach assumes a relatively low bit error rate on the 6) wireless network. a) Indirect TCP b) snooping TCP d) A-TCP c) Mobile TCP 7) The \_\_\_\_\_ is responsible for changing data between both parts similar to the proxy in I-TCP a) minimum host b) mobile host c) supervisory host d) peer host \_\_\_\_\_ describes schemes to subdivide the frequency dimension into 8) several non-overlapping frequency bands. a) SDM TDM

d) FDM

c) PSK

Set Q

9)	a) b) c)	re Aloha  does not require global time synctores does require global time synchrores does divide time into discrete inte does not divide time into discrete	nizati rnals	on S
10)	a)	equency modulation ranges betwee 5.9 MHz and 26.1 MHz 148.5 kHz and 283.5 kHz	b)	87.5 MHz and 108 MHz
11)	inte a)	e monitors and controls all erface. OMC OSS	othe b) d)	r network entities via the O EIR GSM
12)	a)	protocol is used for signalling LAPDm PCM	b)	veen MSC and BSC. LAPD SS7
13)	a) b) c)	CP in IEEE 802.11 stands for Physical Layer Communication properties of the Protection Protection Primary Layer Communication protection Primary Layer Convergence protection	otoc ocol	
14)	a) ¯	orithm A8 is used for Authentication Generation of a cipher key	b) d)	• •

Seat No.		Set	Q
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### T.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering MOBILE COMPUTING

		MOBILE COMPUTING	
•		ate: Monday, 25-11-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figures to right indicate full marks.</li></ul>	
		Section – I	
Q.2	Att a) b) c) d) e)	tempt any three of the following questions.  Explain with example Packet Reservation Multiple Access.  What is Antenna? Draw & Explain Radiation pattern of Directed A What is Hidden Terminal Problem? Explain why this problem can solved by traditional MAC protocol.  Draw & Explain Mobile Terminated Call.  How the A3 algorithm is used in subscriber authentication in GSM	not be
Q.3	Atta) b)	tempt any one of the following questions.  What is Modulation? Explain with neat Diagram Digital Modulation Analog Modulation.  Which technique is used to spread the narrowband data into broad data with the help of chipping sequence? Explain its Transmitter & system with the example.	dband
<b>Q.4</b>	Dra	aw & Explain functional architecture of GSM system	80
		Section – II	
Q.5	Att a) b) c) d) e)	tempt any three of the following questions.  Explain Bluetooth Piconet & Scatternet with neat diagram.  Write a short note on HSCSD  Write a short note on Registration Process in Mobile IP communic Draw & Explain DHCP.  Write a short note Transaction-Oriented TCP	tation.
Q.6	Atta) b)	tempt any one of the following questions.  How the packet gets deliver to and from the mobile note with the homobile IP.  Write a short note on  1) I-TCP  2) S-TCP	<b>08</b> nelp of
Ω7	Fyr	plain with neat diagram GPRS architecture reference model	08

		T.E. (Part - II) (New) (CBCS) E Computer Science MOBILE COM	& Er	ngineering
•		e: Monday, 25-11-2019 0 AM To 01:00 PM		Max. Marks: 70
Instr	uction	ns: 1) Q. No. 1 is compulsory and sho	uld be	e solved in first 30 minutes in answer
		2) Figures to the right indicate full	mark	5.
_		MCQ/Objective Ty	pe C	
		30 Minutes		Marks: 14
Q.1	1)	ose the correct alternatives from th protocol is used for signallin		
	1)	a) LAPDm c) PCM	b)	LAPD SS7
	2)	PLCP in IEEE 802.11 stands for a) Physical Layer Communication b) Physical Layer Convergence Pro c) Primary Layer Communication p d) Primary Layer Convergence pro	protocol otocol orotoco	
	3)	Algorithm A8 is used for  a) Authentication c) Generation of a cipher key	b) d)	Encryption Decryption
	4)	GPRS offers a packet transferal point-to-point c) data	r serv b) d)	
	5)	Reason for handover is  a) load balancing c) traffic in one cell is less	b) d)	moves within the range moves continuously
	6)	<ul> <li>MSRN stands for</li> <li>a) Mobile Station roaming number</li> <li>b) Module Station roaming number</li> <li>c) Modern Station roaming number</li> <li>d) Mode Station roaming number</li> </ul>		
	7)	For agent advertisements pro a) TCP c) RFC		is used. IP ICMP
	8)	A is an end-system or route attachment to the internet using moda) Mobile node c) Home agent		•
	9)	The approach assumes a relawireless network.  a) Indirect TCP c) Mobile TCP	atively b) d)	low bit error rate on the snooping TCP A-TCP

Set R

10)	The is responsible for changing the proxy in I-TCP	g data between both parts similar to		
	a) minimum host	b)	mobile host	
	c) supervisory host	ď)	peer host	
11)	describes schemes to subdivi several non-overlapping frequency ba		•	
	a) SDM	b)	TDM	
	c) PSK	ď)	FDM	
12)	Pure Aloha  a) does not require global time synchron b) does require global time synchron c) does divide time into discrete inte d) does not divide time into discrete	izati rnals	on S	
13)	Frequency modulation ranges betwee a) 5.9 MHz and 26.1 MHz c) 148.5 kHz and 283.5 kHz	b)	87.5 MHz and 108 MHz	
14)	The monitors and controls all interface.	othe	r network entities via the O	
	a) OMC	b)	EIR	
	c) OSS	d)	GSM	

Seat	Set	D
No.	Set	K

### T.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering MOBILE COMPUTING

		MOBILE COMPUTING	
•		ate: Monday, 25-11-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figures to right indicate full marks.</li></ul>	
		Section – I	
Q.2	Attention (a) b) c) d) e)	empt any three of the following questions.  Explain with example Packet Reservation Multiple Access.  What is Antenna? Draw & Explain Radiation pattern of Directed An What is Hidden Terminal Problem? Explain why this problem cannot solved by traditional MAC protocol.  Draw & Explain Mobile Terminated Call.  How the A3 algorithm is used in subscriber authentication in GSM.	
Q.3	Atto a) b)	empt any one of the following questions.  What is Modulation? Explain with neat Diagram Digital Modulation Analog Modulation.  Which technique is used to spread the narrowband data into broad data with the help of chipping sequence? Explain its Transmitter & system with the example.	band
Q.4	Dra	aw & Explain functional architecture of GSM system	80
		Section – II	
Q.5	Atte a) b) c) d) e)	empt any three of the following questions.  Explain Bluetooth Piconet & Scatternet with neat diagram.  Write a short note on HSCSD  Write a short note on Registration Process in Mobile IP communication Draw & Explain DHCP.  Write a short note Transaction-Oriented TCP	12 ation.
Q.6	Atte a) b)	empt any one of the following questions.  How the packet gets deliver to and from the mobile note with the hemobile IP.  Write a short note on  1) I-TCP 2) S-TCP	<b>08</b> elp of
0.7	Fyr	plain with neat diagram GPRS architecture reference model	08

### T.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

**MOBILE COMPUTING** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 10:00 AM To 01:00 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14 MSRN stands for a) Mobile Station roaming number b) Module Station roaming number c) Modern Station roaming number d) Mode Station roaming number For agent advertisements \_\_\_\_\_ protocol is used. 2) b) IP a) TCP c) RFC d) ICMP A \_\_\_\_\_ is an end-system or router that can change its point of 3) attachment to the internet using mobile IP. a) Mobile node b) Foreign agent c) Home agent d) Care-of address 4) The \_\_\_\_\_ approach assumes a relatively low bit error rate on the wireless network. a) Indirect TCP b) snooping TCP c) Mobile TCP d) A-TCP 5) The \_\_\_\_\_ is responsible for changing data between both parts similar to the proxy in I-TCP a) minimum host b) mobile host c) supervisory host d) peer host 6) \_\_\_\_\_ describes schemes to subdivide the frequency dimension into several non-overlapping frequency bands. a) SDM b) TDM c) PSK d) FDM 7) Pure Aloha a) does not require global time synchronization b) does require global time synchronization c) does divide time into discrete internals

d) does not divide time into discrete intervals

Frequency modulation ranges between \_

a) 5.9 MHz and 26.1 MHz

c) 148.5 kHz and 283.5 kHz

8)

d) 174 and 230 MHz

b) 87.5 MHz and 108 MHz

Set S

9)	The monitors and controls all interface.		r network entities via the O
	a) OMC c) OSS	b) d)	EIR GSM
10)	<ul><li>protocol is used for signalling</li><li>a) LAPDm</li><li>c) PCM</li></ul>	betw b) d)	reen MSC and BSC. LAPD SS7
11)	a) Physical Layer Communication pr b) Physical Layer Convergence Proto c) Primary Layer Communication prod d) Primary Layer Convergence proto	ocol otocc	
12)	Algorithm A8 is used for  a) Authentication c) Generation of a cipher key	b) d)	· · · · · · · · · · · · · · · · · · ·
13)	GPRS offers a packet transfer s a) point-to-point c) data	servi b) d)	
14)	Reason for handover is  a) load balancing c) traffic in one cell is less	b) d)	moves within the range moves continuously

Seat	Sat	6
No.	Set	3

### T.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering MOBILE COMPUTING

		MOBILE COMPUTING	
•		Max. Mark 100 AM To 01:00 PM	s: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	Attornal Att	empt any three of the following questions.  Explain with example Packet Reservation Multiple Access.  What is Antenna? Draw & Explain Radiation pattern of Directed Antenna.  What is Hidden Terminal Problem? Explain why this problem cannot be solved by traditional MAC protocol.  Draw & Explain Mobile Terminated Call.  How the A3 algorithm is used in subscriber authentication in GSM.	12
Q.3	Atto a) b)	empt any one of the following questions.  What is Modulation? Explain with neat Diagram Digital Modulation & Analog Modulation.  Which technique is used to spread the narrowband data into broadband data with the help of chipping sequence? Explain its Transmitter & Receiver system with the example.	80
Q.4	Dra	w & Explain functional architecture of GSM system	80
		Section – II	
Q.5	a) b) c)	empt any three of the following questions.  Explain Bluetooth Piconet & Scatternet with neat diagram.  Write a short note on HSCSD  Write a short note on Registration Process in Mobile IP communication.  Draw & Explain DHCP.  Write a short note Transaction-Oriented TCP	12
Q.6	Atto a) b)	empt any one of the following questions.  How the packet gets deliver to and from the mobile note with the help of mobile IP.  Write a short note on  1) I-TCP  2) S-TCP	80
Q.7	Exp	plain with neat diagram GPRS architecture reference model.	80

Seat	Set	P
No.	Jet	

		I.E.	Computer Science a SOFTWARE EN	nd E	<b>Engineering</b>	
•			esday, 26-11-2019 To 01:00 PM			Marks: 70
Instr	uction	·	Q. No. 1 is compulsory and sho book. Figures to the right indicates ful			n answer
		,	MCQ/Objective Ty			
Dura	tion: 3	0 Min		•		Marks: 14
Q.1	Choo		ne correct alternatives from the	e opt	ions and rewrite the	14
	1)	The a) c)	relationship models the "i Generalization specialization Association		elationship. Aggregation None of the above	
	2)		I provides a general roadmap to Test the software Improve the software process	b)	Develop the software All of these	
	3)	The proca) b) c) d)	basic objective of the pro ess. Project management Software development Process management Software configuration manage		is to improve the software	
	4)	a)	stands for Key process area Key principal area	b) d)	Key product area None of the above	
	5)	Caus a) c)	se-effect diagram is also called a Structured diagram Functional diagram	as b) d)	Fish-bone diagram None of the above	
	6)	a) c)	_ is the low level cohesion, and Functional, Coincidental Both a and b	b) d)	_ is the high level cohesion. Coincidental, Functional None of the above	
	7)	Whica)	ch is the worst type of coupling?  Control coupling  Content coupling	b) d)	Data coupling Content coupling	
	8)		ch of the property of software mo efits software modularity? Modules are robust Module can use other modules Modules Can be separately con Modules are mostly dependent			0

Set P

9)		basic objective of the pronge that take place during project Project management Software development Process management Software configuration manage	t deve	elopment.	
10)	a) c)	provide quantitative information Quality Schedule	on to to to do	the Management process. Metrics Planning	
11)	Wha a) b) c) d)	at is the sequence of maturity levels in CMM framework? Initial, defined, repeatable, managed, and optimizing Initial, defined, repeatable, optimizing, and managed Initial, repeatable, defined, managed, and optimizing Initial, repeatable, defined, optimizing, and managed			
12)	Whica)	ch of the following is / are Softwa Software Requirements Source Code	are Co b) d)	onfiguration items? Design Specification All of the above	
13)	i) iii)	ch traditional order in Software T Integration Testing Unit Testing i, iv, iii, iv iii, i, iv, ii	ii) iv)	g is organized? System Testing Validation Testing ii, iv, i, iii iv, ii, iii, i	
14)	Com a) c)	nponent Testing is a Black box Testing Grey box Testing	b) d)	White box Testing Both a and b	

Seat No.	Set	Р
NO.		

### T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science and Engineering**

SOFTWARE ENGINEERING Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I 12 Q.2 **Attempt any Three:** What is software process? Explain specification of software process. Explain prototyping model. Give its strength and weaknesses. Explain the structures which are used to model relationship between c) classes. Explain the key elements of the project planning infrastructure. d) Q.3 **Attempt any One:** 80 Explain structured design methodology. What is SRS? Explain components of an SRS in detail. Q.4 Explain effort estimation and scheduling techniques used in software 80 engineering. Section - II **Attempt any Three:** Q.5 12 Explain quality concepts and quality planning. Explain the concept of measurement and project tracking. Explain iterative project management life cycle. Explain Black box testing. **Attempt any One:** 80 Q.6 What is risk management? Explain in detail risk management activities. Explain the review process in detail in project execution and closure. Q.7 Explain in detail software configuration management process. 80

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Seat	Set	
No.	Set	Q

		T.E. (	Part – II) (New) (CBCS) E Computer Science a SOFTWARE EN	nd E	Engineering	•
-			sday, 26-11-2019 Го 01:00 РМ		Max	k. Marks: 70
Instr	uctior		Q. No. 1 is compulsory and sho	uld b	e solved in first 30 minutes	s in answer
		2)	Figures to the right indicates fu	ll mar	ks.	
			MCQ/Objective Ty	pe C	Questions	
		30 Minu				Marks: 14
Q.1		ose th ence.	e correct alternatives from th	e opt	ions and rewrite the	14
	1)	Whic bene a) b) c)	h of the property of software mo fits software modularity? Modules are robust Module can use other modules Modules Can be separately cor Modules are mostly dependent	mpile		et to
	2)	chanda) b) c)	pasic objective of the progethat take place during project Project management Software development Process management Software configuration manage	t dev	elopment.	e the
	3)	,	_ provide quantitative information Quality Schedule	on to b) d)	the Management process. Metrics Planning	
	<ul> <li>4) What is the sequence of maturity levels in CMM framework?</li> <li>a) Initial, defined, repeatable, managed, and optimizing</li> <li>b) Initial, defined, repeatable, optimizing, and managed</li> <li>c) Initial, repeatable, defined, managed, and optimizing</li> <li>d) Initial, repeatable, defined, optimizing, and managed</li> </ul>					
	5)	a)	h of the following is / are Softwa Software Requirements Source Code	are C b) d)	onfiguration items? Design Specification All of the above	
	6)	i) iii) a)	h traditional order in Software T Integration Testing Unit Testing i, iv, iii, iv iii, i, iv, ii	estin ii) iv) b) d)	g is organized? System Testing Validation Testing ii, iv, i, iii iv, ii, iii, i	
	7)	a)	ponent Testing is a Black box Testing Grey box Testing	q)	White box Testing	

### Set Q

8)	The relationship models the "is-a" relationship.					
	a)	Generalization specialization	b)	Aggregation		
	c)	Association	d)	None of the above		
9)	CMM provides a general roadmap to					
-	a)	Test the software	b)	Develop the software		
	c)	Improve the software process	d)	All of these		
10)	proca) b)	basic objective of the pro ess. Project management Software development Process management	cess	is to improve the software		
	d)	Software configuration manage	ment			
11)	KPA stands for					
,		Key process area	b)	Key product area		
	c)	Key principal area	ď)	None of the above		
12)	Cause-effect diagram is also called as					
•		Structured diagram	b)	Fish-bone diagram		
	c)	Functional diagram	d)	None of the above		
13)	is the low level cohesion, and is the high level cohesion.					
	a)	Functional, Coincidental	b)	Coincidental, Functional		
	c)	Both a and b	d)	None of the above		
14)	Which is the worst type of coupling?					
	a)	Control coupling	b)	Data coupling		
	c)	Content coupling	d)	Content coupling		

Seat	Sat	<b>^</b>
No.	Set	Q

### T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science and Engineering**

SOFTWARE ENGINEERING Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I 12 Q.2 **Attempt any Three:** What is software process? Explain specification of software process. Explain prototyping model. Give its strength and weaknesses. Explain the structures which are used to model relationship between c) classes. Explain the key elements of the project planning infrastructure. d) Q.3 **Attempt any One:** 80 Explain structured design methodology. What is SRS? Explain components of an SRS in detail. Q.4 Explain effort estimation and scheduling techniques used in software 80 engineering. Section - II Q.5 **Attempt any Three:** 12 Explain quality concepts and quality planning. Explain the concept of measurement and project tracking. Explain iterative project management life cycle. Explain Black box testing. **Attempt any One:** 80 Q.6 What is risk management? Explain in detail risk management activities. Explain the review process in detail in project execution and closure. Q.7 Explain in detail software configuration management process. 80

Seat No.	Set	R

		T.E.	(Part – II) (New) (CBCS) E Computer Science a SOFTWARE EN	ınd E	Engineering	
•			sday, 26-11-2019 To 01:00 PM		Max. Marks: 7	'0
Instr	uction	•	book.		e solved in first 30 minutes in answe	r
		2)	Figures to the right indicates fu			
Dura	tion: 3	0 Min	MCQ/Objective Ty utes	pe c	questions Marks: 1	4
Q.1	Cho		e correct alternatives from th	e opt		4
	1)	Caus a)	se-effect diagram is also called a Structured diagram Functional diagram	as b) d)	Fish-bone diagram None of the above	
	2)	,	_ is the low level cohesion, and Functional, Coincidental Both a and b	b) d)	_ is the high level cohesion. Coincidental, Functional None of the above	
	3)	Whica)	ch is the worst type of coupling? Control coupling Content coupling	b) d)	Data coupling Content coupling	
	4)		ch of the property of software modifies software modularity? Modules are robust Module can use other modules Modules Can be separately cor Modules are mostly dependent			
	5)		basic objective of the progethat take place during project Project management Software development Process management Software configuration manage	t dev	elopment.	
	6)	a) c)	_ provide quantitative information Quality Schedule	on to b) d)	the Management process. Metrics Planning	
	7)	Wha a) b) c) d)	t is the sequence of maturity lever Initial, defined, repeatable, mar Initial, defined, repeatable, option Initial, repeatable, defined, mar Initial, repeatable, defined, option	naged mizin naged	l, and optimizing g, and managed l, and optimizing	
	8)	Whica)	th of the following is / are Softwa Software Requirements	are Co b)	onfiguration items? Design Specification	

Source Code

c)

All of the above

d)

## Set R

9)	Which traditional order in Software Testing is organized?					
	i)	Integration Testing	ii)	System Testing		
	iii)	Unit Testing	iv)	Validation Testing		
	a)	i, iv, iii, iv	b)	ii, iv, i, iii		
		iii, i, iv, ii	•	iv, ii, iii, i		
10)		ponent Testing is a				
	,	Black box Testing	,	White box Testing		
	c)	Grey box Testing	d)	Both a and b		
11)	The	relationship models the "	is-a" r	elationship.		
	a)	Generalization specialization	b)	Aggregation		
	c)	Association	d)	None of the above		
12)	CMN	M provides a general roadmap to	)			
,		Test the software		Develop the software		
	,	Improve the software process	,	•		
13)	•	basic objective of the pro	•			
10)	proc		,0033	is to improve the software		
	a)	Project management				
	,	Software development				
		Process management				
		Software configuration manage	ment			
4.4\	-		,,,,,			
14)		stands for		IZ.		
		Key process area		Key product area		
	C)	Key principal area	d)	None of the above		

Seat No.		Set	R
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## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science and Engineering**

SOFTWARE ENGINEERING Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I 12 Q.2 **Attempt any Three:** What is software process? Explain specification of software process. Explain prototyping model. Give its strength and weaknesses. Explain the structures which are used to model relationship between c) classes. Explain the key elements of the project planning infrastructure. d) Q.3 **Attempt any One:** 80 Explain structured design methodology. What is SRS? Explain components of an SRS in detail. Q.4 Explain effort estimation and scheduling techniques used in software 80 engineering. Section - II Q.5 **Attempt any Three:** 12 Explain quality concepts and quality planning. Explain the concept of measurement and project tracking. Explain iterative project management life cycle. Explain Black box testing. **Attempt any One:** 80 Q.6 What is risk management? Explain in detail risk management activities. Explain the review process in detail in project execution and closure. Q.7 Explain in detail software configuration management process. 80

Seat	Set	9
No.		

		I.E.	Computer Science a	and	Engineering	,
			esday, 26-11-2019 To 01:00 PM		Max	. Marks: 70
Instr	uction	•	Q. No. 1 is compulsory and sho book. Figures to the right indicates fu			s in answer
			MCQ/Objective Ty	/pe (	Questions	
Dura	tion: 3	0 Mir	nutes	•		Marks: 14
Q.1	sent	ose tl ence		-		14
	1)	a) c)	provide quantitative informati Quality Schedule	on to b) d)	the Management process.  Metrics  Planning	
	2)	Wha a) b) c) d)	at is the sequence of maturity level Initial, defined, repeatable, mar Initial, defined, repeatable, option Initial, repeatable, defined, mar Initial, repeatable, defined, opti	nageo mizin nageo	d, and optimizing g, and managed d, and optimizing	
	3)	Whi a) c)	ch of the following is / are Software Requirements Source Code	are C b) d)	onfiguration items? Design Specification All of the above	
	4)	Whiei) iii) a) c)	ch traditional order in Software T Integration Testing Unit Testing i, iv, iii, iv iii, i, iv, ii	Testin ii) iv) b) d)	ng is organized? System Testing Validation Testing ii, iv, i, iii iv, ii, iii, i	
	5)	Com a) c)	nponent Testing is a Black box Testing Grey box Testing	b) d)	White box Testing Both a and b	
	6)	The a) c)	relationship models the "Generalization specialization Association	is-a" b) d)	relationship. Aggregation None of the above	
	7)	CMI a) c)	M provides a general roadmap to Test the software Improve the software process	b) d)	Develop the software All of these	
	8)		basic objective of the process.  Project management Software development Process management Software configuration manage		·	

## Set S

9)	KPA a) c)	stands for Key process area Key principal area	b) d)	Key product area None of the above
10)	Caus a) c)	se-effect diagram is also called a Structured diagram Functional diagram	as b) d)	 Fish-bone diagram None of the above
11)	a) c)	_ is the low level cohesion, and Functional, Coincidental Both a and b	b) d)	_ is the high level cohesion. Coincidental, Functional None of the above
12)	Whica)	ch is the worst type of coupling? Control coupling Content coupling	b) d)	Data coupling Content coupling
13)	bene a) b)	ch of the property of software mo efits software modularity? Modules are robust Module can use other modules Modules Can be separately con Modules are mostly dependent		
14)		basic objective of the progethat take place during project Project management Software development Process management Software configuration manage	t deve	· · · · · · · · · · · · · · · · · · ·

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## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science and Engineering**

SOFTWARE ENGINEERING Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I 12 Q.2 **Attempt any Three:** What is software process? Explain specification of software process. Explain prototyping model. Give its strength and weaknesses. Explain the structures which are used to model relationship between c) classes. Explain the key elements of the project planning infrastructure. d) Q.3 **Attempt any One:** 80 Explain structured design methodology. What is SRS? Explain components of an SRS in detail. Q.4 Explain effort estimation and scheduling techniques used in software 80 engineering. Section - II Q.5 **Attempt any Three:** 12 Explain quality concepts and quality planning. Explain the concept of measurement and project tracking. Explain iterative project management life cycle. Explain Black box testing. **Attempt any One:** 80 Q.6 What is risk management? Explain in detail risk management activities. Explain the review process in detail in project execution and closure. Q.7 Explain in detail software configuration management process. 80

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Seat	Set	D
No.	Set	

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering MOBILE APPLICATION DEVELOPMENT

Day & Date: Wednesday, 27-11-2019 Max. Marks: 70

Time: 10:00 AM To 01:00 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.

2) Figures to the right indicates full marks.

#### **MCQ/Objective Type Questions**

Duration: 30 Minutes Marks: 14

## Q.1 Choose the correct alternatives from the options and rewrite the sentence.

14

- 1) Which of the following is not an Android component from manifest file (i.e. a point from which the system can enter your application)?
  - a) Service

b) Activity

c) Layout

- d) Content Provider
- 2) How to pass the data from activity to activity in android? (most common and appropriate).
  - We can store the data in a common database and access the data on in Activity
  - b) We can't pass data from activity to activity
  - c) Using SQL commands
  - d) Using putExtra() method in intent, we can pass the data using setResult()
- 3) During an Activity life-cycle, what is the first callback method invoked by the system?
  - a) onStop()

b) onStart()

c) onCreate()

- d) onRestore()
- 4) Which of the following is NOT a valid usage for Intents?
  - a) Activate and Activity
  - b) Activate a Service
  - c) Activate a Broadcast receiver
  - d) Activate a SQLite DB Connection
- 5) What does this code do?

Intent intent = new Intent ();

intent.setAction (Intent.ACTION VIEW);

intent.setData (android.net.Uri.parse ("http://www.android.com")); startActivity (intent);

- a) Starts an activity using an implicit intent
- b) Starts a service
- c) Sends results to another activity
- d) Starts a sub-activity

Set P

6)	a) b)	at is a thread in android? Same as services Background activity Broadcast Receiver Independent dis-patchable unit	is ca	lled a thread
7)	a) b) c)	at are the return values of on Sta START_STICKY START_NOT_STICKY START_REDELIVER_INTENT All of the above	rt Coi	mmand in android services?
8)		mplementing method of onBind( user by returning object called Ibinder R	), ser  b) d)	vice must provide an interface Intent Layout
9)	a) c)	widget is useful to produce dr Image View Both a) and b)	awab b) d)	le animation effect. Video View None
10)	view a) c)	property in xml file can be use animation. FromXScale, toXScale fromDegrees, toDegrees	ed to ( b) d)	enlarge or compress object in fromAlpha, toAlpha None
11)	a)	b browser available in android is Chrome Open-source Webkit	base b) d)	d on Firefox Opera
12)		ndroid OS, library used fo OpenGL Media Framework	or 2D b) d)	and 3D rendering. OHA SQLite
13)	a) b) c) d)	permission is needed created UPDATE_EXTERNAL_STORAGE WRITE_EXTERNAL_STORAGE MODIFY_EXTERNAL_STORAGE None	GE E	n SD card.
14)	a) c)	test internal structure of work Black box testing Regression testing	ing of b) d)	application. White box testing None

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## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering MOBILE APPLICATION DEVELOPMENT	
•		te: Wednesday, 27-11-2019 00 AM To 01:00 PM	Max. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
		Section – I	
Q.2	Atte a) b) c) d)	what is API level? What it consists of? What are the uses? What are the mobile app development approaches? Define AVD and its uses.  Write a short note on SMS API.	12
Q.3	Atte a) b)	empt any one of the following questions.  Describe various logical components of an android app with proper example.  Explain event listener interfaces callback methods for View class	
Q.4	Wh	at are fragments? List and Explain Life cycle of Fragment with suit gram.	
		Section – II	
Q.5	Atte a) b) c) d)	empt any three of the following questions.  Enlist types of animation. Explain property animation in detail.  Write a code snippet for checking availability of Google Play Serwite a short note on Junit tool.  Explain in short Media Player API.	vices.
Q.6	Atte a) b)	empt any one of the following questions.  Explain use of SqliteOpenHelper, SqliteDatabase, Cursor and ContentValue class in SQLite API of android.  Explain the purpose of different types of testing for a Mobile App	
Q.7	Atte a) b)	empt any one of the following question.  Explain Versioning, Signing and packaging mobile apps.  Explain different types of sensors. Write a program to check gyro present on device or not.	08 oscope is

Seat No. Set G	Set Q
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		T.E.	Part – II) (New) (CBC) . Computer Scie MOBILE APPLICA	ence & E	ngineering	19
•			ednesday, 27-11-2019 1 To 01:00 PM		N	1ax. Marks: 70
Insti	ructio		) Q. No. 1 is compulsory an Book. ) Figures to the right indicat			tes in answer
			MCQ/Objectiv			
Dura	ation: 3	30 Mi	_	ic Type	Questions	Marks: 14
Q.1	sen	tence		•		14
	1)		implementing method of on user by returning object call			епасе
		a) c)	lbinder R	b) d)	Intent Layout	
	2)		widget is useful to produ			
		a) c)	Image View Both a) and b)	b) d)	Video View None	
	3)		property in xml file can b	e used to	enlarge or compress obj	ject in
		a) c)	w animation. FromXScale, toXScale fromDegrees, toDegrees	b) d)	fromAlpha, toAlpha None	
	4)	We a) c)	_	oid is base b) d)	ed on Firefox Opera	
	5)	a)	android OS, library us OpenGL Media Framework	b)	and 3D rendering. OHA SQLite	
	6)	a) b) c) d)	permission is needed created LPDATE_EXTERNAL_STOWN WRITE_EXTERNAL_STOWN MODIFY_EXTERNAL_STOWN None	TORAGE DRAGE	on SD card.	
	7)	a) c)	test internal structure of Black box testing Regression testing	working of b) d)	f application. White box testing None	
	8)		ich of the following is not an a point from which the syst Service Layout		•	t file

Set Q

- 9) How to pass the data from activity to activity in android? (most common and appropriate).
  - a) We can store the data in a common database and access the data on in Activity
  - b) We can't pass data from activity to activity
  - c) Using SQL commands
  - d) Using putExtra() method in intent, we can pass the data using setResult()
- 10) During an Activity life-cycle, what is the first callback method invoked by the system?
  - a) onStop()

b) onStart()

c) onCreate()

- d) onRestore()
- 11) Which of the following is NOT a valid usage for Intents?
  - a) Activate and Activity
  - b) Activate a Service
  - c) Activate a Broadcast receiver
  - d) Activate a SQLite DB Connection
- 12) What does this code do?

Intent intent = new Intent ();

intent.setAction (Intent.ACTION\_VIEW);

intent.setData (android.net.Uri.parse ("http://www.android.com")); startActivity (intent);

- a) Starts an activity using an implicit intent
- b) Starts a service
- c) Sends results to another activity
- d) Starts a sub-activity
- 13) What is a thread in android?
  - a) Same as services
  - b) Background activity
  - c) Broadcast Receiver
  - d) Independent dis-patchable unit is called a thread
- 14) What are the return values of on Start Command in android services?
  - a) START\_STICKY
  - b) START\_NOT\_STICKY
  - c) START\_REDELIVER\_INTENT
  - d) All of the above

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No.	Set	Q

# T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering MOBILE APPLICATION DEVELOPMENT	
•			Max. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
		Section – I	
Q.2	Atto a) b) c) d)	empt any three of the following questions.  What is API level? What it consists of? What are the uses?  What are the mobile app development approaches?  Define AVD and its uses.  Write a short note on SMS API.	12
Q.3	a)	empt any one of the following questions.  Describe various logical components of an android app with prope example.	<b>08</b> er
	b)	Explain event listener interfaces callback methods for View class.	
Q.4		at are fragments? List and Explain Life cycle of Fragment with suital gram.	ble <b>08</b>
		Section – II	
Q.5	Atto a) b) c) d)	empt any three of the following questions.  Enlist types of animation. Explain property animation in detail.  Write a code snippet for checking availability of Google Play Servi Write a short note on Junit tool.  Explain in short Media Player API.	<b>12</b> ces.
Q.6	Atto a) b)	empt any one of the following questions.  Explain use of SqliteOpenHelper, SqliteDatabase, Cursor and ContentValue class in SQLite API of android.  Explain the purpose of different types of testing for a Mobile App.	08
Q.7	Atto a) b)	empt any one of the following question.  Explain Versioning, Signing and packaging mobile apps.  Explain different types of sensors. Write a program to check gyros present on device or not.	08 cope is

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No.	Jet l	11

## T.E. (Part - II) (New) (CBCS) Examination Nov/Dec-2019

			Computer Sci MOBILE APPLICA			
			dnesday, 27-11-2019 To 01:00 PM			Max. Marks: 70
Instr	uctior	ns: 1)	Q. No. 1 is compulsory a Book.	nd should	be solved in first 30 mi	inutes in answer
		2)	Figures to the right indicate	ates full ma	arks.	
			MCQ/Objecti	ve Type	Questions	
Dura	tion: 3	0 Min	utes			Marks: 14
Q.1	Choo		ne correct alternatives fr	om the op	otions and rewrite the	14
	1)	What Interinter inter	t does this code do?  Intintent = new Intent (); Int.setAction (Intent.ACTIOnt.setData (android.net.UriActivity (intent); Istarts an activity using an Starts a service Istarts a sub-activity	i.parse ("ht	ttp://www.android.com	")) ;
	2)	Wha a) b) c) d)	t is a thread in android? Same as services Background activity Broadcast Receiver Independent dis-patchab	le unit is ca	alled a thread	
	3)	a) b) c)	t are the return values of START_STICKY START_NOT_STICKY START_REDELIVER_IN All of the above		ommand in android se	rvices?
	4)		mplementing method of or ser by returning object ca Ibinder R			interface
	5)	a) c)	_ widget is useful to prod Image View Both a) and b)	uce drawa b) d)	ble animation effect. Video View None	
	6)	view a) c)	_ property in xml file can animation. FromXScale, toXScale fromDegrees, toDegrees	b)	o enlarge or compress fromAlpha, toAlpha None	object in
	7)		browser available in and		ed on Firefox	

ď)

Opera

c) Open-source Webkit

Set R

8)	In A a) c)	ndroid OS, li OpenGL Media Framework	b)	)	and 3D rendering. OHA SQLite
9)	a) b) c) d)	permission is ne UPDATE_EXTERN WRITE_EXTERN MODIFY_EXTERN None	NAL_STORAGI AL_STORAGE	Ε	n SD card.
10)	a) c)	test internal structure. Black box testing Regression testing	b)	)	application. White box testing None
11)		•		en )	omponent from manifest file ter your application)? Activity Content Provider
12)	and a) b)	appropriate). We can store the con in Activity We can't pass data Using SQL comma	data in a common a from activity to ands	on o	ity in android? (most common database and access the data ctivity e can pass the data using
13)		ing an Activity life-cy system? onStop() onCreate()	ycle, what is the b) d)	)	st callback method invoked by onStart() onRestore()
14)	Whia) b) c) d)	ch of the following is Activate and Activi Activate a Service Activate a Broadca Activate a SQLite	ity ast receiver	saç	ge for Intents?

Seat	Set	D
No.	Set	K

# T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering MOBILE APPLICATION DEVELOPMENT	
-		te: Wednesday, 27-11-2019 00 AM To 01:00 PM	Max. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
		Section – I	
Q.2	Atto a) b) c) d)	empt any three of the following questions.  What is API level? What it consists of? What are the uses?  What are the mobile app development approaches?  Define AVD and its uses.  Write a short note on SMS API.	12
Q.3	Atto a) b)	empt any one of the following questions.  Describe various logical components of an android app with propexample.  Explain event listener interfaces callback methods for View class	
Q.4	Wh	at are fragments? List and Explain Life cycle of Fragment with suit gram.	
		Section – II	
Q.5	Atto a) b) c) d)	empt any three of the following questions.  Enlist types of animation. Explain property animation in detail.  Write a code snippet for checking availability of Google Play Ser  Write a short note on Junit tool.  Explain in short Media Player API.	vices.
Q.6	Atto a) b)	empt any one of the following questions.  Explain use of SqliteOpenHelper, SqliteDatabase, Cursor and ContentValue class in SQLite API of android.  Explain the purpose of different types of testing for a Mobile App	<b>08</b>
Q.7	Atto a) b)	empt any one of the following question.  Explain Versioning, Signing and packaging mobile apps.  Explain different types of sensors. Write a program to check gyro present on device or not.	08 oscope is

Seat		
No.	Set	S

		T.E.	(Part – II) (New) (CBCS Computer Scien MOBILE APPLICAT	ce & E	ngineering	)19
			ednesday, 27-11-2019 To 01:00 PM		_	Max. Marks: 70
Instr	uctio	ns: 1)	Q. No. 1 is compulsory and Book.	should b	e solved in first 30 minu	ites in answer
		2	воок. ) Figures to the right indicates	s full mar	·ks.	
			MCQ/Objective	Type (	Questions	
Dura	tion: 3	30 Mir	nutes	•		Marks: 14
Q.1		ose t ence	he correct alternatives from	the opt	tions and rewrite the	14
	1)		property in xml file can be	used to	enlarge or compress ob	ject in
		a) c)	vanimation. FromXScale, toXScale fromDegrees, toDegrees	b) d)	fromAlpha, toAlpha None	
	2)		b browser available in android Chrome Open-source Webkit	d is base b) d)	d on Firefox Opera	
	3)	In A a) c)	ndroid OS, library use OpenGL Media Framework	d for 2D b) d)	and 3D rendering. OHA SQLite	
	4)	a) b) c) d)	permission is needed crea UPDATE_EXTERNAL_STO WRITE_EXTERNAL_STOR MODIFY_EXTERNAL_STO None	RAGE AGE	on SD card.	
	5)	a) c)	test internal structure of ware Black box testing Regression testing	orking of b) d)	application. White box testing None	
	6)		ch of the following is not an A a point from which the syster Service Layout		•	t file
	7)		w to pass the data from activity appropriate).  We can store the data in a control on in Activity  We can't pass data from act Using SQL commands  Using putExtra() method in its setResult()	common	database and access th	ne data

Set S

8) During an Activity life-cycle, what is the first callback method invok the system?						
	a) c)	onStop() onCreate()	b) d)	onStart() onRestore()		
9)	a) b)	ch of the following is NOT a valid Activate and Activity Activate a Service Activate a Broadcast receiver Activate a SQLite DB Connection		ge for Intents?		
10)	What does this code do? Intent intent = new Intent (); intent.setAction (Intent.ACTION_VIEW); intent.setData (android.net.Uri.parse ("http://www.android.com")); startActivity (intent); a) Starts an activity using an implicit intent b) Starts a service c) Sends results to another activity d) Starts a sub-activity					
11)	Wha a) b) c) d)	It is a thread in android? Same as services Background activity Broadcast Receiver Independent dis-patchable unit	is ca	lled a thread		
12)	Wha a) b) c) d)	at are the return values of on Sta START_STICKY START_NOT_STICKY START_REDELIVER_INTENT All of the above	rt Coi	mmand in android services?		
13)		mplementing method of onBind( ser by returning object called Ibinder R	), ser  b) d)	vice must provide an interface Intent Layout		
14)		widget is useful to produce dr	awab	le animation effect.		
	a) c)	Image View Both a) and b)	b) d)	Video View None		

Seat	Set	6
No.	Set	S

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

MOBILE APPLICATION DEVELOPMENT Day & Date: Wednesday, 27-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Attempt any three of the following questions. 12 What is API level? What it consists of? What are the uses? What are the mobile app development approaches? b) Define AVD and its uses. c) Write a short note on SMS API. d) Attempt any one of the following questions. 80 Q.3 Describe various logical components of an android app with proper example. Explain event listener interfaces callback methods for View class. Q.4 What are fragments? List and Explain Life cycle of Fragment with suitable 80 diagram. Section - II Q.5 Attempt any three of the following questions. 12 Enlist types of animation. Explain property animation in detail. Write a code snippet for checking availability of Google Play Services. b) Write a short note on Junit tool. Explain in short Media Player API. Attempt any one of the following questions. 80 Q.6 Explain use of SqliteOpenHelper, SqliteDatabase, Cursor and ContentValue class in SQLite API of android. Explain the purpose of different types of testing for a Mobile App. Q.7 Attempt any one of the following question. 80 Explain Versioning, Signing and packaging mobile apps. Explain different types of sensors. Write a program to check gyroscope is b) present on device or not.

	_	
Seat	Set	D
No.	Set	

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

**Computer Modeling and Simulation** Day & Date: Thursday, 28-11-2019 Max. Marks: 50 Time: 10:00 AM To 12:00 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in answer book. 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 20 Minutes** Marks: 10 Choose the correct alternatives from the options and rewrite the sentence. Which model applies computational procedures to solve equation? a) Static model Dynamic model b) c) Numerical model Analytical model d) 2) Mathematical model is based on a) Analogy between such systems as electrical and mechanical Use symbolic notation and mathematical equations to represent a system b) c) All of the above d) None of the above 3) A system which does have exogenous activity is said to be \_\_\_\_\_. a) Open System Closed system b) c) Both of the above None of the above d) In Bank system, What is customer? 4) a) Entity b) Activity c) Environment None of the above d) 5) Factory is an Example of a) Entity b) Attribute c) Environment d) System 6) Which of the following is simulation language? **GPSS** a) Java b) d) None of the above c) Java script In a corporate model, What is/are main segment/segments? 7) a) Environment Management b) c) Plant/Physical Plant d) All of the above 8) Oscillator model is an Example of \_ Static Physical model b) **Dynamic Physical model** Static Mathematical model Dynamic Mathematical model d) 9) NS2 is written in \_\_\_\_\_. a) Java b) C++ c) OTcl Both b & c d)

In communication system, What is "Transmitting"?

**Activity** 

System

b)

d)

10)

**Entity** 

Environment

c)

Seat	Set	D
No.	Set	

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

#### Q.2 Attempt any Four. (each 10 Marks)

- a) Explain in detail, When Simulation is the appropriate tool.
- **b)** Define simulation. Write its Advantages and Disadvantages.
- c) Write a short note on Network Simulation (NS2).
- d) Define Queue monitor. Explain with an Example.
- e) Explain OTcl code for star and bus topology.

Seat No.	Se	et	Q
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## **Computer Science & Engineering Computer Modeling and Simulation**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Day & Date: Thursday, 28-11-2019 Max. Marks: 50 Time: 10:00 AM To 12:00 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in answer book. 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 20 Minutes** Marks: 10 Choose the correct alternatives from the options and rewrite the sentence. Which of the following is simulation language? **GPSS** a) Java b) c) Java script d) None of the above 2) In a corporate model, What is/are main segment/segments? a) Environment Management b) c) Plant/Physical Plant All of the above d) 3) Oscillator model is an Example of \_ a) Static Physical model b) Dynamic Physical model c) Static Mathematical model d) Dynamic Mathematical model NS2 is written in \_\_\_\_\_ 4) a) Java b) C++c) OTcl Both b & c d) In communication system, What is "Transmitting"? 5) a) Entity Activity c) Environment System d) Which model applies computational procedures to solve equation? 6) a) Static model Dvnamic model b) c) Numerical model Analytical model d) 7) Mathematical model is based on a) Analogy between such systems as electrical and mechanical b) Use symbolic notation and mathematical equations to represent a system c) All of the above d) None of the above 8) A system which does have exogenous activity is said to be \_\_\_\_\_. a) Open System Closed system b) c) Both of the above None of the above d) 9) In Bank system, What is customer? Activity Entity b) c) Environment None of the above d) 10) Factory is an Example of \_\_\_\_\_. Entity b) Attribute

d)

System

c)

Environment

Max. Marks: 40

Seat	Set	
No.	Set	Q

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

#### Q.2 Attempt any Four. (each 10 Marks)

- a) Explain in detail, When Simulation is the appropriate tool.
- **b)** Define simulation. Write its Advantages and Disadvantages.
- c) Write a short note on Network Simulation (NS2).
- d) Define Queue monitor. Explain with an Example.
- e) Explain OTcl code for star and bus topology.

Seat	Set	D
No.	Set	N

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

**Computer Modeling and Simulation** Day & Date: Thursday, 28-11-2019 Max. Marks: 50 Time: 10:00 AM To 12:00 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in answer book. 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 20 Minutes** Marks: 10 Choose the correct alternatives from the options and rewrite the sentence. NS2 is written in \_\_\_\_\_. a) Java b) C++c) OTcl Both b & c d) 2) In communication system, What is "Transmitting"? a) Entity Activity b) c) Environment System d) 3) Which model applies computational procedures to solve equation? a) Static model Dynamic model b) Analytical model c) Numerical model d) 4) Mathematical model is based on \_\_\_\_ Analogy between such systems as electrical and mechanical b) Use symbolic notation and mathematical equations to represent a system c) All of the above d) None of the above A system which does have exogenous activity is said to be 5) Closed system a) Open System b) c) Both of the above d) None of the above 6) In Bank system, What is customer? a) Entity b) Activity None of the above c) Environment d) Factory is an Example of \_\_\_\_\_. 7) a) Entity b) Attribute c) Environment d) System 8) Which of the following is simulation language? b) **GPSS** Java d) None of the above c) Java script 9) In a corporate model, What is/are main segment/segments? Environment Management b) Plant/Physical Plant All of the above d) 10) Oscillator model is an Example of \_ Static Physical model b) Dynamic Physical model Static Mathematical model d) Dynamic Mathematical model

Seat	Set	D
No.	Set	N

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

#### Q.2 Attempt any Four. (each 10 Marks)

- a) Explain in detail, When Simulation is the appropriate tool.
- **b)** Define simulation. Write its Advantages and Disadvantages.
- c) Write a short note on Network Simulation (NS2).
- d) Define Queue monitor. Explain with an Example.
- e) Explain OTcl code for star and bus topology.

Seat	Set	9
No.	Set	3

# T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019 Max. Marks: 50 Time: 10:00 AM To 12:00 PM

Instructions: 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in answer book.

2) Figures to the right indicate full marks.

MCQ/Objective Type Questions

		MCQ/Objective Ty	/pe	Questions	
Dura	ation: 2	20 Minutes		Marks	: 10
Q.1	<b>Cho</b> 1)	ose the correct alternatives from the A system which does have exogeno	-		10
	',	<ul><li>a) Open System</li><li>c) Both of the above</li></ul>	b) d)	Closed system  None of the above	
	2)	In Bank system, What is customer? a) Entity c) Environment	b) d)	Activity None of the above	
	3)	Factory is an Example of a) Entity c) Environment	b) d)	Attribute System	
	4)	Which of the following is simulation a) Java c) Java script	langu b) d)	uage? GPSS None of the above	
	5)	In a corporate model, What is/are material a) Environment c) Plant/Physical Plant	ain s b) d)	egment/segments? Management All of the above	
	6)	Oscillator model is an Example of _ a) Static Physical model c) Static Mathematical model	b) d)	Dynamic Physical model Dynamic Mathematical model	
	7)	NS2 is written in a) Java c) OTcl	b) d)	C++ Both b & c	
	8)	In communication system, What is " a) Entity c) Environment	Trans b) d)	smitting"? Activity System	
	9)	<ul><li>Which model applies computational</li><li>a) Static model</li><li>c) Numerical model</li></ul>	proc b) d)	edures to solve equation? Dynamic model Analytical model	
	10)	<ul><li>Mathematical model is based on</li><li>a) Analogy between such systems</li><li>b) Use symbolic notation and math</li><li>c) All of the above</li></ul>	as e		m

d) None of the above

Seat	Set	9
No.	Set	3

# T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

#### Q.2 Attempt any Four. (each 10 Marks)

- a) Explain in detail, When Simulation is the appropriate tool.
- **b)** Define simulation. Write its Advantages and Disadvantages.
- c) Write a short note on Network Simulation (NS2).
- d) Define Queue monitor. Explain with an Example.
- e) Explain OTcl code for star and bus topology.

Seat	Set	В
No.	Set	

## T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering SOFTWARE LICENSES AND PRACTICES

Day & Date: Thursday, 28-11-2019 Max. Marks: 50

Time: 10:00 AM To 12:00 PM

**Instructions:** Attempt any five questions. (each question carries 10 marks)

- **Q.1** State and explain issues with Copyrights and Patents with indicative examples.
- **Q.2** Differentiate between Copyright and Patent Law. Which offers better protection from copying the source code of a developer? Justify your answer.
- Q.3 What are Free and Open Source Software Products? How are they licensed? Explain the role of MIT License in distributing Free Software products.
- Q.4 List and Explain types of Creative Commons Licenses.
- Q.5 State the benefits of Open Source Software Licensing. Explain how Community Enforcement of Open Source and Free Software Licenses works with an example.
- Q.6 What is Multiple and Cross Licensing? With help of proper use-cases and example explain when to use multiple licensing. What effects does multiple licensing have on the overall software product licensed under it?
- **Q.7** What is proprietary license, explain with an indicative example? When should an organization prefer licensing a software product under proprietary license?

Seat	Set	D
No.	Set	

		T.E. (Part – II) (New) (CBSC) Computer Science		
		NETWORK SET UP & I		
-		e: Thursday, 28-11-2019 0 AM To 12:00 PM		Max. Marks: 50
Instr	uctio	<b>ns:</b> 1) Q. No. 1 is compulsory and s Book.	should b	e solved in first 20 minutes in answer
		2) Figures to the right indicate f	ull mark	KS.
Dura	tion. O	MCQ/Objective	Type (	
		20 Minutes	4laa am	Marks: 10
Q.1	1)	ose the correct alternatives from Routing processor searching for r a) switch fabric c) table lookup	•	
	2)	You want to improve network perf available to hosts and limit the siz the following options will achieve a) Managed Hubs b) Switches c) Bridges d) Switches configured with VLA	e of the this goa	broadcast domains. Which of
	3)	An application-level protocol in what set of agents, known as a) HTML c) SNMP	nich a fe b) d)	ew manager stations control a  TCP  SNMP/IP
	4)	A personal computer or workstation one of these cards.  a) TDI c) PCI	on on ar b) d)	NIC None of above
	5)	Where is a hub specified in the Oaa) Session layer c) Data Link layer	SI mode b) d)	el? Physical layer Application layer
	6)	In a network with dozens of switch have? a) 1 c) 5	nes, hov b) d)	w many root bridges would you 2 12
	7)	Combination of two or more network  a) Internetwork  c) MAN	orks are b) d)	called WAN LAN

Set P

8)	The Internet Control Message Protocol (ICMP)						
	a)	allows gateways to send error a or hosts	cont	rol messages to other gateways			
	b)	provides communication between					
	c)	<ul> <li>one machine and the Internet Protocol Software on another</li> <li>reports error conditions to the original source, the source must relate errors to individual application programs and take action to correct the problem</li> </ul>					
	d)	All of the above					
9)	ΗM	HMP (Host Monitoring Protocol) is					
	a)	a TCP/IP protocol used to dyna a low-level physical hardware a		ly bind a high level IP Address to			
	b)	• •		ferring files from one machine to			
	c) d)	a protocol used to monitor compa protocol that handles error and					
10)	Tra	ansmission of computerized data	from	one location to another is called			
	a)	 data transfer	h)	data flow			
			p)				
	c)	data communication	d)	data management			

Seat	Sat	D
No.	Set	

## T.E. (Part – II) (New) (CBSC) Examination Nov/Dec-2019 Computer Science & Engineering NETWORK SET UP & MANAGEMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 40

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) Attempt any four questions from Q. No. 2.

2) Figures to the right indicate full marks.

#### Q.2 Answer any four.

- a) Explain Abstract Syntax Notation One (ASN.1)
- **b)** Draw & Network Management Architecture with its Applications.
- c) What is Fault? Explain in details how fault management works.
- d) Explain Host & User Authentication in detail.
- e) Explain any one Integrating Tool and Development Tool in detail.
- f) Write a short note on
  - 1) Switch
  - 2) Router

Seat No.	Set	Q

# T.E. (Part – II) (New) (CBSC) Examination Nov/Dec-2019

			Computer Science					
			NETWORK SET UP & MA	NA	GEMENT TOOLS			
•			oursday, 28-11-2019 // To 12:00 PM		Max. Marks: 50			
Instr	uctio	<b>ns:</b> 1	) Q. No. 1 is compulsory and sho Book.	uld b	e solved in first 20 minutes in answer			
		2	2) Figures to the right indicate full	mark	S.			
			MCQ/Objective Ty	pe (	Questions			
Dura	tion: 2	20 Mi			Marks: 10			
Q.1	Cho	ose i	the correct alternatives from th	e opi	ions and rewrite the sentence. 10			
٠	1)		a network with dozens of switches	•				
		a) c)	1 5	b) d)	2 12			
	2)	Cor a) c)	mbination of two or more network Internetwork MAN	s are b) d)	called WAN LAN			
	3)	<ul><li>a)</li><li>b)</li><li>c)</li></ul>	The Internet Control Message Protocol (ICMP)  a) allows gateways to send error a control messages to other gateways or hosts  b) provides communication between the Internet Protocol Software on one machine and the Internet Protocol Software on another					
	4)	HM a) b) c) d)	<ul> <li>a low-level physical hardware address</li> <li>b) a TCP/IP high level protocol for transferring files from one machine to another</li> <li>c) a protocol used to monitor computers</li> </ul>					
	5)	Tra	nsmission of computerized data f	rom	one location to another is called			
		a) c)	data transfer data communication	b) d)	data flow data management			
	6)	Rou a) c)	uting processor searching for rout switch fabric table lookup	ting to b) d)	able is called buffer rolling table			

Set Q

/)	available to the followin a) Manag b) Switch c) Bridge	hosts and limit the size ag options will achieve thi led Hubs es	of the s goa	e by increasing the bandwidth broadcast domains. Which of I?		
8)	set of agen a) HTML	tion-level protocol in which ts, known as	b)	ew manager stations control a		
	c) SNMP		d)	SNMP/IP		
9)	A personal one of thes	•	on ar	Ethernet network must have		
	a) TDI		b)	NIC		
	c) PCI		ď)	None of above		
10)	Where is a hub specified in the OSI model?					
	a) Sessio	n layer	b)	Physical layer		
	c) Data L	ink laver	ď)	Application laver		

Seat	Sat	
No.	Set	Q

## T.E. (Part – II) (New) (CBSC) Examination Nov/Dec-2019 Computer Science & Engineering NETWORK SET UP & MANAGEMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 40

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) Attempt any four questions from Q. No. 2.

2) Figures to the right indicate full marks.

#### Q.2 Answer any four.

- a) Explain Abstract Syntax Notation One (ASN.1)
- **b)** Draw & Network Management Architecture with its Applications.
- c) What is Fault? Explain in details how fault management works.
- d) Explain Host & User Authentication in detail.
- e) Explain any one Integrating Tool and Development Tool in detail.
- f) Write a short note on
  - 1) Switch
  - 2) Router

Coot		
Seat	Set	R
No.	Jet	

		T.E	. (Part – II) (New) (CBSC) E Computer Science NETWORK SET UP & MA	& E	ngineering
•			nursday, 28-11-2019 // To 12:00 PM	:	Max. Marks: 50
Instr	uctio		Book.		e solved in first 20 minutes in answer
		2	2) Figures to the right indicate full		
Dura	tion: 2	20 M	MCQ/Objective Ty inutes	pe c	<b>Questions</b> Marks: 10
Q.1	<b>Choo</b> 1)	HV	the correct alternatives from the IP (Host Monitoring Protocol) is _ a TCP/IP protocol used to dynar a low-level physical hardware at a TCP/IP high level protocol for another a protocol used to monitor compa protocol that handles error and	nicall Idres trans	. y bind a high level IP Address to s ferring files from one machine to
	2)	Tra a) c)	Insmission of computerized data f data transfer data communication	rom ( b) d)	one location to another is called data flow data management
	3)	Ro a) c)	uting processor searching for rout switch fabric table lookup	ing ta b) d)	able is called buffer rolling table
	4)	ava	u want to improve network performaliable to hosts and limit the size of following options will achieve this Managed Hubs Switches Bridges Switches configured with VLANs	of the goa	broadcast domains. Which of
	5)		application-level protocol in which of agents, known as HTML SNMP	b) d)	w manager stations control a  TCP  SNMP/IP
	6)		personal computer or workstation of these cards.  TDI  PCI	on ar b) d)	NIC None of above
	7)	Wh a) c)	nere is a hub specified in the OSI i Session layer Data Link layer	mode b) d)	el? Physical layer Application layer

Set R

8)	In a network with dozens of switches, how many root bridges would you have?						
	a) 1		b)	2			
	c) 5		ď)	12			
9)	Combi	ination of two or more networks	s are	called			
	a) In	ternetwork	b)	WAN			
	c) M	AN	d)	LAN			
10)	The In	ternet Control Message Protoc	ol (IC	CMP)			
	,	•	contr	ol messages to other gateways			
		hosts					
	, .	ovides communication between					
	or	ne machine and the Internet Pro	otoco	ol Software on another			
	c) re	ports error conditions to the ori	ginal	source, the source must relate			
	er	rors to individual application pr	ograr	ms and take action to correct			
	th	e problem					
	d) Al	I of the above					

Seat	Set	D
No.	Set	K

## T.E. (Part – II) (New) (CBSC) Examination Nov/Dec-2019 Computer Science & Engineering NETWORK SET UP & MANAGEMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. No. 2.

2) Figures to the right indicate full marks.

#### Q.2 Answer any four.

- a) Explain Abstract Syntax Notation One (ASN.1)
- **b)** Draw & Network Management Architecture with its Applications.
- c) What is Fault? Explain in details how fault management works.
- d) Explain Host & User Authentication in detail.
- e) Explain any one Integrating Tool and Development Tool in detail.
- f) Write a short note on
  - 1) Switch
  - 2) Router

Seat	Set	6
No.		)

		T.E	. (Part – II) (New) (CBSC) Computer Scien	•	
			NETWORK SET UP &	MANA	GEMENT TOOLS
•			nursday, 28-11-2019 // To 12:00 PM		Max. Marks: 50
Instr	uctio		Q. No. 1 is compulsory and s     Book.     Figures to the right indicate s		e solved in first 20 minutes in answer
		4	, 3		
Dura	tion: 2	0 M	MCQ/Objective inutes	ı ype v	Marks: 10
Q.1		<b>ose</b> An		•	tions and rewrite the sentence. 10
			HTML SNMP	b) d)	TCP SNMP/IP
	2)	one	personal computer or workstations of these cards.  TDI  PCI	on on ar b) d)	NIC None of above
	3)	,	nere is a hub specified in the O Session layer Data Link layer	,	el? Physical layer Application layer
	4)		a network with dozens of switc ve? 1 5	hes, hov b) d)	v many root bridges would you  2 12
	5)	Co a) c)	mbination of two or more netw Internetwork MAN	orks are b) d)	called WAN LAN
	6)	The a) b) c)	or hosts provides communication betw one machine and the Interner reports error conditions to the	veen the Protoco origina	rol messages to other gateways Internet Protocol Software on
	7)	HM a) b) c) d)	a low-level physical hardware	namicalle addrestor trans	ly bind a high level IP Address to s ferring files from one machine to

Set S

8)	Transmission of computerized data from one location to another is called			
	a) data transfer c) data communication	<ul><li>b) data flow</li><li>d) data management</li></ul>		
9)	Routing processor searching for rou a) switch fabric c) table lookup	uting table is called  b) buffer d) rolling table		
10)	, , , ,			

Seat	Set	6
No.	Set	3

## T.E. (Part – II) (New) (CBSC) Examination Nov/Dec-2019 Computer Science & Engineering NETWORK SET UP & MANAGEMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 40

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) Attempt any four questions from Q. No. 2.

2) Figures to the right indicate full marks.

Q.2 Answer any four.

40

- a) Explain Abstract Syntax Notation One (ASN.1)
- **b)** Draw & Network Management Architecture with its Applications.
- **c)** What is Fault? Explain in details how fault management works.
- d) Explain Host & User Authentication in detail.
- e) Explain any one Integrating Tool and Development Tool in detail.
- f) Write a short note on
  - 1) Switch
  - 2) Router

	_	
Seat	Set	D
No.	Set	<u> </u>

7	T.E. (Part – II) (Old) (Co Computer S DATABA	•	ngineering	9
•	: Friday, 22-11-2019 AM To 01:00 PM		Ma	x. Marks: 70
Instructions	s: 1) Q. No. 1 is compulsory book.	/ and should b	pe solved in first 30 minut	es in answer
	2) Figure to the right indicate	ates full mark	3.	
	MCQ/Obje	ctive Type Q	uestions	
Duration: 30	) Minutes			Marks: 14
	ose the correct alternative tence.	es from the o	ptions and rewrite the	14
1)	Task of database designer  a) create logical databas  b) take regular back up  c) Assign privileges to u  d) none of the above	se design		
2)	Minimal subset of one or movalues is called  a) super key c) primary key	nore columns b) d)	in relation having non repo candidate key foreign key	eated
3)	operation in relation a) Select c) Union	nal algebra is u b) d)	used to extract rows in rela Project Join	ation.
4)	<ul><li> operation generates</li><li>a) Natural join</li><li>c) Right outer join</li></ul>	s joined tables b) d)	with columns M+N-1. Left outer join all	
5)	<ul><li>entity set doesn't h</li><li>a) Strong entity set</li><li>both a and b</li></ul>		attribute to form primary ke Weak entity set none	эу.
6)	Multi valued attribute is rep a) dashed ellipse c) double ellipse	oresented by <sub>_</sub> b) d)	double rectangle none	
7)	null values are used a) Value is unknown at ( b) Value is not applicabl c) Value is optional and ( d) All of the above	given time ins le	tance	
8)	A on the attribute A value that A can take.  a) Bitmap c) Array	A of relation r b) d)	consists of one bitmap for Index Bitmap index	each

Set P

9)	Whic	ch of the following has 'all-or-no	ne' p	roperty?
	a)	Atomicity	b)	Durability
	c)	Isolation	d)	All of the mentioned
10)		a transaction to be durable, its	chang	ges need to be written to
	•	age. Stable storage Non-volatile storage	b) d)	Volatile storage Dynamic storage
11)	from a) b)	ch of the following protocols end deadlocks? Two-phase locking protocol Graph based protocol Time-stamp ordering protocol None of the mentioned	sures	conflict serializability and safety
12)		situation where the lock waits on the lock to be released is	-	or a specified amount of time for
	a)	Wound-wait	b)	Lock timeout
	c)	Timeout	ď)	Wait time
13)		B+-tree index for each v of all records with that value for Node Root		
14)		locks the item from access	of an	y type.
,	a)	Shared lock	b)	Implicit lock
	c)	Explicit lock	ď)	Exclusive

Seat No.		Set	Р
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# T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		•	Computer Science 9 Engineering	
			Computer Science & Engineering DATABASE ENGINEERING	
_				
•			Friday, 22-11-2019 Max. Marks	: 56
			AM To 01:00 PM	
Instr	ucti	ons	<ul><li>1) All questions are compulsory.</li><li>2) Figure to the right indicates full marks.</li></ul>	
			, с	
•			Section – I	
Q.2		•	ot any three	12
	a) b)		plain tuple relational calculus.  nat is functional dependency, explain with example. Define cover, closure.	
	c)		plain different types of attribute in ER modeling.	
	d)		nat is Cartesian product? Consider two tables	
	•	Stu	udent={studid,name,phoneno}, Result = {studid,physics_marks,chemmarl maths_marks}	ks,
			nd names of students using sql query having percentage >60 (assume aximum marks 100)	
Q.3	Att		ot any one	30
	a)	•	nat is ER diagram? Draw ER diagram for hospital management system	
	_	wit	h following description.	
		1)	Hospital has multiple doctors. Each doctor has specialization area,	
		۵)	name, phone no, email id and works in specific opd.	
		2)	Hospital has multiple opd, each opd is assigned to single doctor. Each opd has opd number, building name, floor no.	
		3)	Patient can take prior appointment from specific doctor. Doctor allocate	
		-,	slot for patient consultation, after consultation patient pays consultation	
			fees and depart from opd. For patient unique id is generated and	
		4.	against id, patient name, city, phone number are recorded.	
		4)	Patient can be treated by multiple doctors	
		5)	After every consultation, doctor generate prescription for patient which includes list of medicine, doses per day, date of prescription and no. of	
			days to take prescribed medicine.	
		6)	Every prescription consists of list of medicine and dosage per day.	
	b)	Ŵł	nat is Normalization? Explain 1NF, 2NF, 3NF with example.	
Q.4	•		DBMS architecture in detail.	80
Ψ.Τ	<b>∟</b> ∧⊦	Jani	Section – II	
0 E	<b>A</b> 44	- 100 W		4.
Q.5	att	•	ot any three rite a short note on ordered indices.	12
	a) b)		plain stable storage implementation.	
	c)		plain graph based protocol.	
	ď)		plain state diagram of a transaction.	
Q.6	Att		ot any one	80
	a) b)	Wł	nat is bitmap indices? Explain bitmap index structure with an example. plain log based recovery and also explain differed and immediate	_

Q.7 What is deadlock? State two different deadlock prevention schemes by using

database modifications.

timestamps.

80

Seat	Sat	
No.	Set	Q

## T.F. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

	•	•••	Compu	ter Science ABASE EN	& E		13
•			ау, 22-11-2019 Го 01:00 РМ			M	ax. Marks: 70
Instrud	ctions		Q. No. 1 is comp book.	ulsory and sho	ould b	pe solved in first 30 minu	tes in answer
		2 <b>)</b> F	Figure to the right	indicates full i	mark	S.	
			MCQ	/Objective Ty	pe Q	uestions	
Duratio	n: 30	Minu	utes				Marks: 14
Q.1		ose t		natives from t	he o	ptions and rewrite the	14
	1)		on the attri e that A can take		ion r	consists of one bitmap fo	or each
		a) c)	Bitmap Array		b) d)	Index Bitmap index	
	2)	Whi a) c)	ch of the following Atomicity Isolation	g has 'all-or-no	one' p b) d)	oroperty ? Durability All of the mentioned	
	3)	For stora a) c)			chang b) d)	ges need to be written to Volatile storage Dynamic storage	
	4)		ch of the following deadlocks? Two-phase lock Graph based pr Time-stamp ord None of the me	ing protocol otocol ering protocol	sures	conflict serializability an	d safety
	5)		situation where t ther lock to be rel Wound-wait Timeout		only fo  b) d)	or a specified amount of  Lock timeout  Wait time	time for
	6)		B+-tree index of all records with Node Root			we would normally maint ndexed attribute. Leaf Link	ain a
	7)	a) c)	locks the iten Shared lock Explicit lock	n from access	of an b) d)	y type. Implicit lock Exclusive	

### Set Q

8)	Task a) b) c) d)	of database designer is create logical database design take regular back up Assign privileges to users none of the above		
9)		mal subset of one or more colures is called super key primary key	nns i b) d)	n relation having non repeated candidate key foreign key
10)	a) c)	_ operation in relational algebra Select Union	,	sed to extract rows in relation.
11)	a) c)	_ operation generates joined ta Natural join Right outer join	bles b) d)	with columns M+N-1. Left outer join all
12)	a) c)	entity set doesn't have enou Strong entity set both a and b	_	ttribute to form primary key. Weak entity set none
13)	Multi a) c)	valued attribute is represented dashed ellipse double ellipse	by _ b) d)	
14)	a) b) c) d)	_ null values are used in datable Value is unknown at given time Value is not applicable Value is optional and user wan All of the above	e inst	ance

Seat No.	Set	Q
NO.		

		I.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019	
		Computer Science & Engineering DATABASE ENGINEERING	
Day	δ D		56
-		ate: Friday, 22-11-2019 Max. Marks: :00 AM To 01:00 PM	30
		ons: 1) All questions are compulsory.	
	uoti	2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Att	empt any three	12
	a)	Explain tuple relational calculus.	
	p)	What is functional dependency, explain with example. Define cover, closure.	
	c) d)	Explain different types of attribute in ER modeling.  What is Cartesian product? Consider two tables	
	uj	Student={studid,name,phoneno}, Result = {studid,physics_marks,chemmark	s.
		maths_marks}	-,
		Find names of students using sql query having percentage >60 (assume	
		maximum marks 100)	
Q.3	_	empt any one	30
	a)	What is ER diagram? Draw ER diagram for hospital management system with following description.	
		Hospital has multiple doctors. Each doctor has specialization area,	
		name, phone no, email id and works in specific opd.	
		2) Hospital has multiple opd, each opd is assigned to single doctor. Each	
		<ul><li>opd has opd number, building name, floor no.</li><li>3) Patient can take prior appointment from specific doctor. Doctor allocate</li></ul>	
		slot for patient consultation, after consultation patient pays consultation	
		fees and depart from opd. For patient unique id is generated and	
		against id, patient name, city, phone number are recorded.	
		<ul><li>4) Patient can be treated by multiple doctors</li><li>5) After every consultation, doctor generate prescription for patient which</li></ul>	
		<ol> <li>After every consultation, doctor generate prescription for patient which includes list of medicine, doses per day, date of prescription and no. of</li> </ol>	
		days to take prescribed medicine.	
		6) Every prescription consists of list of medicine and dosage per day.	
	b)	What is Normalization? Explain 1NF, 2NF, 3NF with example.	
Q.4	Exp	plain DBMS architecture in detail.	80
		Section – II	
Q.5	Att	empt any three	12
	a)	Write a short note on ordered indices.	
	b)	Explain stable storage implementation.	
	c) d)	Explain graph based protocol.  Explain state diagram of a transaction.	
Q.6	•	empt any one	30
٧.٧	a)	What is bitmap indices? Explain bitmap index structure with an example.	50
	b)	Explain log based recovery and also explain differed and immediate	
		database modifications.	

Q.7 What is deadlock? State two different deadlock prevention schemes by using

timestamps.

80

No. Set R
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	-	Г.Е.	(Part – II) (Old) (CGPA Computer Scier DATABASE	ice & E	ngineering
-			ау, 22-11-2019 Го 01:00 РМ		Max. Marks: 70
Instru	iction	,	Q. No. 1 is compulsory and book. Figure to the right indicates		be solved in first 30 minutes in answer
			MCQ/Objective	Type Q	uestions
Durati	on: 30	) Min	utes		Marks: 14
Q.1		ose t	the correct alternatives fro	om the o	ptions and rewrite the 14
	1)	a) c)		enough a b) d)	attribute to form primary key. Weak entity set None
	2)	Mult a) c)	i valued attribute is represe dashed ellipse double ellipse	nted by _ b) d)	double rectangle none
	3)		null values are used in d Value is unknown at given Value is not applicable Value is optional and user All of the above	time inst	tance
	4)	A valu a) c)	on the attribute A of r e that A can take. Bitmap Array	elation r d b) d)	consists of one bitmap for each Index Bitmap index
	5)	Whi	ch of the following has 'all-c Atomicity Isolation	r-none' p	property ?
	6)		a transaction to be durable, age. Stable storage Non-volatile storage	its chang b) d)	ges need to be written to  Volatile storage  Dynamic storage
	7)		ch of the following protocols deadlocks? Two-phase locking protocol Graph based protocol Time-stamp ordering protocol None of the mentioned	ol	conflict serializability and safety
	8)		situation where the lock wa ther lock to be released is _ Wound-wait Timeout	-	or a specified amount of time for  Lock timeout  Wait time

Set R

9)		B+-tree index for each volf all records with that value for Node Root		· · · · · · · · · · · · · · · · · · ·
10)	a) c)	locks the item from access Shared lock Explicit lock	of an b) d)	Implicit lock
11)	a) b)	of database designer is create logical database desigr take regular back up Assign privileges to users none of the above		
12)		mal subset of one or more colu es is called super key primary key	mns i b) d)	-
13)	a) c)		a is u b) d)	ised to extract rows in relation. Project Join
14)	a) c)	operation generates joined to Natural join Right outer join		with columns M+N-1. Left outer join all

		T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019  Computer Science & Engineering	
		DATABASE ENGINEERING	
Time	: 10:	tte: Friday, 22-11-2019  Max. Marks 00 AM To 01:00 PM  ons: 1) All questions are compulsory. 2) Figure to the right indicates full marks.  Section – I	: 56
02	Λ ++	empt any three	12
<b>W.</b> Z	a) b) c) d)	Explain tuple relational calculus.  What is functional dependency, explain with example. Define cover, closure.  Explain different types of attribute in ER modeling.  What is Cartesian product? Consider two tables  Student={studid,name,phoneno}, Result = {studid,physics_marks,chemmarl maths_marks}  Find names of students using sql query having percentage >60 (assume maximum marks 100)	
Q.3	Δtt	empt any one	08
	a)	<ul> <li>What is ER diagram? Draw ER diagram for hospital management system with following description.</li> <li>1) Hospital has multiple doctors. Each doctor has specialization area, name, phone no, email id and works in specific opd.</li> <li>2) Hospital has multiple opd, each opd is assigned to single doctor. Each opd has opd number, building name, floor no.</li> <li>3) Patient can take prior appointment from specific doctor. Doctor allocate slot for patient consultation, after consultation patient pays consultation fees and depart from opd. For patient unique id is generated and against id, patient name, city, phone number are recorded.</li> <li>4) Patient can be treated by multiple doctors</li> <li>5) After every consultation, doctor generate prescription for patient which includes list of medicine, doses per day, date of prescription and no. of days to take prescribed medicine.</li> <li>6) Every prescription consists of list of medicine and dosage per day.</li> <li>What is Normalization? Explain 1NF, 2NF, 3NF with example.</li> </ul>	
Q.4	•	plain DBMS architecture in detail.	80
<b>Q.</b> 4	<b>∟</b> ∧⊦	Section – II	UC
Q.5	Atto a) b) c) d)	empt any three  Write a short note on ordered indices.  Explain stable storage implementation.  Explain graph based protocol.  Explain state diagram of a transaction.	12
Q.6	Atto a) b)	empt any one What is bitmap indices? Explain bitmap index structure with an example. Explain log based recovery and also explain differed and immediate database modifications.	80

Q.7 What is deadlock? State two different deadlock prevention schemes by using

timestamps.

80

Seat	Set	S
No.		

## T.F. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		· . L .	Computer Scien	ice & E	ngineering	
•			ay, 22-11-2019 To 01:00 PM	LINGINI	Max. Marks	s: 70
Instru	ction	ŕ	book.		pe solved in first 30 minutes in ans	swer
		ا (۷	Figure to the right indicates f <b>MCQ/Objective</b>			
Durati	on: 30	) Mini	•	r rype Q	uestions Marks	· 1/
Q.1	Cho		the correct alternatives fro	om the o		14
	1)	For	a transaction to be durable, age.	b)	ges need to be written to Volatile storage Dynamic storage	
	2)	from a) b)	ch of the following protocols deadlocks? Two-phase locking protocol Graph based protocol Time-stamp ordering protocol None of the mentioned	ol	conflict serializability and safety	
	3)		situation where the lock wa ther lock to be released is _ Wound-wait Timeout	-	or a specified amount of time for  Lock timeout  Wait time	
	4)		B+-tree index for eac of all records with that value Node Root	for the ir b)	we would normally maintain a ndexed attribute. Leaf Link	
	5)	a) c)	locks the item from accommod Shared lock Explicit lock	ess of ar b) d)	ly type. Implicit lock Exclusive	
	6)	Tas a) b) c) d)	k of database designer is create logical database de take regular back up Assign privileges to users none of the above			
	7)		imal subset of one or more ones is called super key primary key	columns b) d)	in relation having non repeated candidate key foreign key	

### Set S

8)		_ operation in relational algebr	a is ι	used to extract rows in relation.
,	a)	Select	b)	Project
	c)	Union	ď)	Join
9)	a) c)	operation generates joined to Natural join Right outer join	ables b) d)	with columns M+N-1. Left outer join all
10)	a) c)	entity set doesn't have eno Strong entity set both a and b	_	ittribute to form primary key. Weak entity set none
11)	Multi a) c)	i valued attribute is represented dashed ellipse double ellipse	b) d) d)	
12)	b)	null values are used in datab Value is unknown at given tim Value is not applicable Value is optional and user wan All of the above	e inst	tance
13)		on the attribute A of relat e that A can take. Bitmap	on r	consists of one bitmap for each Index
	c)	Array	d)	Bitmap index
14)	Whice a) c)	ch of the following has 'all-or-no Atomicity Isolation	ne' p b) d)	

Seat No.		Set	S
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# T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2010

		١.	.E. (Part = II) (Old) (CGPA) Examination Nov/Dec-2019	
			Computer Science & Engineering	
			DATABASE ENGINEERING	
•			Friday, 22-11-2019 Max. Marks	: 56
_	_		AM To 01:00 PM	
Instr	uctio	ons	: 1) All questions are compulsory.	
			2) Figure to the right indicates full marks.	
			Section – I	
<b>Q.2</b>		-	ot any three	12
	a)		plain tuple relational calculus.	
	b) c)		nat is functional dependency, explain with example. Define cover, closure. plain different types of attribute in ER modeling.	
	d)		nat is Cartesian product? Consider two tables	
	,		udent={studid,name,phoneno}, Result = {studid,physics_marks,chemmark	ĸs,
			maths_marks}	
			nd names of students using sql query having percentage >60 (assume	
			eximum marks 100)	
Q.3	_	-	ot any one	08
	a)		nat is ER diagram? Draw ER diagram for hospital management system h following description.	
		1)	Hospital has multiple doctors. Each doctor has specialization area,	
		٠,	name, phone no, email id and works in specific opd.	
		2)	Hospital has multiple opd, each opd is assigned to single doctor. Each	
			opd has opd number, building name, floor no.	
		3)	Patient can take prior appointment from specific doctor. Doctor allocate	
			slot for patient consultation, after consultation patient pays consultation fees and depart from opd. For patient unique id is generated and	
			against id, patient name, city, phone number are recorded.	
		4)	Patient can be treated by multiple doctors	
		5)	After every consultation, doctor generate prescription for patient which	
			includes list of medicine, doses per day, date of prescription and no. of	
		<b>6</b> )	days to take prescribed medicine.	
		6)	Every prescription consists of list of medicine and dosage per day.	
	b)		nat is Normalization? Explain 1NF, 2NF, 3NF with example.	
Q.4	Exp	lain	DBMS architecture in detail.	08
			Section – II	
Q.5	Atte	•	ot any three	12
	a)		ite a short note on ordered indices.	
	p)		plain stable storage implementation.	
	c) d)		plain graph based protocol. plain state diagram of a transaction.	
Q.6	•		ot any one	08
<b>W.</b> U	a)	•	nat is bitmap indices? Explain bitmap index structure with an example.	00
	b)		plain log based recovery and also explain differed and immediate	

Q.7 What is deadlock? State two different deadlock prevention schemes by using

database modifications.

timestamps.

80

Seat	Cot	
No.	Set	ן א

		T.E	. (Part - II) (Old) (CGPA) Ex Computer Science COMPILER CON	& En	gineering	)
•			turday, 23-11-2019 To 01:00 PM		Ma	x. Marks: 70
Inst	ructio	ns: 1)	Q. No. 1 is compulsory and sho book.	uld be	solved in first 30 minute	s in answer
		2)	Figures to the right indicate full	marks		
			MCQ/Objective Ty	pe Qu	estions	
Dura	ation: 3	30 Mir	nutes			Marks: 14
Q.1	<b>Cho</b> (1)		ne correct alternatives from the tax analyzer can be generated by Lex Both a and b	-		itence. 14
	2)	Give a) c)	en a string "banana", the string "a subsequence suffix	nn" is b) d)	_	
	3)	Whica)	ch of the following are the bottom LL(1) parser LR(1) parser	n-up pa b) d)		arser
	4)	Com a) c)	npiler generates efficient target co Syntax analysis Code optimization	ode in b) d)		
	5)	The a) c)	evaluation order for the attribute DAG Annotated parse tree	instan b) d)	Dependency graph	·
	6)	Synt a) c)	tax directed definition (SDD) cont Grammar productions Semantic rules	tains _ b) d)	Attributes All of these	
	7)	A grada) b) c) d)	ammar G is said to be operator p No production on the right side i No production on the right side l Both a) and b) None of above	sε		
	8)	In th a) c)	te grammar: $S \rightarrow bXYa$ , $X \rightarrow d$ , {c} {c, \$}	b)	Y €, the Follow(X) is {c , a} {c, €}	·
	9)	The calle a) c)	transformation in which we decreed  Reduction in strength  Code motion	ease th b) d)	ne size of the code in a lo copy propagation None of these	oop is

Set P

10) To construct the predictive parser from a context-free gramm				
a)	Eliminate left recursion	b)	Left factor the grammar	
c)	Compute FIRST and FOLLOW	d)	All of these	
	. , ,	mined	d, depends on which of the	
a)	Uniformity, completeness	b)	Speed, size	
•	·	•	•	
Whic	ch of the following parsers is more	powe	erful?	
a)	Simple LR	b)	Canonical LR	
c)	Look ahead LR	d)	None of these	
In re	gular expressions, the unary postl	іх ор	erator '?' means,	
a)	Zero or one occurrence	b)	one or more occurrence	
c)	zero or more occurrence	d)	None of these	
	•	run t	ime, the two memory areas	
a)	Stack and heap	b)	Static and heap	
,	•	ď)	Code and static	
	a) c) The followan c) Whice a) c) In re a) c) To mused a)	<ul> <li>a) Eliminate left recursion</li> <li>c) Compute FIRST and FOLLOW</li> <li>The quality of generated code is deterned following factors?</li> <li>a) Uniformity, completeness</li> <li>c) Machine idioms, uniformity</li> <li>Which of the following parsers is more</li> <li>a) Simple LR</li> <li>c) Look ahead LR</li> <li>In regular expressions, the unary posted</li> <li>a) Zero or one occurrence</li> <li>c) zero or more occurrence</li> <li>To maximize the utilization of space at used are called</li> <li>a) Stack and heap</li> </ul>	a) Eliminate left recursion b) c) Compute FIRST and FOLLOW d)  The quality of generated code is determined following factors? a) Uniformity, completeness b) c) Machine idioms, uniformity d)  Which of the following parsers is more power a) Simple LR b) c) Look ahead LR d)  In regular expressions, the unary postfix opera) Zero or one occurrence b) c) zero or more occurrence d)  To maximize the utilization of space at run to used are called a) Stack and heap b)	

Seat	Sat	D
No.	Set	

# T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering COMPILER CONSTRUCTION	
		ate: Saturday, 23-11-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Assume suitable data if necessary.</li><li>3) Figures to the right indicate full marks.</li></ul>	
		Section I	
Q.2	a)	tempt any three of the following questions.  Explain the elimination of left recursion of the grammar with examous What is recursive descent parser with backtracking? Explain with Write algorithm for simulation of DFA and explain it with example Find the FIRST and FOLLOW set of the Nonterminals in the following Grammar.  S→cABd A→a € B→b €	example.
Q.3	a)	tempt any one of the following questions.  Draw and explain in detail all phases of compiler model.  Explain the following terms:  i) SLR parser  ii) Dependency graph	08
Q.4		nat is Postfix SDT's? Explain the parser-stack implementation of PoT's using expression grammar.	ostfix 08
		Section II	
Q.5	a) b) c)	tempt any three of the following questions.  What is DAG? Explain construction of DAG for expression with example.  Explain stack allocation of space with example.  What is basic block? Write the algorithm for partitioning three-addinstructions into basic blocks.  Explain types of three-address statements in detail.	·
Q.6	a)	empt any one of the following questions.  Explain in detail register allocation and assignment.  Explain translation of switch-case statement.	08
0.7	Fy	plain the semantic-preserving transformations	08

Seat		
No.	Set	Q

		T.E	. (Part - II) (Old) (CGPA) Ex		
			Computer Science of COMPILER CONS		
			turday, 23-11-2019 I To 01:00 PM		Max. Marks: 70
Inst	ructio	ns: 1		ıld be	e solved in first 30 minutes in answer
		2)	book. Figures to the right indicate full r	narko	<u>,</u>
		۷)	MCQ/Objective Typ		
Dura	ation: 3	30 Mii		ic Qu	Marks: 14
Q.1	Cho	ose t	he correct alternatives from the	optio	ons and rewrite the sentence. 14
	1)	In th a) c)	ne grammar: $S \rightarrow bXYa$ , $X \rightarrow d$ , $S \rightarrow bXYa$ , $X \rightarrow d$ , $S \rightarrow d$		Y €, the Follow(X) is {c , a} {c, €}
	2)	calle	transformation in which we decre		·
		a) c)	Reduction in strength Code motion	b) d)	copy propagation None of these
	3)	To c a) c)	construct the predictive parser fror Eliminate left recursion Compute FIRST and FOLLOW	b)	
	4)		quality of generated code is determing factors? Uniformity, completeness Machine idioms, uniformity	b)	•
	5)	,	ch of the following parsers is more Simple LR Look ahead LR	e pow	
	6)	In re a) c)	egular expressions, the unary post Zero or one occurrence zero or more occurrence	fix op b) d)	perator '?' means, one or more occurrence None of these
	7)		naximize the utilization of space a d are called Stack and heap Stack and static	t run b) d)	time, the two memory areas  Static and heap  Code and static
	8)	Synta) c)	tax analyzer can be generated by Lex Both a and b	b) d)	tool. YACC None of these
	9)	Give a) c)	en a string "banana", the string "ar subsequence suffix	nn" is b) d)	of "orange". Substring Prefix
	10)	Whi a) c)	ch of the following are the bottom- LL(1) parser LR(1) parser	-up pa b) d)	arsers? operator precedence parser both b and c

Set Q

11)	Con	npiler generates efficient target co	de in	phase.
	a)	Syntax analysis	b)	Semantic analysis
	c)	Code optimization	d)	None of these
12)	The	evaluation order for the attribute	instan	ices is determined by
	a)	DAG	b)	Dependency graph
	c)	Annotated parse tree	d)	Both a and b
13)	Synt	tax directed definition (SDD) conta	ains _	•
-	a)	Grammar productions	b)	Attributes
	c)	Semantic rules	d)	All of these
14)	A gr	ammar G is said to be operator p	reced	ence if it posses
	a)	No production on the right side is	3 8	
	b)	No production on the right side h	as 2	adjacent non- terminals
	c)	Both a) and b)		
	ď)	None of above		

Seat	Sat	
No.	Set	Q

# T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering COMPILER CONSTRUCTION	
		ate: Saturday, 23-11-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Assume suitable data if necessary.</li><li>3) Figures to the right indicate full marks.</li></ul>	
		Section I	
Q.2	a)	Explain the elimination of left recursion of the grammar with exame What is recursive descent parser with backtracking? Explain with Write algorithm for simulation of DFA and explain it with example. Find the FIRST and FOLLOW set of the Nonterminals in the following Grammar.	example.
		S→cABd A→a € B→b €	
Q.3	a)	tempt any one of the following questions.  Draw and explain in detail all phases of compiler model.  Explain the following terms:  i) SLR parser  ii) Dependency graph	08
Q.4		nat is Postfix SDT's? Explain the parser-stack implementation of Po T's using expression grammar.	ostfix 08
		Section II	
Q.5	a) b)	tempt any three of the following questions.  What is DAG? Explain construction of DAG for expression with example in the stack allocation of space with example.  What is basic block? Write the algorithm for partitioning three-addinstructions into basic blocks.  Explain types of three-address statements in detail.	·
Q.6	a)	tempt any one of the following questions.  Explain in detail register allocation and assignment.  Explain translation of switch-case statement.	08
Q.7	Ex	plain the semantic-preserving transformations.	80

Seat	Sat	D
No.	Set	K

		T.E. (Part - II) (Old) (CGPA) E Computer Science COMPILER COI	e & Eı	ngineering	
		e: Saturday, 23-11-2019			. Marks: 70
Γime	e: 10:0	0 AM To 01:00 PM			
nstr	uctio	ns: 1) Q. No. 1 is compulsory and sh book.	ould b	e solved in first 30 minutes	in answer
		<ol><li>Figures to the right indicate fu</li></ol>	ll mark	S.	
		MCQ/Objective T			
Dura	ition: 3	30 Minutes	<b>,</b>		Marks: 14
Q.1	<b>Cho</b> (1)	The evaluation order for the attribut a) DAG c) Annotated parse tree	e insta		
	2)	Syntax directed definition (SDD) cor a) Grammar productions c) Semantic rules	,	·	
	3)	<ul> <li>A grammar G is said to be operator</li> <li>a) No production on the right side</li> <li>b) No production on the right side</li> <li>c) Both a) and b)</li> <li>d) None of above</li> </ul>	is ε	,	
	4)	In the grammar: $S \rightarrow bXYa$ , $X \rightarrow d$ , a) {c} c) {c, \$}	b)	cY €, the Follow(X) is {c , a} {c, €}	_•
	5)	The transformation in which we dec called  a) Reduction in strength c) Code motion	rease to b)		pp is
	6)	To construct the predictive parser fra  a) Eliminate left recursion  c) Compute FIRST and FOLLOV	om a c b)		·
	7)	The quality of generated code is de following factors?  a) Uniformity, completeness c) Machine idioms, uniformity	termine b) d)	•	Э
	8)	Which of the following parsers is mo a) Simple LR c) Look ahead LR	ore pov b) d)	verful? Canonical LR None of these	
	9)	In regular expressions, the unary polyal Zero or one occurrence	b)	perator '?' means, one or more occurrence	

Set R

10)		naximize the utilization of space a I are called	t run t	ime, the two memory areas
	a)	Stack and heap	b)	Static and heap
	c)	Stack and static	d)	Code and static
11)	Synt	ax analyzer can be generated by		tool.
,	a)	Lex	b)	YACC
	c)	Both a and b	d)	None of these
12)	Give	n a string "banana", the string "an	n" is ຼ	of "orange".
	a)	subsequence	b)	Substring
	c)	suffix	d)	Prefix
13)	Whic	ch of the following are the bottom-	up pa	irsers?
,	a)	LL(1) parser	b)	operator precedence parser
	c)	LR(1) parser	d)	both b and c
14)	Com	piler generates efficient target co	de in .	phase.
•	a)	Syntax analysis		Semantic analysis
	c)	Code optimization	ď)	None of these

Seat	Set	D
No.	Set	N

# T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering COMPILER CONSTRUCTION	
		ate: Saturday, 23-11-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Assume suitable data if necessary.</li><li>3) Figures to the right indicate full marks.</li></ul>	
		Section I	
Q.2	a)	Explain the elimination of left recursion of the grammar with exame What is recursive descent parser with backtracking? Explain with Write algorithm for simulation of DFA and explain it with example. Find the FIRST and FOLLOW set of the Nonterminals in the following Grammar.	example.
		S→cABd A→a € B→b €	
Q.3	a)	empt any one of the following questions.  Draw and explain in detail all phases of compiler model.  Explain the following terms:  i) SLR parser  ii) Dependency graph	08
Q.4		nat is Postfix SDT's? Explain the parser-stack implementation of Po T's using expression grammar.	ostfix 08
		Section II	
Q.5	a) b)	tempt any three of the following questions.  What is DAG? Explain construction of DAG for expression with explain stack allocation of space with example.  What is basic block? Write the algorithm for partitioning three-addinstructions into basic blocks.  Explain types of three-address statements in detail.	·
Q.6	a)	tempt any one of the following questions.  Explain in detail register allocation and assignment.  Explain translation of switch-case statement.	08
Q.7	Ex	plain the semantic-preserving transformations.	80

Seat	Sat	6
No.	Set	3

	T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019  Computer Science & Engineering					
			COMPILER CONS			
-			urday, 23-11-2019 To 01:00 PM			lax. Marks: 70
Instr	uction	ns: 1)	Q. No. 1 is compulsory and shou book.	ıld be	solved in first 30 minu	tes in answer
		2)	Figures to the right indicate full n	narks		
			MCQ/Objective Typ	e Qu	estions	
	tion: 3					Marks: 14
<b>Q.1</b>			ne correct alternatives from the			
	1)	a) c)	onstruct the predictive parser fron Eliminate left recursion Compute FIRST and FOLLOW	b)	Left factor the gramm	
	2)		quality of generated code is deter	mine	d, depends on which o	f the
		follov a) c)	wing factors? Uniformity, completeness Machine idioms, uniformity	b) d)	Speed, size None of these	
	3)	Whica)	ch of the following parsers is more Simple LR Look ahead LR	powe b) d)		
	4)	In re a) c)	gular expressions, the unary post Zero or one occurrence zero or more occurrence	b)	erator '?' means one or more occurren None of these	
	5)		naximize the utilization of space and are called  Stack and heap	t run t b)	time, the two memory a Static and heap	areas
		c)	Stack and static	ď)	Code and static	
	6)		ax analyzer can be generated by		tool.	
		a) c)	Lex Both a and b	b) d)	YACC None of these	
	7)	Give a) c)	n a string "banana", the string "an subsequence suffix	n" is <sub>.</sub> b) d)	of "orange". Substring Prefix	
	8)	Whica)	ch of the following are the bottom- LL(1) parser LR(1) parser	up pa b) d)	rsers? operator precedence both b and c	parser
	9)	Com a) c)	piler generates efficient target co Syntax analysis Code optimization	de in b) d)	phase. Semantic analysis None of these	
	10)	The a) c)	evaluation order for the attribute i DAG Annotated parse tree	nstan b) d)	ces is determined by _ Dependency graph Both a and b	·

Set S

11)	Syntax directed definition (SDD) contains						
-	a)	Grammar productions	b)	Attributes			
	c)	Semantic rules	ď)	All of these			
12)	a) b)	rammar G is said to be operator  No production on the right side  No production on the right side  Both a) and b)  None of above	is ε	·			
13)	a)	ne grammar: $S \rightarrow bXYa$ , $X \rightarrow d$ , {c} {c, \$}	b)	Y €, the Follow(X) is {c , a} {c, €}			
14)	The calle	transformation in which we deci	rease th	ne size of the code in a loop is			
	a)	Reduction in strength	b)	copy propagation			
	c)	Code motion	ď)	None of these			

|--|

# T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering COMPILER CONSTRUCTION	
•		ate: Saturday, 23-11-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Assume suitable data if necessary.</li><li>3) Figures to the right indicate full marks.</li></ul>	
		Section I	
Q.2	a)	Explain the elimination of left recursion of the grammar with exame What is recursive descent parser with backtracking? Explain with Write algorithm for simulation of DFA and explain it with example Find the FIRST and FOLLOW set of the Nonterminals in the following Grammar.	example.
	_	S→cABd A→a € B→b €	
Q.3	a)	empt any one of the following questions.  Draw and explain in detail all phases of compiler model.  Explain the following terms:  i) SLR parser  ii) Dependency graph	08
Q.4		nat is Postfix SDT's? Explain the parser-stack implementation of Po T's using expression grammar.	ostfix 08
		Section II	
Q.5	a)	tempt any three of the following questions.  What is DAG? Explain construction of DAG for expression with example in the stack allocation of space with example.  What is basic block? Write the algorithm for partitioning three-addinstructions into basic blocks.  Explain types of three-address statements in detail.	·
Q.6	a)	tempt any one of the following questions.  Explain in detail register allocation and assignment.  Explain translation of switch-case statement.	08
Q.7	Ex	plain the semantic-preserving transformations.	08

	_	
Seat	Set	D
No.	Set	

### T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**UNIX OPERATING SYSTEM** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 10:00 AM To 01:00 PM Instructions: 1) Q.No1 is compulsory. It should be solved in first 30 minutes in Answer 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 **Q.1** Choose the correct alternatives from the options and rewrite the sentence. Which of the following acts as kernel data structure for file \_\_\_\_\_? a) U area b) Inode table Process table c) d) Region table 2) Buffer header contains Device num, block number, status, five ptr a) Data number, block number, statics, six ptr b) Hash number, block number, stats, six ptr c) None d) Race for free buffer occurs in 3) First Scenario b) Second Scenario Fourth Scenario d) Fifth Scenario c) iget algorithm is used for 4) allocation of disk inodes b) allocation of in-core inode d) allocation of file number allocation of free buffer c) 5) Unix kernel minimizes the frequency of disk access by use of \_\_\_\_\_. Scheduling b) Buffer cache d) I/O redirection Cache memory c) Which algorithm is used for conversion of a pathname to an inode? 6) b) Pathnamei Iname a) c) Namei d) Bmap

The OPEN system call for file system in Unix takes the following

Boot strap code required to boot and initialize the O.S. is kept in ...

Signals are handled when process is changing its state from \_\_\_\_\_.

b) Pathname, user, mode

b) Boot block

d) Data block

d) None

b) Kernel to user

d) Pathname, handle, mode

7)

8)

9)

c)

a)

c)

arguments .

Super block

User to kernel

Both a and b

Inode list

Pathname, inode number

Pathname, flags, mode

Set P

10)	the swapper, is the only process that swaps processes into						
	memory from swap devices.						
	a) Process 1	b)	Process 0				
	c) Init Process	d)	None				
11)	The bit indicates whether a p and the bit indicates whether contents of a page.						
	a) Valid bit, refer bit	b)	Reference bit, modify bit				
	c) Valid bit, modify bit	ď)					
12)	The algorithm for closing a device		•				
,	a) P close	b)	D close				
	c) Close	ď)	None				
13)	retrieves the cumulative tim	es tha	t the calling process spent				
	executing in user mode and kernel m	ode.					
	a) Ctime	b)	Stime				
	c) Times	d)	rTime				
14)	When a process accesses a page that incurs page fault.	at is no	ot a part of its working set, it				
	a) Validity	b)	Invalid				
	c) Modification	d)	Recent				

Seat	Sat	D
No.	Set	<u> </u>

# T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering	013
		Computer Science & Engineering UNIX OPERATING SYSTEM	
•		ate: Monday, 25-11-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	Att a) b) c) d) e)	empt any three of the following questions.  Explain "bread" system call algorithm in detail.  What are processor execution level and how it influence the inter handling?  Describe the function open() system call.  Write a short note on buffer header.  Write a short note on inode assignment to a new file.	12 rupt
Q.3	Att a) b) c) d)	empt any two of the following questions.  Explain Kernel stack and user stack in detail with example.  Explain the algorithm for conversion of path name to inode.  Describe allocation and release of disk block (alloc and free algorithm what are indoes? Describe in-core inode and disk inode.	16 rithm)
		Section – II	
Q.4	a) b) c) d) e)	empt any three of the following questions.  Write and explain allocreg algorithm.  Write and explain ioctl system call.  Write a short note on clists.  What is terminal driver? List functions of line discipline.  Explain dupreg algorithm in detail.	12
Q.5	Atta) b) c)	empt any two of the following questions.  What is context of a process? Explain all the fields of user level or register level context and system level context.  Describe the major data structure supported by kernel for deman What is region? List fields in region table entry. Explain any one of in detail.	d paging.
	d)	What is validity page fault? Explain the function of a validity page handler with the help of algorithm.	fault

Seat	Sat	
No.	Set	Q

### T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering UNIX OPERATING SYSTEM

**UNIX OPERATING SYSTEM** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 10:00 AM To 01:00 PM Instructions: 1) Q.No1 is compulsory. It should be solved in first 30 minutes in Answer 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14 Boot strap code required to boot and initialize the O.S. is kept in \_\_\_\_\_. a) Super block b) Boot block Inode list c) d) Data block Signals are handled when process is changing its state from \_\_\_\_\_. 2) a) User to kernel b) Kernel to user d) None Both a and b 3) \_ the swapper, is the only process that swaps processes into memory from swap devices. a) Process 1 b) Process 0 **Init Process** c) d) None The \_\_\_\_\_ bit indicates whether a process is recently referenced a page 4) and the bit indicates whether a process recently modified the contents of a page. a) Valid bit, refer bit b) Reference bit, modify bit c) Valid bit, modify bit d) Modify bit, valid bit 5) The algorithm for closing a device \_\_\_\_ b) D close a) P close c) Close d) None \_\_\_\_ retrieves the cumulative times that the calling process spent 6) executing in user mode and kernel mode. a) Ctime b) Stime Times d) rTime

When a process accesses a page that is not a part of its working set, it

Which of the following acts as kernel data structure for file \_\_\_\_\_?

b) Invalid

d) Recent

b) Inode table

d) Region table

7)

8)

incurs \_\_\_\_\_ page fault.

Modification

Process table

Validity

U area

a)

a) c)

Set Q

9)	Buffer header contains					
,	<ul> <li>a) Device num, block number, status, five ptr</li> <li>b) Data number, block number, statics, six ptr</li> <li>c) Hash number, block number, stats, six ptr</li> <li>d) None</li> </ul>					
10)		e for free buffer occurs in First Scenario Fourth Scenario	b) d)	Second Scenario Fifth Scenario		
11)	iget a) c)	algorithm is used for allocation of disk inodes allocation of free buffer	b) d)	allocation of in-core inode allocation of file number		
12)	Unix a) c)	kernel minimizes the frequency of Scheduling Cache memory		access by use of Buffer cache I/O redirection		
13)	Whice a) c)	ch algorithm is used for conversion Iname Namei	of a b) d)	•		
14)	argu	OPEN system call for file system in ments Pathname, inode number Pathname, flags, mode		ix takes the following  Pathname, user, mode  Pathname, handle, mode		

Seat	Sat	_
No.	Set	u

# T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering	013
Day	& Da	UNIX OPERATING SYSTEM ate: Monday, 25-11-2019	Max. Marks: 56
		:00 AM To 01:00 PM	maxi mamor oo
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figures to right indicate full marks.</li></ul>	
		Section – I	
Q.2	a) b) c) d)	empt any three of the following questions.  Explain "bread" system call algorithm in detail.  What are processor execution level and how it influence the inter handling?  Describe the function open() system call.  Write a short note on buffer header.  Write a short note on inode assignment to a new file.	<b>12</b> rupt
Q.3	Atta) b) c) d)	empt any two of the following questions.  Explain Kernel stack and user stack in detail with example.  Explain the algorithm for conversion of path name to inode.  Describe allocation and release of disk block (alloc and free algorithm what are indoes? Describe in-core inode and disk inode.  Section – II	<b>16</b> rithm)
0.4	A 44		40
Q.4	a) b) c) d)	empt any three of the following questions.  Write and explain allocreg algorithm.  Write and explain ioctl system call.  Write a short note on clists.  What is terminal driver? List functions of line discipline.  Explain dupreg algorithm in detail.	12
Q.5		empt any two of the following questions.  What is context of a process? Explain all the fields of user level or register level context and system level context.  Describe the major data structure supported by kernel for deman What is region? List fields in region table entry. Explain any one of in detail.	d paging.
	d)	What is validity page fault? Explain the function of a validity page handler with the help of algorithm.	fault

Seat	Sat	D
No.	Set	K

### T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**UNIX OPERATING SYSTEM** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 10:00 AM To 01:00 PM Instructions: 1) Q.No1 is compulsory. It should be solved in first 30 minutes in Answer Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the sentence. 14 **Q.1** Unix kernel minimizes the frequency of disk access by use of \_\_\_\_\_. a) Scheduling b) Buffer cache d) I/O redirection Cache memory c) Which algorithm is used for conversion of a pathname to an inode? 2) b) Pathnamei a) Iname d) Bmap Namei 3) The OPEN system call for file system in Unix takes the following arguments \_\_\_\_\_ Pathname, inode number b) Pathname, user, mode Pathname, flags, mode d) Pathname, handle, mode Boot strap code required to boot and initialize the O.S. is kept in \_\_\_\_\_. 4) Super block b) Boot block a) Inode list d) Data block c) Signals are handled when process is changing its state from \_\_\_\_\_. 5) a) User to kernel b) Kernel to user Both a and b d) None c) 6) \_ the swapper, is the only process that swaps processes into memory from swap devices. a) Process 1 b) Process 0 c) **Init Process** d) None 7) The \_\_\_\_\_ bit indicates whether a process is recently referenced a page and the bit indicates whether a process recently modified the contents of a page. a) Valid bit, refer bit b) Reference bit, modify bit Valid bit, modify bit d) Modify bit, valid bit

b) D close

d) None

b) Stime

d) rTime

retrieves the cumulative times that the calling process spent

The algorithm for closing a device \_\_\_

executing in user mode and kernel mode.

8)

9)

a) P close

a) Ctime

Close

**Times** 

c)

c)

Set R

10)		en a process accesses a page that rs page fault. Validity Modification	b) d)	ot a part of its working set, it Invalid Recent
11)	Whi a) c)	ch of the following acts as kernel do U area Process table	ata s b) d)	structure for file? Inode table Region table
12)	Buff a) b) c) d)	er header contains  Device num, block number, status Data number, block number, static Hash number, block number, static None	cs, s	ix ptr
13)		e for free buffer occurs in First Scenario Fourth Scenario	b) d)	Second Scenario Fifth Scenario
14)	•	algorithm is used for allocation of disk inodes allocation of free buffer	d)	allocation of in-core inode allocation of file number

Seat No.		Set	R
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		Computer Science & Engineering UNIX OPERATING SYSTEM	019
		ate: Monday, 25-11-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	Att a) b) c) d) e)	empt any three of the following questions.  Explain "bread" system call algorithm in detail.  What are processor execution level and how it influence the interplant handling?  Describe the function open() system call.  Write a short note on buffer header.  Write a short note on inode assignment to a new file.	<b>12</b> rupt
Q.3	Atte a) b) c) d)	empt any two of the following questions.  Explain Kernel stack and user stack in detail with example.  Explain the algorithm for conversion of path name to inode.  Describe allocation and release of disk block (alloc and free algor Explain what are indoes? Describe in-core inode and disk inode.	ithm)
		Section – II	
Q.4	a) b) c)	empt any three of the following questions.  Write and explain allocreg algorithm.  Write and explain ioctl system call.  Write a short note on clists.  What is terminal driver? List functions of line discipline.  Explain dupreg algorithm in detail.	12
Q.5	Atta a) b) c)	empt any two of the following questions.  What is context of a process? Explain all the fields of user level congister level context and system level context.  Describe the major data structure supported by kernel for demand What is region? List fields in region table entry. Explain any one of in detail.	d paging. operation
	d)	What is validity page fault? Explain the function of a validity page handler with the help of algorithm.	fault

	<u></u>	
Seat	Set	0
No.	Set	3

### T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**UNIX OPERATING SYSTEM** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 10:00 AM To 01:00 PM Instructions: 1) Q.No1 is compulsory. It should be solved in first 30 minutes in Answer Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the sentence. Q.1 14 \_\_\_\_\_ the swapper, is the only process that swaps processes into memory from swap devices. Process 1 a) b) Process 0 **Init Process** c) d) None The \_\_\_\_\_ bit indicates whether a process is recently referenced a page 2) and the \_\_\_\_\_ bit indicates whether a process recently modified the contents of a page. Valid bit, refer bit b) Reference bit, modify bit Valid bit, modify bit d) Modify bit, valid bit The algorithm for closing a device \_\_\_ 3) a) P close b) D close c) Close d) None 4) retrieves the cumulative times that the calling process spent executing in user mode and kernel mode. Stime a) Ctime b) **Times** d) rTime c) 5) When a process accesses a page that is not a part of its working set, it incurs \_\_\_\_\_ page fault. a) Validity b) Invalid d) Recent c) Modification 6) Which of the following acts as kernel data structure for file \_\_\_\_\_? b) Inode table c) Process table d) Region table 7) Buffer header contains Device num, block number, status, five ptr Data number, block number, statics, six ptr b) Hash number, block number, stats, six ptr c) None 8) Race for free buffer occurs in \_\_\_\_\_ a) First Scenario b) Second Scenario

d) Fifth Scenario

Fourth Scenario

c)

Set S

9)	iget a) c)	algorithm is used for allocation of disk inodes allocation of free buffer	,	allocation of in-core inode allocation of file number
10)	Unix a) c)	kernel minimizes the frequency of Scheduling Cache memory		access by use of Buffer cache I/O redirection
11)	Whica)	ch algorithm is used for conversion Iname Namei		pathname to an inode? Pathnamei Bmap
12)	argu	OPEN system call for file system ir ments Pathname, inode number Pathname, flags, mode	b)	Pathname, user, mode
13)	Boot a) c)	t strap code required to boot and in Super block Inode list		ze the O.S. is kept in  Boot block  Data block
14)	Sign a) c)	als are handled when process is ch User to kernel Both a and b	_	ing its state from  Kernel to user  None

Seat	Set	9
No.	Set	3

### T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering	013
		UNIX OPERATING SYSTEM	
•		ate: Monday, 25-11-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	Att a) b) c) d) e)	empt any three of the following questions.  Explain "bread" system call algorithm in detail.  What are processor execution level and how it influence the interhandling?  Describe the function open() system call.  Write a short note on buffer header.  Write a short note on inode assignment to a new file.	<b>12</b> rupt
Q.3	Atta a) b) c) d)	empt any two of the following questions.  Explain Kernel stack and user stack in detail with example.  Explain the algorithm for conversion of path name to inode.  Describe allocation and release of disk block (alloc and free algor Explain what are indoes? Describe in-core inode and disk inode.	16 ithm)
		Section – II	
Q.4	Atta a) b) c) d) e)	empt any three of the following questions.  Write and explain allocreg algorithm.  Write and explain ioctl system call.  Write a short note on clists.  What is terminal driver? List functions of line discipline.  Explain dupreg algorithm in detail.	12
Q.5	a) b) c)	empt any two of the following questions.  What is context of a process? Explain all the fields of user level c register level context and system level context.  Describe the major data structure supported by kernel for demand What is region? List fields in region table entry. Explain any one of in detail.	d paging. operation
	d)	What is validity page fault? Explain the function of a validity page handler with the help of algorithm.	tault

	1	
Seat	Set	D
No.	Set	

		T.E. (Part – II) (Old) (CGPA)  Computer Science SOFTWARE E	and	Engineering	
		e: Tuesday, 26-11-2019 0 AM To 01:00 PM		Max. Marks	s: <b>7</b> 0
nstr	uctio	ns: 1) Q. 1 is compulsory. It should book page No.3. Each question 2) Don't forget to mention Question	on carr		
		MCQ/Objective	Гуре		
		30 Minutes		Marks	
Q.1		ose the correct alternatives from ence.	the op	tions and rewrite the	14
	1)	<ul><li>contains the component of sa</li><li>Data document</li><li>Report files</li></ul>	the stru b) d)	ucture of the dataflow diagram. Data dictionary SRS documents	
	2)	The relationship between the various shown by a) Association c) DFD	bus clas b) d)	Aggregation None	
	3)	Which of the following method pro- and developer?  a) Informal approach c) Both	vides t b) d)	he interaction between clients  Prototyping  Only b	
	4)	Which of the following characterist validation?  a) Ambiguous c) Modifiable	ics of a b) d)	an SRS leads to verification &  Verifiable  Traceable	
	5)	Which of the following is not an erra) Omission c) Incorrect fact	or und b) d)	er validation? Inconsistency Missing process	
	6)	<ul><li>shows the strength of intercent</li><li>Coupling</li><li>Abstraction</li></ul>	onnec b) d)	tion between the models. Cohesion None	
	7)	Function oriented metric were first a measure called the  a) Barry Boehm, KLOC. c) Albrecht, Function point.	propos b) d)	sed by and he suggested  Barry Boehm, Function point.  Albrecht, KLOC.	
	8)	Software Quality is  a) Conformance to requirements c) Level of satisfaction	b) d)	Fitness for the purpose All of the above	

### Set P

9)	Defect rate is						
	<ul><li>a) Number of defects per</li><li>b) Number of defects per</li><li>c) Number of defects per</li><li>d) All of the above</li></ul>	er function point					
10)	CMM level 1 has a) 6 KPAs c) 0 KPAs	b) d)	2 KPAs None of the above				
11)	<ul><li>CMM model is a technique</li><li>a) Improve the software</li><li>b) Automatically develoin</li><li>c) Test the software</li><li>d) All of the above</li></ul>	process					
12)	Total numbers of maturin a) 1 c) 5	g levels in CMM b) d)	are 3 7				
13)	CMM was developed at _ a) Harvard University c) Carnegie Mellon University	b)	Cambridge University Maryland University				
14)	Pareto Analysis is one of a) Review c) Milestone Analysis	the primary tool b) d)					

	 ,	
Seat	Set	D
No.	Set	

#### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science and Engineering** SOFTWARE ENGINEERING

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Q.2 Attempt any three. 12 Explain Software Development Process. Differentiate between function oriented and object oriented design. b) Mention the methods of problem analysis and explain any one in detail. c) Define me following terms: d) 1) Class diagram 2) Association 3) Attribute 4) Object Explain how the prototyping model differs with the waterfall model. Attempt any two. 16 Q.3 Explain the characteristics of Software Requirement Specifications. Explain UML diagram in detail. b) Write a note on design notation and specification. Section - II Attempt any three. 12 Q.4 Explain Defect Prevention Planning. Differentiate between static testing and dynamic testing. b) Explain black box testing. c) Explain Project Closure Analysis. d) Attempt any two. 16 Q.5 Explain Project Monitoring and control cycle. a) Explain Iterative Project Management Life. b)

Explain Configuration Management Process.

Seat	Sat	0
No.	Set	Q

		T.E	E. (Part – II) (Old) (CGPA) E Computer Science : SOFTWARE EN	and	Engineering	
			uesday, 26-11-2019 M To 01:00 PM		Max	k. Marks: 70
Instr	uctio		<ol> <li>Q. 1 is compulsory. It should be book page No.3. Each question</li> <li>Don't forget to mention Question</li> </ol>	n carr	ies one mark.	
			MCQ/Objective Ty	уре (	Questions	
Dura	ition: 3	80 M	inutes			Marks: 14
Q.1	Cho sent		the correct alternatives from the	ne op	tions and rewrite the	14
	1)	So	ftware Quality is  Conformance to requirements  Level of satisfaction	b) d)	Fitness for the purpose All of the above	
	2)		Number of defects per unit of si	point		
	3)	a)	IM level 1 has 6 KPAs 0 KPAs	b) d)	2 KPAs None of the above	
	4)	a) b) c)	IM model is a technique to Improve the software process Automatically develop the softw Test the software All of the above			
	5)	Tota)	tal numbers of maturing levels in 1 5	CMM b) d)	are 3 7	
	6)	CM a) c)	IM was developed at Harvard University Carnegie Mellon University	b) d)	Cambridge University Maryland University	
	7)	Pa a) c)	reto Analysis is one of the primar Review Milestone Analysis	y tool b) d)	for  Quality Management  None of the above	
	8)	a) c)	contains the component of th Data document Report files	b) d)	octure of the dataflow diagra Data dictionary SRS documents	am.

Set Q

9)	The relationship between the various classes in a software project can be shown by					
		Association DFD	b) d)	Aggregation None		
10)		ich of the following method provic I developer?	les th	e interaction between clients		
	a) c)	Informal approach Both	b) d)	Prototyping Only b		
11)		ich of the following characteristics dation?	of a	n SRS leads to verification &		
	a)	Ambiguous	b)	Verifiable		
	c)	Modifiable	d)	Traceable		
12)	Wh	ich of the following is not an error	unde	er validation?		
,	a)	Omission	b)	Inconsistency		
	c)	Incorrect fact	d)	Missing process		
13)		shows the strength of intercor	necti	on between the models.		
,		Coupling	b)	Cohesion		
	c)	Abstraction	d)	None		
14)		nction oriented metric were first processure called the	opos	ed by and he suggested		
		Barry Boehm, KLOC.	b)	Barry Boehm, Function point.		
	c)	Albrecht, Function point.	d)			

Seat	Set	
No.	Set	Q

### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science and Engineering**

SOFTWARE ENGINEERING Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I 12 Q.2 Attempt any three. Explain Software Development Process. Differentiate between function oriented and object oriented design. b) c) Mention the methods of problem analysis and explain any one in detail. Define me following terms: d) Class diagram 2) Association 3) Attribute 4) Object Explain how the prototyping model differs with the waterfall model. Q.3 Attempt any two. 16 Explain the characteristics of Software Requirement Specifications. a) Explain UML diagram in detail. Write a note on design notation and specification. Section - II 12 Attempt any three. Explain Defect Prevention Planning. Differentiate between static testing and dynamic testing. b) Explain black box testing. c) Explain Project Closure Analysis. d) 16 **Q.5** Attempt any two. Explain Project Monitoring and control cycle. a) Explain Iterative Project Management Life. b)

Explain Configuration Management Process.

c)

Seat	Sat	D
No.	Set	K

		T.E	E. (Part – II) (Old) (CGPA) E Computer Science SOFTWARE EN	and	Engineering	
•			uesday, 26-11-2019 // To 01:00 PM		Max	x. Marks: 70
Insti	ructio		Q. 1 is compulsory. It should b book page No.3. Each questio     Don't forget to mention Question	n carr	ies one mark.	
_			MCQ/Objective T	ype (	Questions	
			inutes			Marks: 14
Q.1	Cho sent		the correct alternatives from t	пе ор	tions and rewrite the	14
	1)		nich of the following is not an erro Omission Incorrect fact	or und b) d)	er validation? Inconsistency Missing process	
	2)	a) c)	shows the strength of interco Coupling Abstraction	onnec b) d)	tion between the models. Cohesion None	
	3)		nction oriented metric were first pneasure called the Barry Boehm, KLOC. Albrecht, Function point.	b) d)	sed by and he sugge Barry Boehm, Function po Albrecht, KLOC.	
	4)	Sof a) c)	ftware Quality is Conformance to requirements Level of satisfaction	b) d)	Fitness for the purpose All of the above	
	5)		fect rate is  Number of defects per million li  Number of defects per function  Number of defects per unit of si  All of the above	point		
	6)	CM a) c)	IM level 1 has 6 KPAs 0 KPAs	b) d)	2 KPAs None of the above	
	7)	CIV a) b) c) d)	IM model is a technique to Improve the software process Automatically develop the softw Test the software All of the above			
	8)	Tot a) c)	tal numbers of maturing levels in 1 5	CMM b) d)	are 3 7	

Set R

9)	CMM was developed at  a) Harvard University c) Carnegie Mellon University	b)	Cambridge University Maryland University
10)	Pareto Analysis is one of the prima a) Review	•	for Quality Management
	c) Milestone Analysis	d)	None of the above
11)	contains the component of tall a) Data document c) Report files	the stru b) d)	ucture of the dataflow diagram. Data dictionary SRS documents
12)	The relationship between the various shown by	us clas	sses in a software project can be
	<ul><li>a) Association</li><li>c) DFD</li></ul>	b) d)	Aggregation None
13)	Which of the following method pro- and developer?	vides th	ne interaction between clients
	<ul><li>a) Informal approach</li><li>c) Both</li></ul>	b) d)	Prototyping Only b
14)	Which of the following characterist validation?	ics of a	an SRS leads to verification &
	a) Ambiguous	b)	Verifiable
	c) Modifiable	d)	Traceable

Seat	_	
No.	Set	R

### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science and Engineering**

SOFTWARE ENGINEERING Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Q.2 Attempt any three. 12 Explain Software Development Process. Differentiate between function oriented and object oriented design. b) Mention the methods of problem analysis and explain any one in detail. c) Define me following terms: d) 1) Class diagram 2) Association 3) Attribute 4) Object Explain how the prototyping model differs with the waterfall model. Attempt any two. 16 Q.3 Explain the characteristics of Software Requirement Specifications. Explain UML diagram in detail. b) Write a note on design notation and specification. Section - II Attempt any three. 12 Q.4 Explain Defect Prevention Planning. Differentiate between static testing and dynamic testing. b) Explain black box testing. c) Explain Project Closure Analysis. d) Attempt any two. 16 Q.5 Explain Project Monitoring and control cycle. a) Explain Iterative Project Management Life. b)

Explain Configuration Management Process.

Seat	Sat	6
No.	Set	3

## T.F. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science	and	Engineering	,
-		e: Tuesday, 26-11-2019 0 AM To 01:00 PM			x. Marks: 70
Instr	ructio	ns: 1) Q. 1 is compulsory. It should be book page No.3. Each questic 2) Don't forget to mention Quest	on carr	ies one mark.	
		MCQ/Objective 1	Гуре	Questions	
Dura	ation: 3	30 Minutes			Marks: 14
Q.1		ose the correct alternatives from t ence.	the op	tions and rewrite the	14
	1)	CMM level 1 has a) 6 KPAs c) 0 KPAs	b) d)	2 KPAs None of the above	
	2)	<ul> <li>cMM model is a technique to</li> <li>a) Improve the software process</li> <li>b) Automatically develop the software</li> <li>c) Test the software</li> <li>d) All of the above</li> </ul>			
	3)	Total numbers of maturing levels in a) 1 c) 5	n CMM b) d)	are 3 7	
	4)	CMM was developed at a) Harvard University c) Carnegie Mellon University	b) d)	Cambridge University Maryland University	
	5)	Pareto Analysis is one of the prima a) Review c) Milestone Analysis	ary tool b) d)	for Quality Management None of the above	
	6)	<ul><li>contains the component of t</li><li>a) Data document</li><li>c) Report files</li></ul>	the stru b) d)	ucture of the dataflow diago Data dictionary SRS documents	ram.
	7)	The relationship between the vario shown by a) Association c) DFD	us clas b) d)	sses in a software project of Aggregation None	can be
	8)	Which of the following method provand developer?  a) Informal approach c) Both	vides ti b) d)	he interaction between clie Prototyping Only b	ents

Set S

9)		ich of the following characteristics dation?	s or a	n SRS leads to verification &
	,	Ambiguous	b)	Verifiable
	c)	Modifiable	d)	Traceable
10)	Wh	ich of the following is not an error	unde	er validation?
	a)	Omission	,	Inconsistency
	c)	Incorrect fact	d)	Missing process
11)		shows the strength of intercor	nnecti	ion between the models.
•		Coupling	b)	
	c)	Abstraction	d)	None
12)		nction oriented metric were first properties of the contract of the properties.	ropos	ed by and he suggested
		Barry Boehm, KLOC.	b)	Barry Boehm, Function point.
	c)	Albrecht, Function point.	ď)	•
13)	Sof	tware Quality is		
,		Conformance to requirements	b)	Fitness for the purpose
	c)	Level of satisfaction	d)	All of the above
14)	Def	ect rate is		
,	a)		es of	source code
	,	Number of defects per function p		
	,	Number of defects per unit of size		software
	d)	All of the above		

Seat	Set	9
No.	Set	7

### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science and Engineering**

SOFTWARE ENGINEERING Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I 12 Q.2 Attempt any three. Explain Software Development Process. Differentiate between function oriented and object oriented design. b) c) Mention the methods of problem analysis and explain any one in detail. Define me following terms: d) Class diagram 2) Association 3) Attribute 4) Object Explain how the prototyping model differs with the waterfall model. Q.3 Attempt any two. 16 Explain the characteristics of Software Requirement Specifications. a) Explain UML diagram in detail. Write a note on design notation and specification. Section - II 12 Attempt any three. Explain Defect Prevention Planning. Differentiate between static testing and dynamic testing. b) Explain black box testing. c) Explain Project Closure Analysis. d) Q.5 Attempt any two. 16 Explain Project Monitoring and control cycle. a)

Explain Iterative Project Management Life.

Explain Configuration Management Process.

b)

c)

Seat	0	
No.	Set	<u> </u>

### T.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

			Computer Science a MOBILE COM				
•			ednesday, 27-11-2019 // To 01:00 PM		Max	. Marks:	70
Instr	uctior	2	<ol> <li>Q. No. 1 is compulsory and sho book.</li> <li>Figures to the right indicate full</li> <li>Make suitable assumptions if n</li> </ol>	mark	S.		er
			MCQ/Objective Ty	pe C	Questions		
Dura	tion: 3	0 M		•		Marks:	14
Q.1	<b>Choo</b> 1)	In I a)	the correct alternatives from th MANET information packets are to Store and forward Take and forward	-	nitted in manner.	ence.	14
	2)	a) c)	. •	b) d)	Transaction oriented TCP MTCP		
	3)	a) c)	is popularly known as Wi-F IEEE 802.11a IEEE 802.11g		IEEE 802.11b IEEE 802.11n		
	4)	"Ev a) c)	rery terminal has its own frequenc SDMA FDMA	b) b) d)	interrupted", is true for TDMA CDMA	·	
	5)	Exa a) c)	ample of explicit reservation is PRMA Reservation TDMA	b)	 DAMA CSMA		
	6)	a)	read spectrum is resistant to Narrow band Wide band	b)			
	7)	Gro a) c)		b) d)	< 1 MHz < 4 MHz		
	8)	"Sp a) c)	oread the spectrum using orthogo CDMA SDMA	nal co b) d)	odes", this idea is used in _ TDMA FDMA	<u></u> .	
	9)	Nu	mber of devices can be connecte	d in o	ne piconet is		

b)

End to End semantic is preserved by \_\_\_\_\_ in mobile network.

d)

b)

d)

8

S-TCP

None of these

a) 6

c) 10

a) I-TCP

c) Traditional TCP

Set P

11)	0 0	ts and nome agents ad messages.	vertis	e their presence periodically
	a) Agent ad	vertisement	b)	Foreign agent advertisement
	c) Home ag	ent advertisement	d)	Periodic agent advertisement
12)	Android appli	cations are made up of		·
,	a) Loosely t	ied components	b)	Tightly tied components
	c) Coupled	components	d)	None of above
13)	The stations	and access points whicl	h are	within the same radio coverage
	form a	•		
	a) BSS		b)	IBSS
	c) ESS		d)	None
14)	An associated	d BS collects the inform	ation	gathered by the sensors on a
	basis			
	a) data-cen	tric	b)	data-collection
	c) data-own	er	d)	None of these

	 ,	
Seat	Set	D
No.	Set	

### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering MOBILE COMPUTING

**MOBILE COMPUTING** Day & Date: Wednesday, 27-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions compulsory. 2) Figures to the right indicate full marks. 3) Make suitable assumptions if necessary and state them clearly. Section - I Q.2 Attempt any four of the following questions. 16 What is spread spectrum? Explain with neat diagram. Differentiate among 1G, 2G, 3G, 4G. b) Explain Near and Far terminal. c) Compare SDMA, TDMA, FDMA, CDMA. d) Mention the applications of wireless communications and briefly explain e) each. Q.3 Attempt any one of the following questions. 06 Illustrate CDMA, two transmitters A and B are transmitting at same frequency and power, the keys and data of A and B are as given below. Ad = 1, Ak = 110110Bd = 0, Bk = 101101 8Explain IEEE 802.15.1 Bluetooth architecture with neat diagram. Explain functional architecture of GSM system with suitable diagram. 06 Section - II Q.5 Attempt any four of the following questions. 16 Discuss how packet delivery takes place to and from mobile node with suitable diagram. Write short note on mechanisms of TCP that influence the efficiency of b) TCP in mobile Environment. Explain four main component of Android application. c) Give DHCP configuration. Discuss in detail how client gets initialized via d) DHCP. Compare RFID and NFC. e) **Q.6** Attempt any one of the following questions. 06 Explain overall architecture of android system with suitable diagram. Explain with neat diagram function NFC architecture. What is meant by IP micro mobility? List various solutions to resolve this 06 Problem. Explain any two details.

## T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering MOBILE COMPUTING

Day & Date: Wednesday, 27-11-2019	Max. Marks: 70
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Time: 10:00 AM To 01:00 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

			book.		
			2) Figures to the right indicate full		
		3	Make suitable assumptions if n	ecess	sary and state them clearly.
D	4: O	O N 4:	MCQ/Objective Ty	pe C	
	tion: 3				Marks: 14
Q.1	1)	"Sp	the correct alternatives from the read the spectrum using orthogo CDMA SDMA		tions and rewrite the sentence. 14 odes", this idea is used in  TDMA FDMA
	2)	Nui a) c)		d in o b) d)	ne piconet is 8 4
	3)		d to End semantic is preserved by I-TCP Traditional TCP		in mobile network. S-TCP None of these
	4)	usii a)	eign agents and home agents ad ng special messages. Agent advertisement Home agent advertisement	b)	se their presence periodically  Foreign agent advertisement  Periodic agent advertisement
	5)	a)	droid applications are made up of Loosely tied components Coupled components	b)	Tightly tied components
	6)		e stations and access points whic m a BSS ESS	h are b) d)	within the same radio coverage  IBSS None
	7)	An a) c)	associated BS collects the inform basis. data-centric data-owner	b) d)	gathered by the sensors on a data-collection None of these
	8)	In M a) c)	MANET information packets are to Store and forward Take and forward	ransm b) d)	nitted in manner. Save and forward Get and forward
	9)	a)	retransmits only lost data. Snooping TCP Selective retransmission	p)	Transaction oriented TCP

Set Q

10)		is popularly known as vvi-F	1.	
·	a)	IEEE 802.11a	b)	IEEE 802.11b
	c)	IEEE 802.11g	d)	IEEE 802.11n
11)	"Ev	ery terminal has its own frequenc	y, uni	interrupted", is true for
·	a)	SDMA	b)	TDMA
	c)	FDMA	d)	CDMA
12)	Exa	ample of explicit reservation is		
,	a)	PRMA .	b)	DAMA
	c)	Reservation TDMA	d)	CSMA
13)	Spr	ead spectrum is resistant to		interference.
,	a)	Narrow band	b)	Broad band
	c)	Wide band	d)	All of the above
14)	Gro	ound waves are		
,	a)	< 2 MHz	b)	< 1 MHz
	c)	< 3 MHz	d)	< 4 MHz

Seat	Set	
No.	Set	Q

### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering MOBILE COMPUTING

**MOBILE COMPUTING** Day & Date: Wednesday, 27-11-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions compulsory. 2) Figures to the right indicate full marks. 3) Make suitable assumptions if necessary and state them clearly. Section - I Q.2 Attempt any four of the following questions. 16 What is spread spectrum? Explain with neat diagram. Differentiate among 1G, 2G, 3G, 4G. b) Explain Near and Far terminal. c) Compare SDMA, TDMA, FDMA, CDMA. d) Mention the applications of wireless communications and briefly explain e) each. Q.3 Attempt any one of the following questions. 06 Illustrate CDMA, two transmitters A and B are transmitting at same frequency and power, the keys and data of A and B are as given below. Ad = 1, Ak = 110110Bd = 0, Bk = 101101 8**b)** Explain IEEE 802.15.1 Bluetooth architecture with neat diagram. Explain functional architecture of GSM system with suitable diagram. 06 Section - II Q.5 Attempt any four of the following questions. 16 Discuss how packet delivery takes place to and from mobile node with suitable diagram. Write short note on mechanisms of TCP that influence the efficiency of b) TCP in mobile Environment. Explain four main component of Android application. c) Give DHCP configuration. Discuss in detail how client gets initialized via d) DHCP. Compare RFID and NFC. e) **Q.6** Attempt any one of the following questions. 06 Explain overall architecture of android system with suitable diagram. Explain with neat diagram function NFC architecture. What is meant by IP micro mobility? List various solutions to resolve this 06 Problem. Explain any two details.

Seat	_	
No.	Set	R

# T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering MOBILE COMPUTING

Day & Date: Wednesday, 27-11-2019	Max. Marks: 70
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Time: 10:00 AM To 01:00 PM

Instr	uctio	ns: 1) Q. No. 1 is compulsory and sho	ould b	pe solved in first 30 minutes in answ	ver
		<ul><li>2) Figures to the right indicate full</li><li>3) Make suitable assumptions if r</li></ul>			
		MCQ/Objective Ty	ype (	Questions	
Dura	ition: 3	30 Minutes	•	Marks	: 14
Q.1	Cho	ose the correct alternatives from th	пе ор	tions and rewrite the sentence.	14
	1)	Example of explicit reservation is		<del></del> :	
		a) PRMA	b)	DAMA	
		c) Reservation TDMA	d)	CSMA	
	2)	Spread spectrum is resistant to			
		a) Narrow band	b)	Broad band	
		c) Wide band	d)	All of the above	
	3)	Ground waves are			
		a) < 2 MHz	b)	< 1 MHz	
		c) < 3 MHz	d)	< 4 MHz	
	4)	"Spread the spectrum using orthogo			
		a) CDMA	p)	TDMA	
		c) SDMA	d)	FDMA	
	5) Number of devices can be connected in			•	
		a) 6	b)	8	
		c) 10	d)	4	
	6)	End to End semantic is preserved b			
		a) I-TCP	b)	S-TCP	
		c) Traditional TCP	d)	None of these	
	7)	Foreign agents and home agents ac using special messages.	dverti	se their presence periodically	
		<ul> <li>a) Agent advertisement</li> </ul>	b)	0 0	
		c) Home agent advertisement	d)	Periodic agent advertisement	
	8)	Android applications are made up of	f		
		<ul> <li>a) Loosely tied components</li> </ul>	b)	Tightly tied components	
		c) Coupled components	d)	None of above	
	9)	The stations and access points whice form a	ch are	within the same radio coverage	
		a) BSS	b)	IBSS	
		c) FSS	ď	None	

Set R

10)	<ol> <li>An associated BS collects the information gathered by the sensors of the collects.</li> </ol>				
	a) data-centric	b)	data-collection		
	c) data-owner	ď)	None of these		
11)	In MANET information packets are tr	ansm	nitted in manner.		
	<ul> <li>a) Store and forward</li> </ul>	b)	Save and forward		
	c) Take and forward	d)	Get and forward		
12)	retransmits only lost data.				
,	a) Snooping TCP	b)	Transaction oriented TCP		
	c) Selective retransmission	ď)	MTCP		
13)	is popularly known as Wi-F	i.			
,	a) IEEE 802.11a	b)	IEEE 802.11b		
	c) IEEE 802.11g	ď)	IEEE 802.11n		
14)	"Every terminal has its own frequence	y, uni	interrupted", is true for		
,	a) SDMA	b)	TDMA		
	c) FDMA	ď)	CDMA		

Seat No.		Set	R
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# T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering MOBILE COMPUTING

		MOBILE COMPUTING		
•		e: Wednesday, 27-11-2019 00 AM To 01:00 PM	Max. Marks: 5	6
Instr	uctio	<ul><li>ns: 1) All questions compulsory.</li><li>2) Figures to the right indicate full marks.</li><li>3) Make suitable assumptions if necessary and state them cle</li></ul>	early.	
		Section – I		
Q.2	Atte a) b) c) d) e)	empt any four of the following questions.  What is spread spectrum? Explain with neat diagram.  Differentiate among 1G, 2G, 3G, 4G.  Explain Near and Far terminal.  Compare SDMA, TDMA, FDMA, CDMA.  Mention the applications of wireless communications and briefly each.		16
Q.3	Atte a) b)	empt any one of the following questions.  Illustrate CDMA, two transmitters A and B are transmitting at sar frequency and power, the keys and data of A and B are as given Ad = 1, Ak = 110110  Bd = 0, Bk = 101101 8  Explain IEEE 802.15.1 Bluetooth architecture with neat diagram.	ne below.	)6
Q.4	Ехр	lain functional architecture of GSM system with suitable diagram.	C	)6
		Section – II		
Q.5	Atte a) b)	empt any four of the following questions.  Discuss how packet delivery takes place to and from mobile nod suitable diagram.  Write short note on mechanisms of TCP that influence the efficien	e with	16
	c) d)	TCP in mobile Environment.  Explain four main component of Android application.  Give DHCP configuration. Discuss in detail how client gets initial DHCP.  Compare RFID and NFC.	·	
Q.6	•	empt any one of the following questions.  Explain overall architecture of android system with suitable diagred Explain with neat diagram function NFC architecture.		)6
Q.7		at is meant by IP micro mobility? List various solutions to resolve to	his C	)6

Seat	Set	6
No.	Set	3

### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science and Engineering MOBILE COMPUTING**

Day & Date: Wednesday, 27-11-2019	Max. Marks: 70
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Time: 10:00 AM To 01:00 PM

Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

		<ul><li>2) Figures to the right indicate ful</li><li>3) Make suitable assumptions if r</li></ul>			
		MCQ/Objective T	уре (		
Dura	tion: 3	0 Minutes		Marks	: 14
Q.1	<b>Choo</b> 1)	ose the correct alternatives from the End to End semantic is preserved be a) I-TCP c) Traditional TCP	•		14
	2)	Foreign agents and home agents ac using special messages. a) Agent advertisement c) Home agent advertisement	dvertis b) d)	se their presence periodically  Foreign agent advertisement  Periodic agent advertisement	
	3)	<ul><li>Android applications are made up o</li><li>a) Loosely tied components</li><li>c) Coupled components</li></ul>	f b) d)	Tightly tied components  None of above	
	4)	The stations and access points which form a  a) BSS c) ESS	ch are b) d)	within the same radio coverage  IBSS  None	
	5)	An associated BS collects the informula basis.  a) data-centric c) data-owner	matior b) d)	data-collection None of these	
	6)	In MANET information packets are to a) Store and forward c) Take and forward	transn b) d)	nitted in manner. Save and forward Get and forward	
	7)	<ul><li>retransmits only lost data</li><li>a) Snooping TCP</li><li>c) Selective retransmission</li></ul>	i. b) d)	Transaction oriented TCP MTCP	
	8)	a) IEEE 802.11a c) IEEE 802.11g	Fi. b) d)	IEEE 802.11b IEEE 802.11n	
	9)	"Every terminal has its own frequent a) SDMA c) FDMA	cy, un b) d)	ninterrupted", is true for TDMA CDMA	

Set S

10)	Exa	mple of explicit reservation is		
,		PRMA	b)	DAMA
	c)	Reservation TDMA	ď)	CSMA
11)	Spre	ead spectrum is resistant to		interference.
	a)	Narrow band	b)	Broad band
	c)	Wide band	d)	All of the above
12)	Gro	und waves are		
	a)	< 2 MHz	b)	< 1 MHz
	c)	< 3 MHz	d)	< 4 MHz
13)	"Spr	read the spectrum using orthogo	nal co	odes", this idea is used in
	a)	CDMA	b)	TDMA
	c)	SDMA	ď)	FDMA
14)	Nun	nber of devices can be connected	d in o	ne piconet is
	a)	6	b)	8
	c)	10	ď)	4

Seat No.	Set S
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## T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering MOBILE COMPUTING

		MOBILE COMPUTING	
-		e: Wednesday, 27-11-2019 0 AM To 01:00 PM	Max. Marks: 56
Instru	uctio	<ul><li>ns: 1) All questions compulsory.</li><li>2) Figures to the right indicate full marks.</li><li>3) Make suitable assumptions if necessary and state them cle</li></ul>	early.
		Section – I	
Q.2	Atte a) b) c) d)	mpt any four of the following questions. What is spread spectrum? Explain with neat diagram. Differentiate among 1G, 2G, 3G, 4G. Explain Near and Far terminal. Compare SDMA, TDMA, FDMA, CDMA. Mention the applications of wireless communications and briefly each.	16 explain
Q.3	Atte a) b)	mpt any one of the following questions.  Illustrate CDMA, two transmitters A and B are transmitting at sar frequency and power, the keys and data of A and B are as given Ad = 1, Ak = 110110  Bd = 0, Bk = 101101 8  Explain IEEE 802.15.1 Bluetooth architecture with neat diagram.	below.
Q.4	Expl	ain functional architecture of GSM system with suitable diagram.	06
		Section – II	
Q.5	Atte a) b) c) d)	mpt any four of the following questions.  Discuss how packet delivery takes place to and from mobile nod suitable diagram.  Write short note on mechanisms of TCP that influence the efficient TCP in mobile Environment.  Explain four main component of Android application.  Give DHCP configuration. Discuss in detail how client gets initial DHCP.	ency of
	e)	Compare RFID and NFC.	
Q.6	Atte a) b)	mpt any one of the following questions.  Explain overall architecture of android system with suitable diagr  Explain with neat diagram function NFC architecture.	<b>06</b> ram.
Q.7		It is meant by IP micro mobility? List various solutions to resolve to the second seco	his <b>06</b>

Seat	Set	D
No.	Set	Г

		T.E. (Part – II) (Old) (CGPA) Computer Scien	•	
		<b>NETWORK SETUP &amp;</b>	MANA	GEMENT TOOLS
•		e: Thursday, 28-11-2019 00 AM To 12:00 PM		Max. Marks: 50
Insti	ructio	<b>ns:</b> 1) Q. No. 1 is compulsory and book.	should b	be solved in first 20 minutes in answer
		<ol><li>Figures to right indicate max</li></ol>	ximum m	narks.
Dura	dian. (	MCQ/Objective	Type	
		20 Minutes	. (	Marks: 10
Q.1	1)	ose the correct alternatives from An IPv6 address is bits lo a) 128 c) 64		tions and rewrite the sentence. 10  32  None of these
	2)	Hub is a multiport  a) Bridge c) Repeater	b) d)	Router Gateway
	3)	SOA from the web service is a) Set Oriented Architecture c) both a and b	b)	Service Oriented Architecture None of these
	4)	Which of the following filters the a) Sality c) Firewall	unwante b) d)	d information? Logic Bomb All of these
	5)	A modem is a network device what a) Converts analog signal to digit b) Convert analog signal to digit c) Acts as a relay d) None of these	gital sign	al
	6)	management is the set correct malfunctions in a network a) Network c) Fault		ons that detect, isolate and  Error  Device
	7)	OSPF is used for  a) Shortest path routing of pack b) Simulation of packets c) Creation of packets d) None of these	cets	
	8)	Switch works at layer. a) Physical c) Data Link	b) d)	Session All
	9)	Which is the fastest port for data a) USB 3.0 c) Serial	transfer b) d)	? FireWire 800 Parallel

Set P

10) MAC address \_\_\_\_\_ bits. a) 64 c) 16

b) d) 32

Seat	Set	D
No.	Set	

### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering NETWORK SETUP & MANAGEMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. No. 2 to Q. No. 7.

2) Figures to right indicate maximum marks

Attempt any four. 40

- **Q.2** Write a short note on Hub. Explain Hub Configurations.
- **Q.3** How an Internetwork is designed? Explain how the Remote Networks are connected.
- **Q.4** Write a note on Client Server Authentication Systems. Explain Host/User Authentication.
- **Q.5** Write a note on Configuration Management.
- **Q.6** Explain Fault Management. Explain Fault Location and Isolation Techniques in details.
- Q.7 Explain Web Based Enterprise Management in detail.

Seat	Set	
No.	Set	Q

# T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering NETWORK SETUP & MANAGEMENT TOOLS

•		e: Thursday, 28-11-2019 0 AM To 12:00 PM		Max. Marks: 50
Instr	uction	book.		be solved in first 20 minutes in answer
		2) Figures to right indicate maxir	num n	narks.
_		MCQ/Objective T	ype	
		0 Minutes		Marks: 10
Q.1	<b>Choo</b> 1)	ose the correct alternatives from t management is the set of correct malfunctions in a network.	functi	ons that detect, isolate and
		<ul><li>a) Network</li><li>c) Fault</li></ul>	b) d)	Error Device
	2)	OSPF is used for  a) Shortest path routing of packet b) Simulation of packets c) Creation of packets d) None of these	S	
	3)	Switch works at layer. a) Physical c) Data Link	b) d)	Session All
	4)	Which is the fastest port for data tra a) USB 3.0 c) Serial	ansfer b) d)	? FireWire 800 Parallel
	5)	MAC address bits. a) 64 c) 16	b) d)	32 48
	6)	An IPv6 address is bits Ion a) 128 c) 64	g. b) d)	32 None of these
	7)	Hub is a multiport  a) Bridge c) Repeater	b) d)	Router Gateway
	8)	SOA from the web service is a) Set Oriented Architecture c) both a and b	 b) d)	Service Oriented Architecture None of these
	9)	Which of the following filters the una) Sality c) Firewall	wante b) d)	d information? Logic Bomb All of these

Set Q

- 10) A modem is a network device which.
  - a) Converts analog signal to digital signal
  - b) Convert analog signal to digital datac) Acts as a relay

  - d) None of these

Seat	Set	
No.	Set	Q

### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering NETWORK SETUP & MANAGEMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. No. 2 to Q. No. 7.

2) Figures to right indicate maximum marks

Attempt any four. 40

- **Q.2** Write a short note on Hub. Explain Hub Configurations.
- **Q.3** How an Internetwork is designed? Explain how the Remote Networks are connected.
- **Q.4** Write a note on Client Server Authentication Systems. Explain Host/User Authentication.
- **Q.5** Write a note on Configuration Management.
- **Q.6** Explain Fault Management. Explain Fault Location and Isolation Techniques in details.
- Q.7 Explain Web Based Enterprise Management in detail.

	_	
Seat	Set	Ь
No.	Set	K

# T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science NETWORK SETUP & M.						
Day a	Max. Marks: 50							
Instr	uction	<b>ns:</b> 1) Q. No. 1 is compulsory and sh book.	ould b	e solved in first 20 minutes in answer				
<ol><li>Figures to right indicate maximum marks.</li></ol>								
MCQ/Objective Type Questions								
Duration: 20 Minutes Mar								
Q.1 Choose the correct alternatives from the options and rewrite the sentence								
	1)	Which is the fastest port for data tra a) USB 3.0 c) Serial	ansfer? b) d)	? FireWire 800 Parallel				
	2)	MAC address bits. a) 64 c) 16	b) d)	32 48				
	3)	An IPv6 address is bits long a) 128 c) 64	,	32 None of these				
	4)	Hub is a multiport  a) Bridge c) Repeater	b) d)	Router Gateway				
	5)	SOA from the web service is a) Set Oriented Architecture c) both a and b	 b) d)	Service Oriented Architecture None of these				
	6)	Which of the following filters the una) Sality c) Firewall	wanted b) d)	d information? Logic Bomb All of these				
	7)	<ul> <li>A modem is a network device which</li> <li>a) Converts analog signal to digital</li> <li>b) Convert analog signal to digital</li> <li>c) Acts as a relay</li> <li>d) None of these</li> </ul>	al signa	al				
	8)	management is the set of correct malfunctions in a network.  a) Network c) Fault	function b) d)	ons that detect, isolate and  Error  Device				
	9)	OSPF is used for  a) Shortest path routing of packet b) Simulation of packets c) Creation of packets d) None of these	S					

Set R

10) Switch works at \_\_\_\_\_ layer.
a) Physical
c) Data Link

Session b)

ΑII d)

Seat	Set	D
No.	Jei	K

### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering NETWORK SETUP & MANAGEMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. No. 2 to Q. No. 7.

2) Figures to right indicate maximum marks

Attempt any four. 40

- **Q.2** Write a short note on Hub. Explain Hub Configurations.
- **Q.3** How an Internetwork is designed? Explain how the Remote Networks are connected.
- **Q.4** Write a note on Client Server Authentication Systems. Explain Host/User Authentication.
- **Q.5** Write a note on Configuration Management.
- **Q.6** Explain Fault Management. Explain Fault Location and Isolation Techniques in details.
- Q.7 Explain Web Based Enterprise Management in detail.

Seat	Set	S
No.		)

		T.E. (Part – II) (Old) (CGPA)		
		Computer Scienc NETWORK SETUP & M		
-		e: Thursday, 28-11-2019 00 AM To 12:00 PM		Max. Marks: 50
Instr	uctio	<ul><li>ns: 1) Q. No. 1 is compulsory and shook.</li><li>2) Figures to right indicate maxing</li></ul>		pe solved in first 20 minutes in answer
		MCQ/Objective 1		
Dura	tion: 2	20 Minutes	7100	Marks: 10
Q.1	<b>Cho</b> (1)	ose the correct alternatives from to SOA from the web service is a) Set Oriented Architecture c) both a and b	t <b>he op</b>  b) d)	Service Oriented Architecture None of these
	2)	Which of the following filters the una) Sality c) Firewall	,	
	3)	A modem is a network device whice a) Converts analog signal to digit b) Convert analog signal to digital c) Acts as a relay d) None of these	al sigr	nal
	4)	management is the set of correct malfunctions in a network. a) Network c) Fault	functi b) d)	ions that detect, isolate and  Error  Device
	5)	OSPF is used for  a) Shortest path routing of packer b) Simulation of packets c) Creation of packets d) None of these	ts	
	6)	Switch works at layer. a) Physical c) Data Link	b) d)	Session All
	7)	Which is the fastest port for data tr a) USB 3.0 c) Serial	ansfer b) d)	? FireWire 800 Parallel
	8)	MAC address bits. a) 64 c) 16	b) d)	32 48
	9)	An IPv6 address is bits lonal a) 128 c) 64	g. b) d)	32 None of these

Set S

10) Hub is a multiport \_\_\_\_\_.
a) Bridge
c) Repeater

- b)
- Router Gateway d)

Seat	Set	0
No.	Set	3

## T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering NETWORK SETUP & MANAGEMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 40

Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Q. No. 2 to Q. No. 7.

2) Figures to right indicate maximum marks

Attempt any four. 40

- **Q.2** Write a short note on Hub. Explain Hub Configurations.
- **Q.3** How an Internetwork is designed? Explain how the Remote Networks are connected.
- **Q.4** Write a note on Client Server Authentication Systems. Explain Host/User Authentication.
- **Q.5** Write a note on Configuration Management.
- **Q.6** Explain Fault Management. Explain Fault Location and Isolation Techniques in details.
- Q.7 Explain Web Based Enterprise Management in detail.

Seat	Set	D
No.	Set	

## T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering SOFTWARE LICENSES AND PRACTICES

Day & Date: Thursday, 28-11-2019 Max. Marks: 50

Time: 10:00 AM To 12:00 PM

**Instructions:** Attempt any five questions. (each question carries 10 marks)

- **Q.1** State and explain issues with Copyrights and Patents with indicative examples.
- **Q.2** Differentiate between Copyright and Patent Law. Which offers better protection from copying the source code of a developer? Justify your answer.
- Q.3 What are Free and Open Source Software Products? How are they licensed? Explain the role of MIT License in distributing Free Software products.
- Q.4 List and Explain types of Creative Commons Licenses.
- Q.5 State the benefits of Open Source Software Licensing. Explain how Community Enforcement of Open Source and Free Software Licenses works with an example.
- Q.6 What is Multiple and Cross Licensing? With help of proper use-cases and example explain when to use multiple licensing. What effects does multiple licensing have on the overall software product licensed under it?
- **Q.7** What is proprietary license, explain with an indicative example? When should an organization prefer licensing a software product under proprietary license?

	_	
Seat	Set	D
No.	Set	

# T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019 Max. Marks: 50

Time	: 10:0	0 AM To 12:00 PM		
Instr	uctio	<b>ns:</b> 1) Q. No. 1 is compulsory an book.	d should b	e solved in first 20 minutes in answer
		<ol><li>Figures to the right indicat</li></ol>	te full mark	SS.
		MCQ/Objectiv	e Type (	Questions
Dura	tion: 2	20 Minutes		Marks: 10
Q.1	Cho		-	tions and rewrite the sentence. 10
	1)	<ul><li>Which model applies computat</li><li>a) Static model</li><li>c) Numerical model</li></ul>	ional proce b) d)	edures to solve equation? Dynamic model Analytical model
	2)	Mathematical model is based of a) Analogy between such system b) Use symbolic notation and c) All of the above d) None of the above	tems as el	
	3)	A system which does have exo	genous ac	tivity is said to be
		a) Open System	b)	Closed system
		c) Both of the above	d)	None of the above
	4)	In Bank system, What is custor a) Entity c) Environment	mer? b) d)	Activity None of the above
	5)	Factory is an Example of a) Entity c) Environment	 b) d)	Attribute System
	6)	Which of the following is simula	ation langu	age?
		a) Java	b)	GPSS
		c) Java script	d)	None of the above
	7)	In a corporate model, What is/a		-
		a) Environment	b)	Management
		c) Plant/Physical Plant	d)	All of the above
	8)	Oscillator model is an Example		<u>.</u>
		<ul><li>a) Static Physical model</li><li>c) Static Mathematical model</li></ul>	p)	Dynamic Physical model
	٥)	,	d)	Dynamic Mathematical model
	9)	NS2 is written in  a) Java c) OTcl	b) d)	C++ Both b & c
	10)	In communication system, Wha	,	
	. 5,	a) Entity	b)	Activity
		c) Environment	ď)	System

Max. Marks: 40

Seat	Set	D
No.	Set	

## T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

### Q.2 Attempt any Four. (each 10 Marks)

- a) Explain in detail, When Simulation is the appropriate tool.
- b) Define simulation. Write its Advantages and Disadvantages.
- c) Write a short note on Network Simulation (NS2).
- d) Define Queue monitor. Explain with an Example.
- e) Explain OTcl code for star and bus topology.

Seat No.		Set	Q
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## T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019 Time: 10:00 AM To 12:00 PM	Max. Marks: 50
<b>Instructions:</b> 1) Q. No. 1 is compulsory and should be solved in first book.	20 minutes in answer
<ol><li>Figures to the right indicate full marks.</li></ol>	
MCQ/Objective Type Questions	

**Duration: 20 Minutes** Marks: 10 Choose the correct alternatives from the options and rewrite the sentence. Which of the following is simulation language? **GPSS** a) Java b) c) Java script None of the above d) 2) In a corporate model, What is/are main segment/segments? a) Environment Management b) c) Plant/Physical Plant All of the above d) 3) Oscillator model is an Example of \_ a) Static Physical model b) Dynamic Physical model c) Static Mathematical model d) Dynamic Mathematical model NS2 is written in \_\_\_\_\_ 4) a) Java b) C++c) OTcl Both b & c d) In communication system, What is "Transmitting"? 5) a) Entity Activity c) Environment System d) Which model applies computational procedures to solve equation? 6) a) Static model Dvnamic model b) c) Numerical model Analytical model d) 7) Mathematical model is based on a) Analogy between such systems as electrical and mechanical b) Use symbolic notation and mathematical equations to represent a system c) All of the above d) None of the above 8) A system which does have exogenous activity is said to be \_\_\_\_\_. a) Open System Closed system b) c) Both of the above None of the above d) 9) In Bank system, What is customer? Activity Entity b) c) Environment None of the above d) 10) Factory is an Example of \_\_\_\_\_. Entity b) Attribute c) Environment d) System

Seat	Set	
No.	Set	<b>Q</b>

## T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

### Q.2 Attempt any Four. (each 10 Marks)

- a) Explain in detail, When Simulation is the appropriate tool.
- **b)** Define simulation. Write its Advantages and Disadvantages.
- c) Write a short note on Network Simulation (NS2).
- d) Define Queue monitor. Explain with an Example.
- e) Explain OTcl code for star and bus topology.

Seat	Set	D
No.	Set	N

### T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering Computer Modeling and Simulation**

Day & Date: Thursday, 28-11-2019 Max. Marks: 50 Time: 10:00 AM To 12:00 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 20 minutes in answer book. 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 20 Minutes** Marks: 10 Choose the correct alternatives from the options and rewrite the sentence. NS2 is written in \_\_\_\_\_. a) Java b) C++c) OTcl Both b & c d) 2) In communication system, What is "Transmitting"? a) Entity Activity b) c) Environment System d) 3) Which model applies computational procedures to solve equation? a) Static model Dynamic model b) Analytical model c) Numerical model d) 4) Mathematical model is based on \_\_\_\_ Analogy between such systems as electrical and mechanical b) Use symbolic notation and mathematical equations to represent a system c) All of the above d) None of the above A system which does have exogenous activity is said to be 5) Closed system a) Open System b) c) Both of the above d) None of the above 6) In Bank system, What is customer? a) Entity b) Activity None of the above c) Environment d) 7) Factory is an Example of \_\_\_\_\_. a) Entity b) Attribute c) Environment d) System 8) Which of the following is simulation language? b) **GPSS** Java d) None of the above c) Java script 9) In a corporate model, What is/are main segment/segments? Environment b) Management Plant/Physical Plant All of the above d) 10) Oscillator model is an Example of \_ Static Physical model b) Dynamic Physical model

d)

Dynamic Mathematical model

Static Mathematical model

Seat	Set	D
No.	Set	N

## T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

### Q.2 Attempt any Four. (each 10 Marks)

- a) Explain in detail, When Simulation is the appropriate tool.
- **b)** Define simulation. Write its Advantages and Disadvantages.
- c) Write a short note on Network Simulation (NS2).
- d) Define Queue monitor. Explain with an Example.
- e) Explain OTcl code for star and bus topology.

Seat	Set	9
No.	Set	3

# T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019 Max. Marks: 50 Time: 10:00 AM To 12:00 PM

Time	: 10:00	0 AM To 12:00 PM		
Instr	uctior	ns: 1) Q. No. 1 is compulsory and shoບ	ıld b	e solved in first 20 minutes in answer
		book.		
		2) Figures to the right indicate full n	nark	S.
		MCQ/Objective Typ	oe C	Questions
Durat	tion: 2	20 Minutes		Marks: 10
Q.1	Choo	ose the correct alternatives from the	opt	ions and rewrite the sentence. 10
	1)	A system which does have exogenou	s ac	tivity is said to be
		, , ,	•	Closed system
		c) Both of the above	d)	None of the above
	2)	In Bank system, What is customer?		
		a) Entity	b)	Activity
		c) Environment	d)	None of the above
	3)	Factory is an Example of		
		a) Entity	b)	Attribute
		c) Environment	d)	System
	4)	Which of the following is simulation la	ngua	age?
		,	b)	GPSS
		c) Java script	d)	None of the above
	5)	In a corporate model, What is/are mai	in se	egment/segments?
		,	b)	Management
		c) Plant/Physical Plant	d)	All of the above
	6)	Oscillator model is an Example of		
		,	b)	Dynamic Physical model
		c) Static Mathematical model	d)	Dynamic Mathematical model
	7)	NS2 is written in		
		•	b)	C++
		c) OTcl	d)	Both b & c
	8)	In communication system, What is "Ti	rans	mitting"?
		a) Entity	b)	Activity
		c) Environment	d)	System
	9)	Which model applies computational p	roce	edures to solve equation?
		,	b)	Dynamic model
		c) Numerical model	d)	Analytical model
	10)	Mathematical model is based on		
		a) Analogy between such systems a		
			emat	ical equations to represent a system
		c) All of the above		
		d) None of the above		

Seat	Set	9
No.	Set	3

## T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering Computer Modeling and Simulation

Day & Date: Thursday, 28-11-2019

Max. Marks: 40

Time: 10:00 AM To 12:00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

### Q.2 Attempt any Four. (each 10 Marks)

- a) Explain in detail, When Simulation is the appropriate tool.
- **b)** Define simulation. Write its Advantages and Disadvantages.
- c) Write a short note on Network Simulation (NS2).
- d) Define Queue monitor. Explain with an Example.
- e) Explain OTcl code for star and bus topology.

Seat	Set	D
No.	Set	

		B.E	Comput	er Science &	mination Nov/Dec-2019 Engineering ARCHITECTURE	
•			iturday, 07-12-2019 1 To 05:30 PM	)	Max. Marks: 70	)
Insti	ructio	<b>ns</b> : 1	) Q. No. 1 is comp Book.	ulsory and should	d be solved in first 30 minutes in answer	
		2	2) Figures to the rig	ht indicate full ma	arks.	
			MCQ	Objective Type	Questions	
Dura	ation: 3	30 Mi	nutes		Marks: 14	٢
Q.1	<b>Cho</b> 1)	Α_		r is a shared-mer ation of the mem	options and rewrite the sentence. 14 mory system in which the access ory word.  COMA None	
	2)		processor speed is CPI I/O	s often measured b) d)	I in terms of MIPS Throughput	
	3)			qual delay in all pl	for each phase to complete its hases [pipeline stages]. Clock cycle None	
	4)		number of instructi erscalar processor. Speed Degree	ons issued per cy b) d)	ycle, also called the of a Initiation None	
	5)	diffe	to a problem know erent stages with tin Timing control Clock skewing	ne offset.	ame clock pulse may arrive at  Clocking  Throughput	
	6)		number of time unitable is the Connection Division		between two initiations of a  Latency  None	
	7)	A _ a) c)	is a latency cy Greedy cycle Clock cycle	rcle in which each b) d)	n state appears only once. Simple cycle None	
	8)	corr		ain memory mod	, a may appear dule being excessively accessed by  Hot Spot None	

Set P

9)		protocols achieve data cons nory through a bus watching med		ncy among the caches and shared
	a) c)			Snoopy UDP
10)	allov a)	ypercube connectivity, if system wed interconnect channe N, N N^2, N	el. b)	PE then each PE is  2^N, N N^N, N
11)		is depends upon what kind of Processor complexity Connectivity	b)	a is processed by processor. Granularity Autonomy
12)		communication delay caused by that caused by accessing share True	d va	• • •
13)	•	passing must synchronize thess in time and space. Asynchronous message N/W diameter	b)	ender process and the receiver synchronous message None of above
14)		le generation usually involves tra nother, called an Initial form	nsfo b)	rmation from one representation  Last form
	c)	Intermediate form	d)	None

_	
Seat	
Jeal	
No.	

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Р

## B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering ADVANCED COMPUTER ARCHITECTURE

Day & Date: Saturday, 07-12-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Answer any three questions.

12

- a) Explain the following shared memory multiprocessor model.
  - 1) UMA Model
  - 2) NUMA Model
- **b)** Write a note on VLIW architecture with neat diagram.
- c) Define the following terms:
  - 1) Clock cycle
  - 2) Speed up
  - 3) Efficiency
  - 4) Throughput
- **d)** Write a note on Paged memory and segmented memory.

#### Q.3 Answer any two question

- Explain Flynn's classification of computer architecture and Bell's taxonomy of MIMD computers.
- **b)** Explain the Virtual memory model and describe the various page replacement policies.
- c) Consider the five stage pipelined processor specified by the following reservation table.

	1	2	3	4	5	6
S1	X					X
S2		X			X	
S3			X			
S4				X		1
S5		X				X

- 1) List the set of forbidden latencies and collision vector.
- 2) Draw the state transition diagram showing all possible initial sequences (cycles). Without causing a collision in the pipeline.
- 3) List all the simple cycles from the state diagram.
- 4) Identify the greedy cycles among the simple cycles.

Set	Р
JEL	

### Section - II

Q.4	Ans a) b) c)	wer any three questions.  Explain the Snoopy bus protocol.  Write a note on Hypercube interconnection network.  Explain the following three major phases of parallelizing compiler. Flow analysis, Optimizations and Code generation.  Write a note on Multiport memory.	12
,		wer any two questions. With neat diagram explain the Massively Parallel Processor (MPP) processing element and CM5 processing element.	16
	b)	Write a note on following directory based protocols  1) Full map directory protocol  2) Limited directory protocol  3) Chained directory protocol	
	c)	Explain the following parallel programming models.  1) Shared variable model	

2) Message passing model

Seat	Set	
No.	Set	Q

## B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science ADVANCED COMPUTE	
•		e: Saturday, 07-12-2019 30 PM To 05:30 PM	Max. Marks: 70
Insti	ructio	<ul><li>ns: 1) Q. No. 1 is compulsory and sho</li><li>Book.</li><li>2) Figures to the right indicate full</li></ul>	ould be solved in first 30 minutes in answer I marks.
		MCQ/Objective Ty	
Dura	ition: 3	30 Minutes	Marks: 14
Q.1	<b>Cho</b> (1)	When the network traffic is non-unifor corresponding to a certain memory many processors at the same time.  a) Latency	by Hot Spot d) None
	2)	memory through a bus watching med a) Directory	istency among the caches and shared chanism. b) Snoopy d) UDP
	3)	,	
	4)	a) Processor complexity	<ul><li>data is processed by processor.</li><li>b) Granularity</li><li>d) Autonomy</li></ul>
	5)	The communication delay caused by than that caused by accessing share a) True	d variables in a common memory.
	6)	process in time and space. a) Asynchronous message	b) synchronous message d) None of above
	7)	,	nsformation from one representation b) Last form d) None
	8)	•	
	a)	The processor speed is often measure	rad in tarms of

b) MIPS

d) Throughput

a) CPI

c)

I/O

Set Q

10)		is defined as the time requi ration, assuming equal delay in a Pipeline cycle Initiations		nases [pipeline stages].
11)	supe	number of instructions issued perscalar processor.		
	a)	Speed	p)	Initiation
	c)	Degree	d)	None
12)	diffe	to a problem known as the rent stages with time offset. Timing control	e saı b)	me clock pulse may arrive at  Clocking
	c)	Clock skewing	ď)	Throughput
13)		number of time units [clock cycleline is the between the Connection	-	petween two initiations of a
	c)	Division	d)	None
	,		,	
14)		is a latency cycle in which e Greedy cycle Clock cycle	each b) d)	

Seat	Set	$\mathbf{\cap}$
No.	Set	y

## B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering ADVANCED COMPUTER ARCHITECTURE

Day & Date: Saturday, 07-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Answer any three questions.

- a) Explain the following shared memory multiprocessor model.
  - 1) UMA Model
  - 2) NUMA Model
- **b)** Write a note on VLIW architecture with neat diagram.
- c) Define the following terms:
  - 1) Clock cycle
  - 2) Speed up
  - 3) Efficiency
  - 4) Throughput
- d) Write a note on Paged memory and segmented memory.

#### Q.3 Answer any two question

16

12

- Explain Flynn's classification of computer architecture and Bell's taxonomy of MIMD computers.
- **b)** Explain the Virtual memory model and describe the various page replacement policies.
- c) Consider the five stage pipelined processor specified by the following reservation table.

	1	2	3	4	5	6
S1	X					X
S2		X			X	
S3			X			
S4				X		
S5		X				X

- 1) List the set of forbidden latencies and collision vector.
- 2) Draw the state transition diagram showing all possible initial sequences (cycles). Without causing a collision in the pipeline.
- 3) List all the simple cycles from the state diagram.
- 4) Identify the greedy cycles among the simple cycles.

#### Section - II

#### Q.4 Answer any three questions.

- a) Explain the Snoopy bus protocol.
- **b)** Write a note on Hypercube interconnection network.
- **c)** Explain the following three major phases of parallelizing compiler. Flow analysis, Optimizations and Code generation.
- **d)** Write a note on Multiport memory.

Set Q

### Q.5 Answer any two questions.

- a) With neat diagram explain the Massively Parallel Processor (MPP) processing element and CM5 processing element.
- **b)** Write a note on following directory based protocols
  - 1) Full map directory protocol
  - 2) Limited directory protocol
  - 3) Chained directory protocol
- c) Explain the following parallel programming models.
  - 1) Shared variable model
  - 2) Message passing model

Seat	Sat	В
No.	Set	K

## B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

			Computer Science ADVANCED COMPUT		
•			urday, 07-12-2019 To 05:30 PM		Max. Marks: 70
Instr	uctio	<b>ns:</b> 1)	Q. No. 1 is compulsory and s Book.	hould	I be solved in first 30 minutes in answer
		2)	Figures to the right indicate for	ıll ma	arks.
			MCQ/Objective T	ype	Questions
Dura	ition: 3	30 Min	nutes		Marks: 14
Q.1	<b>Cho</b> 1)	Due	ne correct alternatives from to a problem known as then the stages with time offset.		ptions and rewrite the sentence. 14 me clock pulse may arrive at
		a)	Timing control Clock skewing	b) d)	Clocking Throughput
	2)	pipel a)	number of time units [clock cycline is the between the Connection Division	em.	between two initiations of a  Latency  None
	3)	A a)	is a latency cycle in which Greedy cycle Clock cycle	each b) d)	, ,
	4)	corre many a)	n the network traffic is non-unifesponding to a certain memory processors at the same time. Latency Initiations	mod	a may appear ule being excessively accessed by  Hot Spot None
	5)	a)	protocols achieve data consory through a bus watching medification.  Directory  TCP	echar b)	
	6)	allow a)	percube connectivity, if system yed interconnect chann N, N N^2, N	el. b)	PE then each PE is  2^N, N N^N, N
	7)		_ is depends upon what kind on Processor complexity Connectivity		a is processed by processor. Granularity Autonomy
	8)	than	communication delay caused by that caused by accessing shar True	-	ariables in a common memory.

Set R

(	9)	passing must synchronize process in time and space.	the s	ender process and the receiver
		<ul><li>a) Asynchronous message</li><li>c) N/W diameter</li></ul>	,	synchronous message None of above
•	10)	Code generation usually involves to another, called an  a) Initial form	b)	Last form
		<ul><li>c) Intermediate form</li></ul>	d)	None
•	11)	A multiprocessor is a shared time varies with the location of the a) UMA c) NUMA	mem b)	
•	12)	The processor speed is often meas a) CPI c) I/O	ured b) d)	MIPS
•	13)	A is defined as the time requons operation, assuming equal delay in a) Pipeline cycle c) Initiations	all p b)	•
•	14)	The number of instructions issued processor.  a) Speed c) Degree	b) d)	ycle, also called the of a Initiation None

Seat	Sat
No.	Set

## B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering ADVANCED COMPUTER ARCHITECTURE

Day & Date: Saturday, 07-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Answer any three questions.

. .

- a) Explain the following shared memory multiprocessor model.
  - 1) UMA Model
  - 2) NUMA Model
- **b)** Write a note on VLIW architecture with neat diagram.
- **c)** Define the following terms:
  - 1) Clock cycle
  - 2) Speed up
  - 3) Efficiency
  - 4) Throughput
- d) Write a note on Paged memory and segmented memory.

#### Q.3 Answer any two question

16

12

- Explain Flynn's classification of computer architecture and Bell's taxonomy of MIMD computers.
- **b)** Explain the Virtual memory model and describe the various page replacement policies.
- c) Consider the five stage pipelined processor specified by the following reservation table.

	1	2	3	4	5	6
S1	X					X
S2		X			X	
S3			X			
S4 S5				X		
S5		X				X

- 1) List the set of forbidden latencies and collision vector.
- 2) Draw the state transition diagram showing all possible initial sequences (cycles). Without causing a collision in the pipeline.
- 3) List all the simple cycles from the state diagram.
- 4) Identify the greedy cycles among the simple cycles.

### Section - II

#### Q.4 Answer any three questions.

- a) Explain the Snoopy bus protocol.
- **b)** Write a note on Hypercube interconnection network.
- c) Explain the following three major phases of parallelizing compiler. Flow analysis, Optimizations and Code generation.
- **d)** Write a note on Multiport memory.

Set R

### Q.5 Answer any two questions.

- With neat diagram explain the Massively Parallel Processor (MPP) processing element and CM5 processing element.
- **b)** Write a note on following directory based protocols
  - 1) Full map directory protocol
  - 2) Limited directory protocol
  - 3) Chained directory protocol
- c) Explain the following parallel programming models.
  - 1) Shared variable model
  - 2) Message passing model

Seat	Sat	9
No.	Set	3

		D.E	Computer	Science &	Engineering ARCHITECTURE
_			nturday, 07-12-2019 M To 05:30 PM		Max. Marks: 70
Insti	ructio		Book.		d be solved in first 30 minutes in answer
		2	2) Figures to the right in		
_		00 14	_	ective Type	
			nutes		Marks: 14
Q.1	1)	In h allo a)		f system has ct channel. b)	pptions and rewrite the sentence. 14  2^N, N N^N, N
	2)	a) c)			a is processed by processor. Granularity Autonomy
	3)	thar		sing shared va	essage passing is much longer ariables in a common memory. False
	4)		passing must syncl cess in time and space. Asynchronous messag N/W diameter		ender process and the receiver synchronous message None of above
	5)	to a a)	le generation usually inv nother, called an Initial form Intermediate form	 b)	ormation from one representation  Last form  None
	6)		multiprocessor is a e varies with the location UMA NUMA		mory system in which the access ory word. COMA None
	7)	The a) c)	processor speed is ofte CPI I/O	en measured b) d)	in terms of MIPS Throughput
	8)				for each phase to complete its hases [pipeline stages]. Clock cycle None

Set S

9)		number of instructions issued perscalar processor.	er cy	/cle, also called the of a
	a) c)	Speed Degree	b) d)	Initiation None
10)		e to a problem known as the rent stages with time offset.	e saı	me clock pulse may arrive at
	,	Timing control Clock skewing	b) d)	
11)	pipe a)	number of time units [clock cycleline is the between the Connection	em. b)	Latency
	c)	Division	d)	None
12)		is a latency cycle in which Greedy cycle Clock cycle	each b) d)	Simple cycle
13)	corr	en the network traffic is non-uniforesponding to a certain memory processors at the same time.		a may appear ule being excessively accessed by
		Latency Initiations	b) d)	Hot Spot None
14)		protocols achieve data cons		ncy among the caches and shared nism.
	a) c)	Directory TCP	b) d)	

Seat	
No.	

Set

t S

## B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering ADVANCED COMPUTER ARCHITECTURE

Day & Date: Saturday, 07-12-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Answer any three questions.

12

- a) Explain the following shared memory multiprocessor model.
  - 1) UMA Model
  - 2) NUMA Model
- **b)** Write a note on VLIW architecture with neat diagram.
- c) Define the following terms:
  - 1) Clock cycle
  - 2) Speed up
  - 3) Efficiency
  - 4) Throughput
- d) Write a note on Paged memory and segmented memory.

#### Q.3 Answer any two question

16

- Explain Flynn's classification of computer architecture and Bell's taxonomy of MIMD computers.
- **b)** Explain the Virtual memory model and describe the various page replacement policies.
- c) Consider the five stage pipelined processor specified by the following reservation table.

	1	2	3	4	5	6
S1	X					X
S2		X			X	
S3			X			
S4				X		
S5		X	-			X

- 1) List the set of forbidden latencies and collision vector.
- 2) Draw the state transition diagram showing all possible initial sequences (cycles). Without causing a collision in the pipeline.
- 3) List all the simple cycles from the state diagram.
- 4) Identify the greedy cycles among the simple cycles.

#### Section - II

#### Q.4 Answer any three questions.

- a) Explain the Snoopy bus protocol.
- **b)** Write a note on Hypercube interconnection network.
- c) Explain the following three major phases of parallelizing compiler. Flow analysis, Optimizations and Code generation.
- **d)** Write a note on Multiport memory.

Set S

### Q.5 Answer any two questions.

- 16
- a) With neat diagram explain the Massively Parallel Processor (MPP) processing element and CM5 processing element.
- b) Write a note on following directory based protocols
  - 1) Full map directory protocol
  - 2) Limited directory protocol
  - 3) Chained directory protocol
- c) Explain the following parallel programming models.
  - 1) Shared variable model
  - 2) Message passing model

Seat	Set	D
No.	Set	

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DISTRIBUTED SYSTEMS

Day & Date: Tuesday,10-12-2019	Max. Marks: 70
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Time: 02:30 PM To 05:30 PM

Instr	uctio	<b>ns:</b> 1) Q. No. 1 is compulsory. It should be solved in first 30 minutes in answer book.
		<ul><li>2) Figures to the right indicate full marks.</li><li>3) Assume suitable data if necessary.</li></ul>
		MCQ/Objective Type Questions
Dura	tion: 3	30 Minutes Marks: 14
Q.1		ose the correct alternatives from the options and rewrite the sentence. 14
	1)	In systems a single system wide primary memory is shared by all the processors.
		<ul> <li>a) Tightly coupled systems</li> <li>b) Loosely coupled systems</li> <li>c) Distributed system</li> <li>d) None of these</li> </ul>
	2)	is defined as the degree of tolerance against errors and
		component failures in a system.  a) Throughput b) Performance c) Accuracy d) Reliability
	3)	ensures that if every process that is granted a resource, which must not be used simultaneously by multiple processes, eventually releases it, every request for that resource is eventually granted.  a) An event-ordering property b) A mutual-exclusion property c) A no-deadlock property d) A no-starvation property
	4)	In distributed system and are used to achieve fault tolerance.  a) Redundancy technique, Distributed control b) Mutual Exclusion, virtual Uniprocessor c) Deadlock detection, Replication technique d) None of these
	5)	The size of FLIP messages are less than bytes. a) $2^{64}$ -1 b) $2^{16}$ -1 c) $2^{32}$ -1 d) $2^{128}$ -1
	6)	Sequence number is used to identify and  a) Lost messages, Duplicate messages  b) Lost messages and corrupted messages  c) Duplicated message and corrupted messages  d) Corrupted messages and duplicate messages
	7)	In 0-reliable of multicast communication is expected from senders.  a) 1 response b) No response c) m-out-of-n response d) All response

Set P

8)	means that a remote procedure call should have exactly the same						
	•	tax as a local procedure call.	L	Compartie Transport			
	a)	Syntactic transparency Access Transparency		Semantic Transparency Name Transparency			
٥)	C)		,	, ,			
9)		is used for stub generation in the same and server.	IN RP	C that defines interface between			
	a)	Internet definition language					
	b)		าguag	ge			
		Interface definition language					
	d)	Interface data definition languag	е				
10)		interface name has two parts					
	a) c)	request and reply object and instance	b) d)	request and response type and instance			
4.4\	,	•	,				
11)		nutual exclusion algorithm, cuted in the order they are made.		ites that requests must be			
	a)	Starvation	b)	Tolerance			
	c)	Fairness	ď)	Deadlock			
12)		nport algorithm executes critical se estamps.	ectior	n requests in the order of			
	a)	increasing	b)	Decreasing			
	c)	random	d)	none of these			
13)	In h	ierarchical distributed algorithm, d					
		and non leaf controllers are r					
	a) b)	Manage resource, deadlock determitual exclusion, deadlock determitual					
	c)	Deadlock detection, deadlock re		ıl			
	ď)	mutual exclusion, deadlock remo	oval				
14)	The	mechanism of binding different fi	le na	me spaces together to form			
	_	gle hierarchical structured name s	•				
	a)	Hints	۹) p)	Mount			
	c)	Name space	d)	Cache manager			

Seat	Sat	D
No.	Set	

## B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

	Computer Science & Engineering DISTRIBUTED SYSTEMS	
	& Date: Tuesday,10-12-2019 e: 02:30 PM To 05:30 PM	Max. Marks: 56
Instr	ructions: 1) All questions are compulsory. 2) Figure to the right indicates full marks.	
	Section – I	
Q.2	<ul> <li>Attempt any three.</li> <li>a) Explain workstation model.</li> <li>b) Describe FLIP protocol.</li> <li>c) Explain transparencies in RPC.</li> <li>d) Write a note on RRA protocol.</li> <li>e) Discuss Clock Synchronization Issues.</li> </ul>	12
Q.3	<ul><li>Attempt any one.</li><li>a) Explain implementation of RPC in detail with diagram.</li><li>b) Discuss centralized clock synchronization algorithm.</li></ul>	08
Q.4	What is Buffering? Explain different types of buffering with neat diagr	am. <b>08</b>
	Section - II	
Q.5	<ul> <li>Answer any three.</li> <li>a) What are the requirements of mutual exclusion algorithms?</li> <li>b) Explain issues in deadlock detection.</li> <li>c) Write a note on hints and caching.</li> <li>d) What is page replacement?</li> <li>e) Write a note on memory coherence.</li> </ul>	12
Q.6	<ul><li>Answer any one.</li><li>a) Explain Lamport's algorithm.</li><li>b) Draw and explain architecture of distributed file system.</li></ul>	08
Q.7	Answer any one.  a) Explain Ho-Ramamoorthy algorithm.  b) Discuss Suzuki-Kasami's Broadcast algorithm.	08

Seat		
No.	Set	Q

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DISTRIBUTED SYSTEMS

Day & Date: Tuesday,10-12-2019	Max. Marks: 70
T: 00 00 DI	

Time: 02:30 PM To 05:30 PM

Instr	uctio	ns: ′	,	nould be	solved in first 30 minutes in answer	er
			2) Figures to the right indicate		(S.	
	means that a remote procedure call should have exactly the same syntax as a local procedure call.  a) Syntactic transparency b) Semantic Transparency c) Access Transparency d) Name Transparency  2) is used for stub generation in RPC that defines interface between client and server.  a) Internet definition language b) Intercommunication definition language c) Interface definition language d) Interface data definition language d) Interface name has two parts a) request and reply b) request and response c) object and instance d) type and instance  4) In mutual exclusion algorithm, dictates that requests must be executed in the order they are made. a) Starvation b) Tolerance c) Fairness d) Deadlock  5) Lamport algorithm executes critical section requests in the order of timestamps. a) increasing b) Decreasing c) random d) none of these  6) In hierarchical distributed algorithm, controllers are at bottom most level to and non leaf controllers are responsible for a) Manage resource, deadlock detection b) mutual exclusion, deadlock detection c) Deadlock detection, deadlock removal d) mutual exclusion, deadlock removal  7) The mechanism of binding different file name spaces together to form					
Dura	tion: (	30 M	inutes		Marks	s: 14
Q.1		syn a)	means that a remote pro- tax as a local procedure call. Syntactic transparency	cedure c	all should have exactly the same Semantic Transparency	14
	2)	clie a) b) c)	is used for stub generat nt and server. Internet definition language Intercommunication definition Interface definition language	ion in RF	PC that defines interface between	
	3)	a)	request and reply	b)	·	
	4)	exe a)	cuted in the order they are ma Starvation	ade. b)	Tolerance	
	5)	time a)	estamps. increasing	b)	Decreasing	
	6)	a) b) c)	and non leaf controllers a Manage resource, deadlock mutual exclusion, deadlock Deadlock detection, deadloc	re respo detectior letection k remova	onsible for า	
	7)		e mechanism of binding differe gle hierarchical structured nan Hints Name space		,	

Set Q

8)		systems a single system wid processors.	de pri	mary memory is shared by all
	a)	Tightly coupled systems Distributed system		Loosely coupled systems None of these
9)		is defined as the degree of to ponent failures in a system.	leran	ce against errors and
		Throughput Accuracy	b) d)	Performance Reliability
10)	mus relea a)	ensures that if every process st not be used simultaneously by rases it, every request for that resonant An event-ordering property  A no-deadlock property	multip ource b)	le processes, eventually is eventually granted. A mutual-exclusion property
11)	a) b) c)	istributed system and Redundancy technique, Distributed Mutual Exclusion, virtual Uniproduced Deadlock detection, Replication None of these	ted co cesso	ontrol r
12)	a)	size of FLIP messages are less t $2^{64}$ -1 $2^{32}$ -1	b)	bytes. $2^{16}-1$ $2^{128}-1$
13)	a)	uence number is used to identify Lost messages, Duplicate messa Lost messages and corrupted m Duplicated message and corrupt Corrupted messages and duplicated	ages essa ed m	ges essages
14)	a)	-reliable of multicast communicati 1 response m-out-of-n response		is expected from senders. No response All response

Seat	Sat	
No.	Set	¥

## B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

	Computer Science & Engineering DISTRIBUTED SYSTEMS	
	& Date: Tuesday,10-12-2019 e: 02:30 PM To 05:30 PM	Max. Marks: 56
Instr	ructions: 1) All questions are compulsory. 2) Figure to the right indicates full marks.	
	Section – I	
Q.2	<ul> <li>Attempt any three.</li> <li>a) Explain workstation model.</li> <li>b) Describe FLIP protocol.</li> <li>c) Explain transparencies in RPC.</li> <li>d) Write a note on RRA protocol.</li> <li>e) Discuss Clock Synchronization Issues.</li> </ul>	12
Q.3	<ul><li>Attempt any one.</li><li>a) Explain implementation of RPC in detail with diagram.</li><li>b) Discuss centralized clock synchronization algorithm.</li></ul>	08
Q.4	What is Buffering? Explain different types of buffering with neat diagr	am. <b>08</b>
	Section - II	
Q.5	<ul> <li>Answer any three.</li> <li>a) What are the requirements of mutual exclusion algorithms?</li> <li>b) Explain issues in deadlock detection.</li> <li>c) Write a note on hints and caching.</li> <li>d) What is page replacement?</li> <li>e) Write a note on memory coherence.</li> </ul>	12
Q.6	<ul><li>Answer any one.</li><li>a) Explain Lamport's algorithm.</li><li>b) Draw and explain architecture of distributed file system.</li></ul>	08
Q.7	Answer any one.  a) Explain Ho-Ramamoorthy algorithm.  b) Discuss Suzuki-Kasami's Broadcast algorithm.	08

Seat	Set	D
No.	Set	K

## B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

			Computer Science DISTRIBUTE	e & E	
•			uesday,10-12-2019 // To 05:30 PM		Max. Marks: 70
Instr	uctio	ns: 1	•	uld be	solved in first 30 minutes in answer
			book.  2) Figures to the right indicate full  3) Assume suitable data if neces		KS.
			MCQ/Objective T	ype Q	uestions
Dura	tion: 3	30 M	inutes		Marks: 14
Q.1	<b>Cho</b> 1)	The	e size of FLIP messages are less $2^{64}$ -1	than b)	
	2)	Sec a) b) c) d)	uence number is used to identif Lost messages, Duplicate mes Lost messages and corrupted in Duplicated message and corru Corrupted messages and dupli	sages messa pted m	nges nessages
	3)	a)			is expected from senders. No response All response
	4)	syn a)	means that a remote proced tax as a local procedure call. Syntactic transparency Access Transparency	b)	all should have exactly the same Semantic Transparency Name Transparency
	5)	a) b) c)	nt and server. Internet definition language Intercommunication definition language Interface definition language	angua	
	6)	An i a) c)	interface data definition langual interface name has two parts request and reply object and instance	b) d)	request and response type and instance
	7)		nutual exclusion algorithm, cuted in the order they are made Starvation Fairness		ates that requests must be Tolerance Deadlock
	8)		nport algorithm executes critical estamps. increasing random	section b) d)	n requests in the order of  Decreasing none of these

Set R

9)	In hierarchical distributed algorithm, controllers are at bottom most level to and non leaf controllers are responsible for  a) Manage resource, deadlock detection b) mutual exclusion, deadlock detection c) Deadlock detection, deadlock removal d) mutual exclusion, deadlock removal			
10)	The mechanism of binding different find single hierarchical structured name state.  a) Hints c) Name space		is called as	
11)	In systems a single system w the processors. a) Tightly coupled systems c) Distributed system	·	imary memory is shared by all  Loosely coupled systems  None of these	
12)	is defined as the degree of to component failures in a system.  a) Throughput c) Accuracy	olerar b) d)	nce against errors and Performance Reliability	
13)	ensures that if every process that is granted a resource, which must not be used simultaneously by multiple processes, eventually releases it, every request for that resource is eventually granted.  a) An event-ordering property b) A mutual-exclusion property c) A no-deadlock property d) A no-starvation property			
14)	In distributed system and a) Redundancy technique, Distribute) Mutual Exclusion, virtual Uniproc) Deadlock detection, Replication d) None of these	ited c	ontrol or	

Seat	Sat	D
No.	Set	K

# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

	Computer Science & Engineering DISTRIBUTED SYSTEMS	
	& Date: Tuesday,10-12-2019 e: 02:30 PM To 05:30 PM	Max. Marks: 56
Instr	ructions: 1) All questions are compulsory. 2) Figure to the right indicates full marks.	
	Section – I	
Q.2	<ul> <li>Attempt any three.</li> <li>a) Explain workstation model.</li> <li>b) Describe FLIP protocol.</li> <li>c) Explain transparencies in RPC.</li> <li>d) Write a note on RRA protocol.</li> <li>e) Discuss Clock Synchronization Issues.</li> </ul>	12
Q.3	<ul><li>Attempt any one.</li><li>a) Explain implementation of RPC in detail with diagram.</li><li>b) Discuss centralized clock synchronization algorithm.</li></ul>	08
Q.4	What is Buffering? Explain different types of buffering with neat diagra	am. <b>08</b>
	Section – II	
Q.5	<ul> <li>Answer any three.</li> <li>a) What are the requirements of mutual exclusion algorithms?</li> <li>b) Explain issues in deadlock detection.</li> <li>c) Write a note on hints and caching.</li> <li>d) What is page replacement?</li> <li>e) Write a note on memory coherence.</li> </ul>	12
Q.6	<ul><li>Answer any one.</li><li>a) Explain Lamport's algorithm.</li><li>b) Draw and explain architecture of distributed file system.</li></ul>	08
Q.7	Answer any one.  a) Explain Ho-Ramamoorthy algorithm.  b) Discuss Suzuki-Kasami's Broadcast algorithm	08

Seat	Set	C
No.	Set	3

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DISTRIBUTED SYSTEMS

Day & Date: Tuesday,10-12-2019 Time: 02:30 PM To 05:30 PM Max. Marks: 70

Instr	uctio	ns: 1	) Q. No. 1 is compulsory. It shoul book.	d be	solved in first 30 minutes in answer
			2) Figures to the right indicate full 3) Assume suitable data if necess		S.
			MCQ/Objective Ty	pe Q	uestions
Dura	tion: 3	80 Mi	nutes		Marks: 14
Q.1		ose 1	the correct alternatives from the	e opt	ions and rewrite the sentence. 14
	1)	a)	nterface name has two parts request and reply object and instance	b)	request and response type and instance
	2)		nutual exclusion algorithm,		tes that requests must be
		exec a) c)	cuted in the order they are made. Starvation Fairness	b) d)	Tolerance Deadlock
	3)		nport algorithm executes critical sestamps.	ectior	n requests in the order of
		a) c)	increasing random	b) d)	Decreasing none of these
	4)	In h	ierarchical distributed algorithm, o and non leaf controllers are r		
		,	Manage resource, deadlock determutual exclusion, deadlock determined to the control of the contr	ection	
		c) d)	Deadlock detection, deadlock remutual exclusion, deadlock remo	mova	l
	5)		mechanism of binding different fi		•
		a)	le hierarchical structured name s Hints	b)	Mount
	- \	c)	Name space	•	Cache manager
	6)		systems a single system wide processors.	de pr	imary memory is shared by all
			Tightly coupled systems Distributed system	b) d)	Loosely coupled systems None of these
	7)		is defined as the degree of to	lerar	nce against errors and
		com a)	nponent failures in a system.  Throughput  Accuracy	d)	Performance Reliability

Set S

8)	must not be used simultane releases it, every request for a)  An event-ordering property	ously by multipor that resource berty b)	e is eventually granted.  A mutual-exclusion property
	c) A no-deadlock property		
9)	<ul> <li>In distributed system</li></ul>	e, Distributed c al Uniprocesso	or
10)	The size of FLIP messages a) 2 <sup>64</sup> -1 c) 2 <sup>32</sup> -1	are less than b) d)	bytes. 2 <sup>16</sup> -1 2 <sup>128</sup> -1
11)	Sequence number is used to a) Lost messages, Duplic b) Lost messages and co c) Duplicated message and co d) Corrupted messages and co	ate messages rrupted messa nd corrupted m	iges nessages
12)	In 0-reliable of multicast cor a) 1 response c) m-out-of-n response	b)	is expected from senders.  No response All response
13)	means that a remot syntax as a local procedure a) Syntactic transparency c) Access Transparency	call.	all should have exactly the same  Semantic Transparency  Name Transparency
14)		eneration in RF lage finition langua luage	PC that defines interface between

Seat	Sat	6
No.	Set	3

# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

	Computer Science & Engineering DISTRIBUTED SYSTEMS	
-	& Date: Tuesday,10-12-2019 e: 02:30 PM To 05:30 PM	Max. Marks: 56
Instr	ructions: 1) All questions are compulsory. 2) Figure to the right indicates full marks.	
	Section – I	
Q.2	<ul> <li>Attempt any three.</li> <li>a) Explain workstation model.</li> <li>b) Describe FLIP protocol.</li> <li>c) Explain transparencies in RPC.</li> <li>d) Write a note on RRA protocol.</li> <li>e) Discuss Clock Synchronization Issues.</li> </ul>	12
Q.3	<ul><li>Attempt any one.</li><li>a) Explain implementation of RPC in detail with diagram.</li><li>b) Discuss centralized clock synchronization algorithm.</li></ul>	08
<b>Q.4</b>	What is Buffering? Explain different types of buffering with neat diagr	ram. <b>08</b>
	Section – II	
Q.5	<ul> <li>Answer any three.</li> <li>a) What are the requirements of mutual exclusion algorithms?</li> <li>b) Explain issues in deadlock detection.</li> <li>c) Write a note on hints and caching.</li> <li>d) What is page replacement?</li> <li>e) Write a note on memory coherence.</li> </ul>	12
Q.6	<ul><li>Answer any one.</li><li>a) Explain Lamport's algorithm.</li><li>b) Draw and explain architecture of distributed file system.</li></ul>	08
Q.7	Answer any one.  a) Explain Ho-Ramamoorthy algorithm.  b) Discuss Suzuki-Kasami's Broadcast algorithm.	08

Seat	Sat	D
No.	Set	

		B.E.	Comp	w) (CBCS) Ex uter Science ERN DATABA	& E		
•			ırsday, 12-12-20 <sup>.</sup> To 05:30 PM	19		Max. Marks:	70
Instr	uctior	2)	Q. No 1 is comp Figures to the ri Assume suitable	ght indicate full	mar	solved in first 30 minutes. ks.	
				<b>Objective Ty</b>	ре		
Dura	tion: 3	0 Min	nutes			Marks:	14
Q.1	<b>Choo</b> 1)	The ever	protocol which e y site it executes	nsures that a tra is called	ansa	ction is terminated same way at	14
		,	Consistency prot 2-PC protocol	OCOI	d)	Logging protocol Concurrency Control protocol	
	2)	on re a)	ead operation? Majority		b)	ntage of imposing less overhead  Biased	
		,	Quorum consens		d)	Primary copy	
	3)	a)	orizontal fragmen Column wise Attribute wise	tation, the relati	on i: b) d)	s partitioned Row wise None	
	4)				suite	ed for Point Queries based on	
		a)	itioning attributes Range Hash	•	b) d)	Round Robin All	
	5)	{ (ite size) a)	em name, color, c	lothes size), (ite	m n	oy using which of the following? name, color), (item name, clothes color), (clothes size), () } group by cube drilldown	
	6)	bloc a)	file in Namenode k location with file dfsimage fsimage		ne in b) d)	formation mapping the data nameimage image	
	7)	Exec spec a)	G	ning queries is	l on	multiple processors/disks for	
	8)	spec a)	king query is don cification? group by avg	e in conjunction	with b) d)	h which of following order by sum	

# Set P

9)		e operation of moving from finer-on Inularity (by means of aggregation Rollup Dicing	n) is	•
10)	a) b) c)	e full form of KDD is Knowledge Database Knowledge Discovery Database Knowledge Data House Knowledge Data Definition	•	
11)	cre	ype inheritance, the keyword ated from the given type. Not final Create	b) d)	says that, subtype may not be Self Final
12)	To a) c)	copy files/folders from local file s Cat CopyToLocal	•	m to hdfs store CopyFromLocal cp
13)	a) b)	e source of HDFS architecture in Google distributed filesystem Yahoo distributed filesystem Facebook distributed filesystem Azure distributed filesystem		oop originated as
14)	Wh a) c)	nich of the following is a NoSQL D SQL JSON		pase Type? Document databases All of the mentioned

Seat	Set	P
No.	Jet [	

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering MODERN DATABASE SYSTEM

Day & Date: Thursday, 12-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Figures to the right indicate full marks.

2) Assume suitable data if necessary.

#### Section - I

### Q.2 Answer any four.

- Explain Majority and Biased locking protocol for concurrency control in distributed system.
- **b)** Explain Partitioned join with diagram.
- c) Explain following OLAP operations.
  - 1) Cube
  - 2) Rollup
- **d)** Explain Association Rules with support and confidence in Data Mining with example.
- e) What is data warehousing? Give its architecture with different issues.

#### Q.3 Answer any one.

08

- **a)** Explain working of 2 Phase Commit protocol. Give any two types of failures handled by this protocol.
- **b)** Explain different partitioning Techniques in I/O Parallelism and compare them with example.

#### Section - II

#### Q.4 Answer any four.

20

- Explain following concepts with SQL query examples in Object based Databases.
  - 1) Structured types
  - 2) Type inheritance
  - 3) Array and multiset
- b) Differentiate between object oriented DBMS and Object relational DBMS.
- c) Explain Hash join method in query processing with diagram.
- d) Give different Hadoop commands.
- e) What is big data? Explain different characteristic of big data.

#### Q.5 Answer any one.

80

- a) Explain high level architecture of Hadoop with its components. Give difference between Hadoop and RDBMS.
- **b)** Explain Nested loop join in detail with its pseudo code. Give worst case and best case cost of Nested loop join for two relations R and S w.r.t following.
  - 1) No of block transfer
  - 2) Seek time

Seat	Set	a
No.		•

# B.F. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		D.L.	Computer Science  MODERN DATAB	& E	Engineering	013	
•			rsday, 12-12-2019 Го 05:30 РМ	<b>70</b> 1		Max. Marks: 7	70
Instr	uctior	2)	Q. No 1 is compulsory. It should Figures to the right indicate full Assume suitable data if necess	mar		es.	
			MCQ/Objective Ty	ре	Questions		
Dura		0 Minu				Marks:	14
Q.1	<b>Choo</b> 1)	Rank	e correct alternatives from th ing query is done in conjunction fication?	-		sentence. ´	14
			roup by vg	b) d)	order by Sum		
	2)	granu a) R	operation of moving from finer-galarity (by means of aggregation Rollup Dicing		•		
	3)	a) K b) K c) K	ull form of KDD is  Knowledge Database  Knowledge Discovery Database  Knowledge Data House  Knowledge Data Definition				
	4)	create a) N	e inheritance, the keyword ed from the given type. lot final Create	b) d)	says that, subtype may Self Final	not be	
	5)	a) C	opy files/folders from local file sy Cat CopyToLocal		n to hdfs store CopyFromLocal cp		
	6)	<ul><li>a) G</li><li>b) Y</li><li>c) F</li></ul>	source of HDFS architecture in Google distributed filesystem Yahoo distributed filesystem Facebook distributed filesystem Azure distributed filesystem	Had	oop originated as		
	7)	a) S	h of the following is a NoSQL D SQL SON	atab b) d)	pase Type? Document databases All of the mentioned		
	8)	every a) C	protocol which ensures that a transite it executes is calledConsistency protocol	ansa  b)	Logging protocol	·	

Set Q

9)	Which of following protocol has the a on read operation?	adva	ntage of imposing less overhead
	a) Majority	b)	Biased
	c) Quorum consensus	d)	Primary copy
10)	In horizontal fragmentation, the relat a) Column wise c) Attribute wise	tion i b) d)	s partitioned Row wise None
11)	partitioning technique is best partitioning attributes.		
	a) Range c) Hash	b) d)	Round Robin All
12)	Following OLAP query can be achie { (item name, color, clothes size), (item name), (color, clothes size), (item name) a) group by rollup c) group by	em n e), (	name, color), (item name, clothes
13)	The file in Namenode which stores t block location with file name is? a) dfsimage	he in b)	formation mapping the data nameimage
	c) fsimage	d)	image
14)	Execution of a single query in paralle speeding up long running queries is		• •
	a) Inter-query parallelism	q)	
	c) Inter-operation	d)	Intra-operation

Seat	Cat	_
Seat No.	Set	Q

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering MODERN DATABASE SYSTEM

Day & Date: Thursday, 12-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Figures to the right indicate full marks.

2) Assume suitable data if necessary.

#### Section - I

### Q.2 Answer any four. 20

- Explain Majority and Biased locking protocol for concurrency control in distributed system.
- b) Explain Partitioned join with diagram.
- c) Explain following OLAP operations.
  - 1) Cube
  - 2) Rollup
- **d)** Explain Association Rules with support and confidence in Data Mining with example.
- e) What is data warehousing? Give its architecture with different issues.

#### Q.3 Answer any one.

08

- a) Explain working of 2 Phase Commit protocol. Give any two types of failures handled by this protocol.
- **b)** Explain different partitioning Techniques in I/O Parallelism and compare them with example.

#### Section - II

#### Q.4 Answer any four.

20

- Explain following concepts with SQL query examples in Object based Databases.
  - 1) Structured types
  - 2) Type inheritance
  - 3) Array and multiset
- b) Differentiate between object oriented DBMS and Object relational DBMS.
- c) Explain Hash join method in query processing with diagram.
- d) Give different Hadoop commands.
- e) What is big data? Explain different characteristic of big data.

#### Q.5 Answer any one.

80

- a) Explain high level architecture of Hadoop with its components. Give difference between Hadoop and RDBMS.
- **b)** Explain Nested loop join in detail with its pseudo code. Give worst case and best case cost of Nested loop join for two relations R and S w.r.t following.
  - 1) No of block transfer
  - 2) Seek time

Seat No.		Set	R
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		B.E. (Part – I) (New) (CBCS) Computer Scienc MODERN DATAI	e & E	Engineering	
•		e: Thursday, 12-12-2019 0 PM To 05:30 PM		Max. Marks: 7	0
Instr	uctio	ns: 1) Q. No 1 is compulsory. It should be a compulsory. It is should be a compulsory. It is should be a compulsory. It is a	II mar		
		MCQ/Objective T	уре	Questions	
Dura	ition: 3	30 Minutes		Marks: 1	4
Q.1	<b>Cho</b> (1)	Following OLAP query can be achi { (item name, color, clothes size), (size), (color, clothes size),(item name) group by rollup c) group by	eved item r ne), (	by using which of the following? name, color), (item name, clothes	4
	2)	The file in Namenode which stores block location with file name is?  a) dfsimage c) fsimage	the in b) d)	nformation mapping the data nameimage image	
	3)	Execution of a single query in para speeding up long running queries is a) Inter-query parallelism c) Inter-operation		• •	
	4)	Ranking query is done in conjunction specification?  a) group by c) avg	on wit b) d)	h which of following order by sum	
	5)	The operation of moving from finer granularity (by means of aggregation a) Rollup c) Dicing			
	6)	The full form of KDD is  a) Knowledge Database b) Knowledge Discovery Databas c) Knowledge Data House d) Knowledge Data Definition	se		
	7)	In type inheritance, the keyword created from the given type. a) Not final c) Create	b) d)	says that, subtype may not be Self Final	
	8)	To copy files/folders from local file a) Cat c) CopyToLocal	systei b) d)	m to hdfs store CopyFromLocal cp	

Set R

9)	a) b) c)	e source of HDFS architecture in Google distributed filesystem Yahoo distributed filesystem Facebook distributed filesystem Azure distributed filesystem	Hado	oop originated as
10)		ich of the following is a NoSQL D SQL JSON	b)	ase Type? Document databases All of the mentioned
11)	eve a)	e protocol which ensures that a transport of the protocol Consistency protocol 2-PC protocol	 b)	ction is terminated same way at  Logging protocol  Concurrency Control protocol
12)	on	ich of following protocol has the a read operation? Majority Quorum consensus	advai b) d)	ntage of imposing less overhead Biased Primary copy
13)		norizontal fragmentation, the relat Column wise Attribute wise	ion is b) d)	s partitioned Row wise None
14)	par a) c)	partitioning technique is best titioning attributes. Range Hash	suite b) d)	ed for Point Queries based on  Round Robin  All

Seat	Sat	D
No.	Set	K

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering MODERN DATABASE SYSTEM

Day & Date: Thursday, 12-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Figures to the right indicate full marks.

2) Assume suitable data if necessary.

#### Section - I

# Q.2 Answer any four.a) Explain Majority and Biased locking protocol for concurrency control in

- distributed system. **b)** Explain Partitioned join with diagram.
- c) Explain following OLAP operations.
  - 1) Cube
  - 2) Rollup
- **d)** Explain Association Rules with support and confidence in Data Mining with example.
- e) What is data warehousing? Give its architecture with different issues.

#### Q.3 Answer any one.

08

- a) Explain working of 2 Phase Commit protocol. Give any two types of failures handled by this protocol.
- **b)** Explain different partitioning Techniques in I/O Parallelism and compare them with example.

#### Section - II

#### Q.4 Answer any four.

20

- Explain following concepts with SQL query examples in Object based Databases.
  - 1) Structured types
  - 2) Type inheritance
  - 3) Array and multiset
- b) Differentiate between object oriented DBMS and Object relational DBMS.
- c) Explain Hash join method in query processing with diagram.
- d) Give different Hadoop commands.
- e) What is big data? Explain different characteristic of big data.

#### Q.5 Answer any one.

80

- a) Explain high level architecture of Hadoop with its components. Give difference between Hadoop and RDBMS.
- **b)** Explain Nested loop join in detail with its pseudo code. Give worst case and best case cost of Nested loop join for two relations R and S w.r.t following.
  - 1) No of block transfer
  - 2) Seek time

Seat No.		Set	S
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# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		<b>5</b>	Computer Scien	ce & E	Engineering
•			nursday, 12-12-2019 M To 05:30 PM		Max. Marks: 70
Instr	ructio	2	Q. No 1 is compulsory. It shows the second sec	full mar	
			MCQ/Objective	Type	
Dura	ition: 3	80 M	inutes		Marks: 14
Q.1	<b>Cho</b> (1)		e full form of KDD is Knowledge Database Knowledge Discovery Databa		otions and rewrite the sentence. 14
	2)	cre	ated from the given type.  Not final	b) d)	says that, subtype may not be Self Final
	3)		copy files/folders from local file Cat CopyToLocal	e syster b) d)	
	4)	a) b) c)	e source of HDFS architecture Google distributed filesystem Yahoo distributed filesystem Facebook distributed filesystem Azure distributed filesystem		oop originated as
	5)		nich of the following is a NoSQI SQL JSON		pase Type? Document databases All of the mentioned
	6)		ery site it executes is called	•	Logging protocol Concurrency Control protocol
	7)		nich of following protocol has the read operation? Majority Quorum consensus	ne adva b) d)	ntage of imposing less overhead Biased Primary copy
	8)	In h a) c)	norizontal fragmentation, the re Column wise Attribute wise	elation i b) d)	s partitioned Row wise None

Set S

9)	par	partitioning technique is best titioning attributes.	suite	d for Point Queries based on
	a) c)	Range Hash	b) d)	Round Robin All
10)	{ (it	lowing OLAP query can be achied sem name, color, clothes size), (item), (color, clothes size),(item nam) group by rollup group by	em n	ame, color), (item name, clothes
11)		e file in Namenode which stores to ck location with file name is? dfsimage fsimage	he in b) d)	formation mapping the data nameimage image
12)	spe	ecution of a single query in paralle eeding up long running queries is Inter-query parallelism Inter-operation	calle	• •
13)		nking query is done in conjunction ecification? group by avg	b) d)	n which of following order by sum
14)		e operation of moving from finer-g nularity (by means of aggregation Rollup Dicina		•

Seat	Set	6
No.	Set	<b>7</b>

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering MODERN DATABASE SYSTEM

Day & Date: Thursday, 12-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

Instructions: 1) Figures to the right indicate full marks.

2) Assume suitable data if necessary.

#### Section - I

# Q.2 Answer any four.a) Explain Majority and Biased locking protocol for concurrency control in

- distributed system. **b)** Explain Partitioned join with diagram.
- b) Explain Partitioned join with diagranc) Explain following OLAP operations.
  - 1) Cube
  - 2) Rollup
- **d)** Explain Association Rules with support and confidence in Data Mining with example.
- e) What is data warehousing? Give its architecture with different issues.

#### Q.3 Answer any one.

08

- a) Explain working of 2 Phase Commit protocol. Give any two types of failures handled by this protocol.
- **b)** Explain different partitioning Techniques in I/O Parallelism and compare them with example.

#### Section - II

#### Q.4 Answer any four.

20

- Explain following concepts with SQL query examples in Object based Databases.
  - 1) Structured types
  - 2) Type inheritance
  - 3) Array and multiset
- b) Differentiate between object oriented DBMS and Object relational DBMS.
- c) Explain Hash join method in query processing with diagram.
- d) Give different Hadoop commands.
- e) What is big data? Explain different characteristic of big data.

#### Q.5 Answer any one.

80

- a) Explain high level architecture of Hadoop with its components. Give difference between Hadoop and RDBMS.
- **b)** Explain Nested loop join in detail with its pseudo code. Give worst case and best case cost of Nested loop join for two relations R and S w.r.t following.
  - 1) No of block transfer
  - 2) Seek time

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Seat	Set	D
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		B.E. (Part – I) (New) (CBCS) E Computer Science INTERNET O	<b>&amp;</b>	Engineering	
•		te: Tuesday, 17-12-2019 30 PM To 05:30 PM		Max. Marks: 70	
Instr	uctio	Book.		be solved in first 30 minutes in answer	
		<ol> <li>Figures to the right indicate full</li> <li>MCQ/Objective Ty</li> </ol>			
Durat	tion: :	30 Minutes	ypc	Marks: 14	
Q.1		oose the correct alternatives from the lot is enabled by technology such as a) Wireless sensor networks c) Big data analytics	s, b)	options. 14	
	2)	REST service is characterized by a) Bi-directional model c) Request-Response model		 Full duplex model Unidirectional model	
	3)	Exclusive Pair model is  a) Bi-directional communication model  b) Fully- duplex communication model  c) Both a) & b)  d) none of the above			
	4)	Hardware sources of IoT prototype d a) RasWIK c) Beagle Board	deve b) d)	•	
	5)	<ul> <li>Wireless communication tec</li> <li>a) NFC (Near-Field Communication</li> <li>b) RFID</li> <li>c) Bluetooth BR/EDR and Bluetooth</li> <li>d) all of the above</li> </ul>	n)		
	6)	Bluetooth network has feature a) Self-discovery capability c) Self-healing capability	b)	Self-configuration capability all of the above	
	7)	IEEE 802.15.4 is standard protocol for a) ZigBee c) WPAN	or b) d)	Bluetooth low energy (BT/LE) Bluetooth	
	8)	Acceleration sensor uses for methree axes by capacitive variation in a) MEMS (Micro Electro Mechanic b) Thermistor c) Photo-conductor	thre	e axes.	

d) None of the above

Set P

9)	Applications such as Connected cars, vehicles-to-infrastructure technology, predictive and preventive maintenances & autonomous cars are enabled by,						
	a) c)	Automotive IoT WSN	,	Industrial IoT (IIoT) None of above			
10)		an abbreviation of  Local Interconnect Network  Leased Internet Network	,	Local Internet Network none of the above			
11)	LEAP protocol stands for  a) Localized Encryption & Authentication Protocol b) Local Eavesdropping Application Protocol c) Local Encryption Authorization Protocol d) None of the above						
12)	a)	AP is an Application Layer protocol Physical Layer Protocol	,				
13)	_	Bee offers communicatio initial network synchronization de High-latency low-latency	elays b)	tween devices without the need for as as required by Bluetooth. Medium-latency None of the above			
14)	a)	ASP (Open Web Application Sec Top vulnerabilities Testing guides	b) '	y Project) defines Attack Surface Areas All of the above			

	1
Seat	C.
No.	50

# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering INTERNET OF THINGS	. •
•		te: Tuesday, 17-12-2019 M 30 PM To 05:30 PM	lax. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	Solva) b) c) d)	we any three.  What are the different applications of IoT? Explain.  Write a note on IoT architecture. Explain Oracle's IoT architecture.  Explain sensor technology in brief.  Write a note on WSN Technology.	12
Q.3	Solva) b) c)	ve any two. Write a note on Logical design of IoT. Elaborate on RFID (Radio frequency identification technology) in de Write a note on IoT communication technologies.	16 etail.
		Section – II	
Q.4	Solva) b) c) d)	we any three.  Write a note on constrained application protocol (CoAP).  Explain IoT Privacy & Vulnerability in brief.  Write a note on IoT security tomography & layered attacker model.  Write a note on applications of IoT in home automation.	12
Q.5	Solva) b) c)	ve any two.  Write a note on business models in IoT.  Write a note value creation in IoT & business model innovation for IoWrite a short note on Zigbee/IEEE802 15 4 standard	<b>16</b> oT.

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Seat	Set	
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		B.E	E. (Part – I) (New) (CBCS) I Computer Science INTERNET C	e &	Engineering
_			esday, 17-12-2019 1 To 05:30 PM		Max. Marks: 70
Instr	uctio		) Q. No. 1 is compulsory and sh Book. 2) Figures to the right indicate ful		be solved in first 30 minutes in answer rks.
			MCQ/Objective T	уре	Questions
Dura	tion: 3	o Mi	nutes		Marks: 14
Q.1	<b>Cho</b> (1)	Acc	the correct alternatives from the eleration sensor uses for note axes by capacitive variation in MEMS (Micro Electro Mechanic Thermistor Photo-conductor None of the above	neas thre	uring acceleration component in e axes.
	2)	pred by,		nces	ehicles-to-infrastructure technology, & autonomous cars are enabled Industrial IoT (IIoT) None of above
	3)	LIN a) c)		,	Local Internet Network none of the above
	4)	LEA a) b) c) d)	AP protocol stands for  Localized Encryption & Authentication  Local Encryption Authorization  None of the above	n Pr	otocol
	5)	CoA a) c)	AP is an Application Layer protocol Physical Layer Protocol	b) d)	Session Layer Protocol Data Link Layer Protocol
	6)		Bee offers communication distribution		
	7)	OW a) c)	ASP (Open Web Application Se Top vulnerabilities Testing guides	-	Project) defines Attack Surface Areas All of the above
	8)	loT a) c)	is enabled by technology such a Wireless sensor networks Big data analytics		Cloud computing All of the above

Set Q

9)			b)	Full duplex model
10)	a) b) c)	lusive Pair model is  Bi-directional communication m Fully- duplex communication m Both a) & b) none of the above		
11)	a)	dware sources of IoT prototype of RasWIK Beagle Board	b)	lopment are Microduino All of the above
12)	a) b)	Wireless communication ted NFC (Near-Field Communication RFID Bluetooth BR/EDR and Bluetoot all of the above	n)	
13)	a)	etooth network has feature Self-discovery capability Self-healing capability	b)	
14)	a)	E 802.15.4 is standard protocol t ZigBee	b)	Bluetooth low energy (BT/LE)

Seat	Set	
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# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering INTERNET OF THINGS	
•		te: Tuesday, 17-12-2019 Ma 30 PM To 05:30 PM	ax. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section - I	
Q.2	Solva) b) c) d)	ve any three.  What are the different applications of IoT? Explain.  Write a note on IoT architecture. Explain Oracle's IoT architecture.  Explain sensor technology in brief.  Write a note on WSN Technology.	12
Q.3	Solva) b) c)	ve any two. Write a note on Logical design of IoT. Elaborate on RFID (Radio frequency identification technology) in det Write a note on IoT communication technologies.	<b>16</b> ail.
		Section – II	
Q.4	Solva) b) c) d)	ve any three. Write a note on constrained application protocol (CoAP). Explain IoT Privacy & Vulnerability in brief. Write a note on IoT security tomography & layered attacker model. Write a note on applications of IoT in home automation.	12
Q.5	Solva) a) b) c)	ve any two. Write a note on business models in IoT. Write a note value creation in IoT & business model innovation for IoWrite a short note on Zigbee/IEEE802.15.4 standard.	<b>16</b> T.

Seat No. Set	R
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# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

			Computer Sciend INTERNET				
•	Day & Date: Tuesday, 17-12-2019 Max. Marks: 70  Time: 02:30 PM To 05:30 PM						
Inst	ructio	ns: 1	) Q. No. 1 is compulsory and s	hould	be solved in first 30 minutes in answer		
			Book. 2) Figures to the right indicate for	ıll ma	arke		
		2	MCQ/Objective				
Dur	ation: 3	30 Mi	-	турс	Marks: 14		
Q.1			the correct alternatives from Wireless communication to		ptions. 14		
		a) b) c) d)	NFC (Near-Field Communicat RFID Bluetooth BR/EDR and Blueto all of the above	,	ow Energy		
	2)	Blue a) c)	etooth network has feato Self-discovery capability Self-healing capability		Self-configuration capability all of the above		
	3)	IEE a) c)	E 802.15.4 is standard protoco ZigBee WPAN	l for _ b) d)	Bluetooth low energy (BT/LE) Bluetooth		
	4)		eleration sensor uses for e axes by capacitive variation i MEMS (Micro Electro Mechan Thermistor Photo-conductor None of the above	n thre			
	5)	pre			ehicles-to-infrastructure technology, & autonomous cars are enabled		
		a) c)	Automotive IoT WSN	b) d)	Industrial IoT (IIoT) None of above		
	6)	LIN a) c)	an abbreviation of  Local Interconnect Network  Leased Internet Network	b) d)	Local Internet Network none of the above		
	7)	LEA a) b) c) d)	AP protocol stands for Localized Encryption & Authe Local Eavesdropping Applicat Local Encryption Authorization None of the above	nticat ion P	rotocol		
	8)		AP is an Application Layer protocol	b)	Session Layer Protocol		

c) Physical Layer Protocol

d) Data Link Layer Protocol

Set R

9)	ZigBee offers commun the initial network synchronizat a) High-latency c) low-latency	ion delays b)	tween devices without the need for as required by Bluetooth. Medium-latency None of the above
10)	OWASP (Open Web Applicationa) Top vulnerabilities c) Testing guides	b)	• •
11)	<ul><li>loT is enabled by technology st</li><li>a) Wireless sensor networks</li><li>c) Big data analytics</li></ul>	b)	
12)	REST service is characterized a) Bi-directional model c) Request-Response model	b)	 Full duplex model Unidirectional model
13)	<ul> <li>Exclusive Pair model is</li></ul>	on model	
14)	Hardware sources of IoT protot a) RasWIK c) Beagle Board	• •	lopment are Microduino All of the above

Seat	Set	D
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# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering INTERNET OF THINGS	
•		ate: Tuesday, 17-12-2019 30 PM To 05:30 PM	Max. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	Sol a) b) c) d)	we any three. What are the different applications of IoT? Explain. Write a note on IoT architecture. Explain Oracle's IoT architecture. Explain sensor technology in brief. Write a note on WSN Technology.	12
Q.3	Sol a) b) c)	ve any two. Write a note on Logical design of IoT. Elaborate on RFID (Radio frequency identification technology) in ownite a note on IoT communication technologies.	<b>16</b> detail.
		Section – II	
Q.4	Sol a) b) c) d)	ve any three. Write a note on constrained application protocol (CoAP). Explain IoT Privacy & Vulnerability in brief. Write a note on IoT security tomography & layered attacker model Write a note on applications of IoT in home automation.	
Q.5	Sol a) b)	we any two.  Write a note on business models in IoT.  Write a note value creation in IoT & business model innovation for Write a short note on Zigbee/IEEE802 15 4 standard	<b>16</b> IoT.

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# B F (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		D.1	Computer Science INTERNET C	e &	Engineering	3
			uesday, 17-12-2019 И То 05:30 PM		Ma	ax. Marks: 70
Insti	uctio		Q. No. 1 is compulsory and sh     Book.     Figures to the right indicate ful			s in answer
			MCQ/Objective T			
Dura	ition: 3	80 M	inutes			Marks: 14
Q.1	<b>Cho</b> 1)	LIN	the correct alternatives from to an abbreviation of Local Interconnect Network Leased Internet Network	b)		14
	2)		AP protocol stands for  Localized Encryption & Authen  Local Eavesdropping Application  Local Encryption Authorization  None of the above	n Pi	otocol	
	3)		AP is an Application Layer protocol Physical Layer Protocol	,	•	
	4)		Bee offers communication initial network synchronization definition High-latency low-latency	elay: b)		need for
	5)	a)	ASP (Open Web Application Se Top vulnerabilities Testing guides	b)	y Project) defines Attack Surface Areas All of the above	
	6)	loT a) c)	is enabled by technology such a Wireless sensor networks Big data analytics	b)	Cloud computing All of the above	
	7)	RE: a) c)	ST service is characterized by _ Bi-directional model Request-Response model	,	 Full duplex model Unidirectional model	
	8)	Exc a) b) c) d)	clusive Pair model is  Bi-directional communication m  Fully- duplex communication m  Both a) & b)  none of the above			
	9)	Har a)	dware sources of IoT prototype RasWIK		lopment are Microduino	

d) All of the above

c) Beagle Board

Set S

10)	Wireless communication technologies IoT.					
,	a) b)					
	c) d)	Bluetooth BR/EDR and Bluetoo all of the above	th L	ow Energy		
11)		etooth network has featur Self-discovery capability Self-healing capability	b)			
12)	IEE a) c)	E 802.15.4 is standard protocol t ZigBee WPAN		Bluetooth low energy (BT/LE) Bluetooth		
13)	thre a) b)	ee axes by capacitive variation in	thre			
14)	pre			ehicles-to-infrastructure technology, & autonomous cars are enabled		
	a) c)	Automotive IoT WSN	b) d)	Industrial IoT (IIoT) None of above		

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#### B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering INTERNET OF THINGS**

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Q.2 Solve any three. 12 What are the different applications of IoT? Explain. Write a note on IoT architecture. Explain Oracle's IoT architecture. b) Explain sensor technology in brief. c) Write a note on WSN Technology. Q.3 Solve any two. 16 Write a note on Logical design of IoT. Elaborate on RFID (Radio frequency identification technology) in detail. Write a note on IoT communication technologies. Section - II Q.4 Solve any three. 12 Write a note on constrained application protocol (CoAP). Explain IoT Privacy & Vulnerability in brief. b) Write a note on IoT security tomography & layered attacker model. Write a note on applications of IoT in home automation. d) Q.5 Solve any two. 16

- Write a note on business models in IoT.
- Write a note value creation in IoT & business model innovation for IoT. b)
- Write a short note on Zigbee/IEEE802.15.4 standard.

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Seat	Set	D
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		Computer Science WIRELESS ADH	ce & E	ngineering
		te: Tuesday,17-12-2019 30 PM To 05:30 PM		Max. Marks: 70
Instr	uctio	ons: 1) Q. No. 1 is compulsory and sook. 2) Figures to the right indicate fu		be solved in first 30 minutes in answer s.
		MCQ/Objective	Туре	Questions
Dura	tion: 3	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	Coose the correct alternatives from Comparative bidding and often ref a) Beauty contest c) Auctioning	erred to	
	2)	The ratio of the power of the trans signal received by the receiver, or a) Fading c) Path loss		n path is called as
	3)	MACA was proposed due to the sused for wireless networks.  a) MACAW c) FDMA	hortcom b) d)	nings of protocols when  CDMA  CSMA
	4)	The Nyquist theorem is also know a) sampling theorem c) shannon's theorem		signalling theorem baud rate theorem
	5)	The floor acquisition multiple accerdance channel access discipline which continues the sender and the intendal carrier-sensing operation, collipsion detection, packet tractors are signal distribution, medium and Fluctuation & synchronization	onsists ded rec lision-a nsmissi ccess	of a and dialog eiver of a packet. voidance
	6)	<ul><li>protocol do not maintain the</li><li>a) Reactive routing protocol</li><li>c) Table driven routing protocol</li></ul>	b)	· · · · · · · · · · · · · · · · · · ·
	7)	Flat addressing scheme similar to a) IEEE 802.15 c) IEEE 802.4	the one b) d)	e used in LANs. IEEE 802.3 IEEE 802.11
	8)	protocol is used in the zone proactive routing.  a) intra-zone routing  c) both a & b	e where b) d)	a particular node employs inter zone routing none of above

Set P

9)	Multicast group periodically floods a a) Join Reply c) RTS & CTS	b) d)	•
10)	It is found that the TCP degrain string topology Ad-hoc wireless na) frequency, amplitude c) throughput, path length	etwor b)	k. path length, path loss
11)	,	n of th Itering	ne network; the snoops the data it. Flooding
12)	Digital Signature scheme is based of a) public key cryptography c) stenography		private key cryptography
13)	PCF stands for a) Point Coordinator Function c) Point correlation fading		
14)	Secure efficient ad hoc distance ved for authenticating the update a) One-way hash function c) Hash table	s.	two way hash function

	SLR-FM-3	18
Sea No.	Set	P
	B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering WIRELESS ADHOC NETWORKS	
-	& Date: Tuesday,17-12-2019 Max. Marks e: 02:30 PM To 05:30 PM	s: 56
Instr	ructions: 1) All questions are compulsory.  2) Figures to the right indicate full marks.	
	Section – I	
Q.2	<ul> <li>Attempt any three questions.</li> <li>a) Distinguish between cellular network &amp; Ad-hoc network.</li> <li>b) Explain the characteristics of wireless channel.</li> <li>c) What issues need to be considered while designing MAC protocol?</li> <li>d) Explain the details Classifications of MAC protocols.</li> </ul>	12
Q.3	Attempt any one question.  a) Explain the issues in wireless Ad-hoc network using following points.  1) Medium-access scheme  2) Routing  3) Security  4) Energy management  OR	08
	Explain Ad Hoc On-Demand Distance-Vector Routing Protocol also explain Route maintenance in AODV.	
Q.4	What is Hybrid routing protocol? Explain Zone routing protocol. Give the advantages & disadvantage of zone routing protocol.	80
	Section – II	
Q.5	<ul> <li>Attempt any three questions:</li> <li>a) Explain Mesh based routing protocol with following points.</li> <li>1) On demand multicast routing protocol</li> <li>2) Dynamic Core based multicast routing protocol</li> </ul>	12
	b) What are the design goals of a transport layer protocol for ad hoc wireless network?	
	<ul> <li>c) Explain the Batten scheduling techniques using following points.</li> <li>1) Round robin technique</li> <li>2) random technique</li> </ul>	
	d) Explain QoS Framework for Ad-hoc wireless network.	
Q.6	Attempt any one question.  a) Explain the Network Layer Attacks using following points  1) Black hole attack 2) Byzantine attack 3) Wormhole attack 4) Routing attacks  OR  Explain Key Management in Ad Hoc Wireless Networks.	08

**Q.7** Draw and Explain Architectural reference model for multicast routing.

80

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# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering WIRELESS ADHOC NETWORKS

Day & Date: Tuesday,17-12-2019 Time: 02:30 PM To 05:30 PM Max. Marks: 70

Instr	uction	ns: 1) Q. No. 1 is compulsory and sho	ould b	pe solved in first 30 minutes in answ	ver
		Figures to the right indicate full r	narks	S.	
		MCQ/Objective Ty	ре С	Questions	
Durat	tion: 3	0 Minutes		Marks:	14
Q.1	<b>Cho</b> (1)	ose the correct alternatives from th protocol is used in the zone w proactive routing. a) intra-zone routing	here b)	a particular node employs inter zone routing	14
	2)	<ul><li>c) both a &amp; b</li><li>Multicast group periodically floods a</li><li>a) Join Reply</li><li>c) RTS &amp; CTS</li></ul>	b) d)	none of above _ packet throughout the network. Join Request RRTS	
	3)	It is found that the TCP degraded in string topology Ad-hoc wireless neally frequency, amplitude c) throughput, path length			
	4)	does not disrupt the operation exchanged in the network without alto a) Active attack c) External attack		e network; the snoops the data it. Flooding Passive attack	
	5)	Digital Signature scheme is based or a) public key cryptography c) stenography		private key cryptography public key encryption	
	6)	PCF stands for a) Point Coordinator Function c) Point correlation fading	b) d)	Point Coordination Function Point Coordination Fading	
	7)	Secure efficient ad hoc distance vect for authenticating the updates a) One-way hash function c) Hash table	•	EAD) routing protocol uses a two way hash function two way handshaking	
	8)	Comparative bidding and often referral Beauty contest c) Auctioning	ed to b) d)	as the method. Lottery System ISM band allocation	
	9)	The ratio of the power of the transmit signal received by the receiver, on a a) Fading c) Path loss			

Set Q

10)	use a)	CA was proposed due to the sho ed for wireless networks. MACAW FDMA	rtcom b) d)	ings of protocols when  CDMA  CSMA	
11)	The	e Nyquist theorem is also known a sampling theorem shannon's theorem	as b)		
12)	chabet a) b) c)	The floor acquisition multiple access (FAMA) protocols are based on a channel access discipline which consists of a and dialog between the sender and the intended receiver of a packet.  a) Carrier-sensing operation, collision-avoidance b) Collision detection, packet transmission c) Signal distribution, medium access d) Fluctuation & synchronization			
13)	a) c)	protocol do not maintain the Reactive routing protocol Table driven routing protocol	b)	Proactive routing protocol	
14)	a)	t addressing scheme similar to the IEEE 802.15	b)	used in LANs. IEEE 802.3	

		SLR-FM-3	18				
Seat No.	t	Set	Q				
	B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering WIRELESS ADHOC NETWORKS						
Time	Day & Date: Tuesday,17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM						
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li></ul>					
		Section – I					
Q.2	a) b)	empt any three questions.  Distinguish between cellular network & Ad-hoc network.  Explain the characteristics of wireless channel.  What issues need to be considered while designing MAC protocol?  Explain the details Classifications of MAC protocols.	12				
Q.3	Att a)	empt any one question.  Explain the issues in wireless Ad-hoc network using following points.  1) Medium-access scheme  2) Routing  3) Security  4) Energy management  OR  Explain Ad Hoc On-Demand Distance-Vector Routing Protocol also explain Route maintenance in AODV.	08				
Q.4		nat is Hybrid routing protocol? Explain Zone routing protocol. Give the vantages & disadvantage of zone routing protocol.	80				
		Section – II					
Q.5	Atta) b) c)	<ul> <li>empt any three questions:</li> <li>Explain Mesh based routing protocol with following points.</li> <li>1) On demand multicast routing protocol</li> <li>2) Dynamic Core based multicast routing protocol</li> <li>What are the design goals of a transport layer protocol for ad hoc wireless network?</li> <li>Explain the Batten scheduling techniques using following points.</li> <li>1) Round robin technique</li> <li>2) random technique</li> <li>Explain QoS Framework for Ad-hoc wireless network.</li> </ul>	12				
Q.6	•	·	08				
<b>u.</b> 0	a)	<ul> <li>empt any one question.</li> <li>Explain the Network Layer Attacks using following points</li> <li>1) Black hole attack</li> <li>2) Byzantine attack</li> <li>3) Wormhole attack</li> <li>4) Routing attacks</li> </ul>	00				

OR

Explain Key Management in Ad Hoc Wireless Networks.

**Q.7** Draw and Explain Architectural reference model for multicast routing.

80

Seat No.	Set	R
NO.		

#### B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering** WIRELESS ADHOC NETWORKS

Day & Date: Tuesday,17-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book. 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Q.1 Choose the correct alternatives from the options. 14 The floor acquisition multiple access (FAMA) protocols are based on a channel access discipline which consists of a \_\_\_\_\_ and \_\_\_\_ dialog between the sender and the intended receiver of a packet. a) Carrier-sensing operation, collision-avoidance b) Collision detection, packet transmission c) Signal distribution, medium access d) Fluctuation & synchronization 2) protocol do not maintain the network topology information. Reactive routing protocol a) b) Proactive routing protocol Table driven routing protocol Hybrid routing protocol d) \_\_\_ LANs. 3) Flat addressing scheme similar to the one used in \_\_\_ a) IEEE 802.15 **IEEE 802.3** b) c) IEEE 802.4 d) IEEE 802.11 4) protocol is used in the zone where a particular node employs proactive routing. a) intra-zone routing b) inter zone routing c) both a & b none of above d) Multicast group periodically floods a \_\_\_ \_ packet throughout the network. 5) Join Request a) Join Reply b) c) RTS & CTS d) **RRTS** It is found that the TCP degrades rapidly with an increase in 6) in string topology Ad-hoc wireless network. a) frequency, amplitude b) path length, path loss c) throughput, path length wavelength, path loss d) does not disrupt the operation of the network; the snoops the data 7) exchanged in the network without altering it. Flooding a) Active attack b)

d)

b)

d)

Passive attack

private key cryptography

public key encryption

c) External attack

stenography

Digital Signature scheme is based on public key cryptography

8)

a)

c)

Set R

9)	PCF stands for					
,	,	Point Coordinator Function	,	Point Coordination Function		
	C)	Point correlation fading	d)	Point Coordination Fading		
10) Secure efficient ad hoc distance vector (SEAD) routing protocol for authenticating the updates.						
	a) c)	One-way hash function Hash table	b) d)	two way hash function two way handshaking		
11)		nparative bidding and often refer Beauty contest Auctioning	b)	as the method. Lottery System ISM band allocation		
12)	sigr a)	e ratio of the power of the transminal received by the receiver, on a Fading Path loss		•		
13)	used for wireless networks.					
		MACAW	b)	CDMA		
	c)	FDMA	d)	CSMA		
14)	The Nyquist theorem is also known as					
	a)	sampling theorem	b)	signalling theorem		
	c)	shannon's theorem	d)	baud rate theorem		

	SLR-FM-318
Seat No.	Set R
	B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering WIRELESS ADHOC NETWORKS
•	& Date: Tuesday,17-12-2019 Max. Marks: 50 : 02:30 PM To 05:30 PM
Instru	uctions: 1) All questions are compulsory. 2) Figures to the right indicate full marks.
	Section – I
Q.2	<ul> <li>Attempt any three questions.</li> <li>a) Distinguish between cellular network &amp; Ad-hoc network.</li> <li>b) Explain the characteristics of wireless channel.</li> <li>c) What issues need to be considered while designing MAC protocol?</li> <li>d) Explain the details Classifications of MAC protocols.</li> </ul>
Q.3	Attempt any one question.  a) Explain the issues in wireless Ad-hoc network using following points.  1) Medium-access scheme 2) Routing 3) Security 4) Energy management  OR
	Explain Ad Hoc On-Demand Distance-Vector Routing Protocol also explain Route maintenance in AODV.
Q.4	What is Hybrid routing protocol? Explain Zone routing protocol. Give the advantages & disadvantage of zone routing protocol.
	Section – II
Q.5	Attempt any three questions:  a) Explain Mesh based routing protocol with following points.  1) On demand multicast routing protocol  2) Dynamic Core based multicast routing protocol  b) What are the design goals of a transport layer protocol for ad hoc wireless
	network?  c) Explain the Batten scheduling techniques using following points.  1) Round robin technique  2) random technique
	d) Explain QoS Framework for Ad-hoc wireless network.
Q.6	Attempt any one question.  a) Explain the Network Layer Attacks using following points  1) Black hole attack

OR

Explain Key Management in Ad Hoc Wireless Networks.

**Q.7** Draw and Explain Architectural reference model for multicast routing.

2) Byzantine attack 3) Wormhole attack 4) Routing attacks

Page **9** of **12** 

Seat	Set	S
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# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering WIRELESS ADHOC NETWORKS

Day & Date: Tuesday,17-12-2019 Time: 02:30 PM To 05:30 PM Max. Marks: 70

Instr	uctio	ons: 1) Q. No. 1 is compulsory and sh book.	ould	be solved in first 30 minutes in answer
		2) Figures to the right indicate full	mark	S.
		MCQ/Objective T	ype	Questions
Dura	tion: (	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	It is found that the TCP degral in string topology Ad-hoc wireless national frequency, amplitude  c) throughput, path length	ades etwor b)	rapidly with an increase in
	2)	,	n of tl	ne network; the snoops the data
	3)	Digital Signature scheme is based of a) public key cryptography c) stenography		private key cryptography
	4)	PCF stands for  a) Point Coordinator Function c) Point correlation fading	,	Point Coordination Function Point Coordination Fading
	5)	Secure efficient ad hoc distance vec for authenticating the update a) One-way hash function c) Hash table	s.	SEAD) routing protocol uses a  two way hash function two way handshaking
	6)	Comparative bidding and often referal a) Beauty contest c) Auctioning	rred to b) d)	o as the method. Lottery System ISM band allocation
	7)	The ratio of the power of the transm signal received by the receiver, on a a) Fading c) Path loss		•
	8)	MACA was proposed due to the shoused for wireless networks.  a) MACAW c) FDMA	ortcon b) d)	nings of protocols when  CDMA  CSMA
	9)	The Nyquist theorem is also known a) sampling theorem c) shannon's theorem	as b) d)	signalling theorem

Set S

10)	The floor acquisition multiple access channel access discipline which conbetween the sender and the intended	nsists	of a and dialog
	<ul> <li>a) Carrier-sensing operation, collis</li> <li>b) Collision detection, packet trans</li> <li>c) Signal distribution, medium acc</li> <li>d) Fluctuation &amp; synchronization</li> </ul>	sion-a smissi	voidance
11)	<ul><li>protocol do not maintain the</li><li>Reactive routing protocol</li><li>Table driven routing protocol</li></ul>	b)	Proactive routing protocol
12)	Flat addressing scheme similar to that a) IEEE 802.15 c) IEEE 802.4		IEEE 802.3
13)	protocol is used in the zone proactive routing.  a) intra-zone routing  c) both a & b		a particular node employs inter zone routing none of above
14)	Multicast group periodically floods a a) Join Reply c) RTS & CTS	b) d)	•

	SLR-FM-3	318
Seat No.	Set	S
	B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering WIRELESS ADHOC NETWORKS	
	& Date: Tuesday,17-12-2019 Max. Marks : 02:30 PM To 05:30 PM	s: 56
Instr	uctions: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
	Section – I	
Q.2	<ul> <li>Attempt any three questions.</li> <li>a) Distinguish between cellular network &amp; Ad-hoc network.</li> <li>b) Explain the characteristics of wireless channel.</li> <li>c) What issues need to be considered while designing MAC protocol?</li> <li>d) Explain the details Classifications of MAC protocols.</li> </ul>	12
Q.3	Attempt any one question.  a) Explain the issues in wireless Ad-hoc network using following points.  1) Medium-access scheme 2) Routing 3) Security 4) Energy management  OR	08
	Explain Ad Hoc On-Demand Distance-Vector Routing Protocol also explain Route maintenance in AODV.	
Q.4	What is Hybrid routing protocol? Explain Zone routing protocol. Give the advantages & disadvantage of zone routing protocol.	80
	Section – II	
Q.5	<ul> <li>Attempt any three questions:</li> <li>a) Explain Mesh based routing protocol with following points.</li> <li>1) On demand multicast routing protocol</li> <li>2) Dynamic Core based multicast routing protocol</li> <li>b) What are the design goals of a transport layer protocol for ad hoc wireless network?</li> <li>c) Explain the Batten scheduling techniques using following points.</li> <li>1) Round robin technique</li> <li>2) random technique</li> </ul>	12
	d) Explain QoS Framework for Ad-hoc wireless network.	
Q.6	Attempt any one question.  a) Explain the Network Layer Attacks using following points  1) Black hole attack  2) Byzantine attack  3) Wormhole attack	80

OR

Explain Key Management in Ad Hoc Wireless Networks.

**Q.7** Draw and Explain Architectural reference model for multicast routing.

4) Routing attacks

Page **12** of **12** 

Seat No.	Set	Р
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		B.E	E. (Part – I) (New) (CBCS Computer Scien ARTIFICIAL II	ce &	Engineering	
•			ıesday,17-12-2019 И То 05:30 PM		Max. Marks: 70	)
Instr	uctio		book.		be solved in first 30 minutes in answe	r
		2	) Figures to the right indicate f			
			MCQ/Objective	Туре		
	tion: (	30 Mi	inutes		Marks: 14	
Q.1	<b>Cho</b> 1)	A.M cou tech		ue for d	etermining whether a computer cial Intelligence, Presently, this  Algorithm Logarithm	1
	2)	,	ich search is implemented wit Depth-first search Bidirectional search	h an er b)	ŭ	
	3)	Wh a) c)	ich Search algorithm imposes Depth-limited search Iterative deepening search	b)	depth limit on nodes? Depth-first search Bidirectional search	
	4)	A* a a) c)	algorithm is based on Breadth-First-Search Best-First-Search	b) d)	Depth-First–Search Hill climbing	
	5)	Wh a) b) c) d)	at is the evaluation function in Heuristic function Path cost from start node to Path cost from start node to Average of Path cost from st cost	current current	node	
	6)	Wh a) b) c) d)	at is the evaluation function in Heuristic function Path cost from start node to Path cost from start node to Average of Path cost from st cost	current current	node	
	7)	Wh a) c)	ich is used for utility functions Linear polynomial Polynomial		e playing algorithm? Weighted polynomial Linear weighted polynomial	
	8)		e network that involves backwa den layers is called Self organizing maps Recurrent neural network		s from output to the input and  Perceptrons  Multi layered perceptron	

Set P

- 9) What is a Cybernetics?
  - a) Study of communication between two machines
  - b) Study of communication between human and machine
  - c) Study of communication between two humans
  - d) Study of Boolean values
- 10) What is back propagation?
  - a) It is another name given to the curvy function in the perceptron
  - b) It is the transmission of error back through the network to adjust the inputs
  - c) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
  - d) None of the mentioned
- 11) Neural Networks are complex \_\_\_\_\_ with many parameters.
  - a) Linear Functions
- b) Nonlinear Functions
- c) Discrete Functions
- d) Exponential Functions
- 12) Where does the bayes rule can be used?
  - a) Solving queries
- b) Increasing complexity
- c) Decreasing complexity
- d) Answering probabilistic query
- 13) What is the consequence between a node and its predecessors while creating bayesian network?
  - a) Functionally dependent
  - b) Dependant
  - c) Conditionally independent
  - d) Both Conditionally dependant & Dependant
- 14) Where does the Hidden Markov Model is used?
  - a) Speech recognition
  - b) Understanding of real world
  - c) Both speech recognition & Understanding of real world
  - d) None of the mentioned

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P

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering ARTIFICIAL INTELLIGENCE

Day & Date: Tuesday, 17-12-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

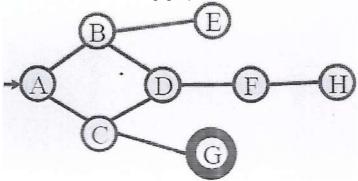
**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Q.2 Attempt any five.

30

- a) Explain state space approach for solving any Al problem.
- **b)** Explain A\* searching technique in detail with example. Discuss conditions for the optimality of this technique.
- c) Will Breadth First Search always find Optimal Solution. Why? Elaborate with a good example.
- d) Discuss the need and structure of Bayesian Networks.
- **e)** Define Belief Network. Explain conditional Independence relation in Belief Network with example.
- f) Consider the following graph.



Starting from state A, execute DFS. The goal node is G. Show the order in which the nodes are expanded? Assume that the alphabetically smaller node is expanded first to break ties.

#### Q.3 Attempt any two.

16

- a) Write a note on Passive reinforcement learning and direct utility estimation.
- b) Explain Markov Decision Process and its working with good example.
- c) Write a note on Random search, Search with closed and open list.

#### Q.4 Review different Search Strategies.

- a) Blind Search
  - 1) Depth first search
  - 2) Breadth first search
  - 3) Iterative deepening search
  - 4) Bidirectional search
- **b)** Informed Search.

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# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

**ARTIFICIAL INTELLIGENCE** Day & Date: Tuesday,17-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 14 Q.1 Choose the correct alternatives from the options. The network that involves backward links from output to the input and hidden layers is called Self organizing maps b) Perceptrons Recurrent neural network d) Multi layered perceptron c) 2) What is a Cybernetics? Study of communication between two machines Study of communication between human and machine b) Study of communication between two humans c) Study of Boolean values d) What is back propagation? 3) It is another name given to the curvy function in the perceptron b) It is the transmission of error back through the network to adjust the inputs It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn None of the mentioned d) Neural Networks are complex \_\_\_\_\_ with many parameters. 4) **Linear Functions** b) Nonlinear Functions Discrete Functions d) Exponential Functions c) 5) Where does the bayes rule can be used? Solving queries b) Increasing complexity Decreasing complexity d) Answering probabilistic query c) 6) What is the consequence between a node and its predecessors while creating bayesian network? a) Functionally dependent

- b) Dependant
- Conditionally independent c)
- Both Conditionally dependant & Dependant
- 7) Where does the Hidden Markov Model is used?
  - Speech recognition
  - Understanding of real world
  - Both speech recognition & Understanding of real world c)
  - None of the mentioned

Set Q

8)	cou	<ol> <li>Turing developed a technique ld or could not demonstrate the nnique is called</li> </ol>		
		Turing Test Boolean Algebra	b) d)	Algorithm Logarithm
9)	a)	ich search is implemented with a Depth-first search Bidirectional search	b)	npty first-in-first-out queue? Breadth-first search None of the mentioned
10)	Whi a) c)	•	b)	depth limit on nodes? Depth-first search Bidirectional search
11)	a)	algorithm is based on Breadth-First-Search Best-First-Search	b) d)	Depth-First–Search Hill climbing
12)	a)	at is the evaluation function in gr Heuristic function Path cost from start node to cur Path cost from start node to cur Average of Path cost from start cost	rrent rrent	node node + Heuristic cost
13)			rrent rrent	node node + Heuristic cost
14)	Whi a) c)	ich is used for utility functions in Linear polynomial Polynomial	b)	e playing algorithm? Weighted polynomial Linear weighted polynomial

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# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering ARTIFICIAL INTELLIGENCE

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

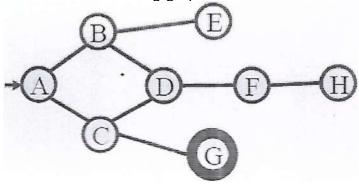
**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Q.2 Attempt any five.

30

- a) Explain state space approach for solving any Al problem.
- **b)** Explain A\* searching technique in detail with example. Discuss conditions for the optimality of this technique.
- c) Will Breadth First Search always find Optimal Solution. Why? Elaborate with a good example.
- d) Discuss the need and structure of Bayesian Networks.
- e) Define Belief Network. Explain conditional Independence relation in Belief Network with example.
- f) Consider the following graph.



Starting from state A, execute DFS. The goal node is G. Show the order in which the nodes are expanded? Assume that the alphabetically smaller node is expanded first to break ties.

#### Q.3 Attempt any two.

16

- a) Write a note on Passive reinforcement learning and direct utility estimation.
- **b)** Explain Markov Decision Process and its working with good example.
- c) Write a note on Random search, Search with closed and open list.

#### Q.4 Review different Search Strategies.

- a) Blind Search
  - 1) Depth first search
  - 2) Breadth first search
  - 3) Iterative deepening search
  - 4) Bidirectional search
- b) Informed Search.

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# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering ARTIFICIAL INTELLIGENCE

Day & Date: Tuesday,17-12-2019

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book

2) Figures to the right indicate full marks.

### **MCQ/Objective Type Questions**

Duration: 30 Minutes Marks: 14

#### Q.1 Choose the correct alternatives from the options.

14

Max. Marks: 70

- 1) What is the evaluation function in greedy approach?
  - a) Heuristic function
    - b) Path cost from start node to current node
    - c) Path cost from start node to current node + Heuristic cost
    - Average of Path cost from start node to current node and Heuristic cost
- 2) What is the evaluation function in A\* approach?
  - a) Heuristic function
  - b) Path cost from start node to current node
  - c) Path cost from start node to current node + Heuristic cost
  - Average of Path cost from start node to current node and Heuristic cost
- 3) Which is used for utility functions in game playing algorithm?
  - a) Linear polynomial
- b) Weighted polynomial

c) Polynomial

- d) Linear weighted polynomial
- 4) The network that involves backward links from output to the input and hidden layers is called .
  - a) Self organizing maps
- b) Perceptrons
- c) Recurrent neural network
- d) Multi layered perceptron
- 5) What is a Cybernetics?
  - a) Study of communication between two machines
  - b) Study of communication between human and machine
  - c) Study of communication between two humans
  - d) Study of Boolean values
- 6) What is back propagation?
  - a) It is another name given to the curvy function in the perceptron
  - b) It is the transmission of error back through the network to adjust the inputs
  - c) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn
  - d) None of the mentioned

Set R

7)	Neu a)	ural Networks are complex Linear Functions	_ witl b)	h many parameters. Nonlinear Functions
	c)	Discrete Functions	ď)	
8)		ere does the bayes rule can be u Solving queries Decreasing complexity	used b) d)	
9)		at is the consequence between a ating bayesian network? Functionally dependent Dependant Conditionally independent Both Conditionally dependant &		·
10)	Whea) b) c) d)	ere does the Hidden Markov Mo Speech recognition Understanding of real world Both speech recognition & Und None of the mentioned		
11)	cou tech a)	M. Turing developed a technique ald or could not demonstrate the annique is called  Turing Test	artifions	cial Intelligence, Presently, this  Algorithm
	c)	Boolean Algebra	d)	Logarithm
12)	vvh a) c)	ich search is implemented with a Depth-first search Bidirectional search		Breadth-first search
13)	Wh a) c)	ich Search algorithm imposes a Depth-limited search Iterative deepening search	fixed b) d)	Depth-first search
14)	A* a a) c)	algorithm is based on Breadth-First-Search Best-First-Search	b) d)	Depth-First–Search Hill climbing

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# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering ARTIFICIAL INTELLIGENCE

Day & Date: Tuesday, 17-12-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

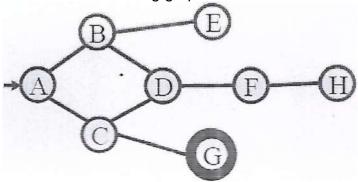
**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Q.2 Attempt any five.

30

- a) Explain state space approach for solving any Al problem.
- **b)** Explain A\* searching technique in detail with example. Discuss conditions for the optimality of this technique.
- c) Will Breadth First Search always find Optimal Solution. Why? Elaborate with a good example.
- d) Discuss the need and structure of Bayesian Networks.
- e) Define Belief Network. Explain conditional Independence relation in Belief Network with example.
- f) Consider the following graph.



Starting from state A, execute DFS. The goal node is G. Show the order in which the nodes are expanded? Assume that the alphabetically smaller node is expanded first to break ties.

#### Q.3 Attempt any two.

16

- a) Write a note on Passive reinforcement learning and direct utility estimation.
- b) Explain Markov Decision Process and its working with good example.
- c) Write a note on Random search, Search with closed and open list.

#### Q.4 Review different Search Strategies.

- a) Blind Search
  - 1) Depth first search
  - 2) Breadth first search
  - 3) Iterative deepening search
  - 4) Bidirectional search
- **b)** Informed Search.

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# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

**ARTIFICIAL INTELLIGENCE** Day & Date: Tuesday,17-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer 2) Figures to the right indicate full marks. **MCQ/Objective Type Questions Duration: 30 Minutes** Marks: 14 14 **Q.1** Choose the correct alternatives from the options. What is back propagation? It is another name given to the curvy function in the perceptron It is the transmission of error back through the network to adjust the inputs It is the transmission of error back through the network to allow c) weights to be adjusted so that the network can learn None of the mentioned d) 2) Neural Networks are complex \_\_\_\_\_ with many parameters. Linear Functions b) Nonlinear Functions Discrete Functions d) Exponential Functions c) 3) Where does the bayes rule can be used? Solving queries b) Increasing complexity Decreasing complexity d) Answering probabilistic query c) 4) What is the consequence between a node and its predecessors while creating bayesian network? a) Functionally dependent b) Dependant Conditionally independent c) Both Conditionally dependant & Dependant 5) Where does the Hidden Markov Model is used? Speech recognition Understanding of real world b) Both speech recognition & Understanding of real world c) None of the mentioned A.M. Turing developed a technique for determining whether a computer 6) could or could not demonstrate the artificial Intelligence, Presently, this technique is called \_\_\_\_\_. **Turing Test** Algorithm a) b) c) Boolean Algebra d) Logarithm 7) Which search is implemented with an empty first-in-first-out queue?

b) Breadth-first search

d) None of the mentioned

Depth-first search

c)

Bidirectional search

Set S

8)	Wh a) c)	ich Search algorithm imposes a Depth-limited search Iterative deepening search	fixed b) d)	Depth-first search
9)	A* a a) c)	algorithm is based on Breadth-First-Search Best-First-Search	b) d)	Depth-First–Search Hill climbing
10)	Wha) b) c) d)		rrent rrent	node
11)	Wha) b) c) d)	at is the evaluation function in A <sup>2</sup> Heuristic function Path cost from start node to cur Path cost from start node to cur Average of Path cost from start cost	rrent rrent	node
12)	Wh a) c)	ich is used for utility functions in Linear polynomial Polynomial		ne playing algorithm? Weighted polynomial Linear weighted polynomial
13)		e network that involves backward den layers is called Self organizing maps Recurrent neural network		s from output to the input and Perceptrons Multi layered perceptron
14)	Wha) b) c) d)	at is a Cybernetics? Study of communication between Study of communication between Study of communication between Study of Boolean values	en h	uman and machine

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# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering ARTIFICIAL INTELLIGENCE

Day & Date: Tuesday, 17-12-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

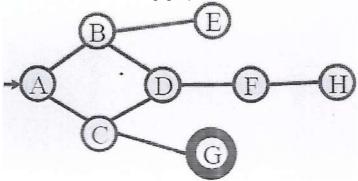
**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Q.2 Attempt any five.

30

- a) Explain state space approach for solving any Al problem.
- **b)** Explain A\* searching technique in detail with example. Discuss conditions for the optimality of this technique.
- c) Will Breadth First Search always find Optimal Solution. Why? Elaborate with a good example.
- d) Discuss the need and structure of Bayesian Networks.
- e) Define Belief Network. Explain conditional Independence relation in Belief Network with example.
- f) Consider the following graph.



Starting from state A, execute DFS. The goal node is G. Show the order in which the nodes are expanded? Assume that the alphabetically smaller node is expanded first to break ties.

#### Q.3 Attempt any two.

16

- a) Write a note on Passive reinforcement learning and direct utility estimation.
- **b)** Explain Markov Decision Process and its working with good example.
- c) Write a note on Random search, Search with closed and open list.

#### Q.4 Review different Search Strategies.

- a) Blind Search
  - 1) Depth first search
  - 2) Breadth first search
  - 3) Iterative deepening search
  - 4) Bidirectional search
- **b)** Informed Search.

Seat	Set	Р
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		B.E. (Part – I) (New) (CBC) Computer Scie BUSINESS	nce & E	ngineering	
-		te: Saturday, 14-12-2019 30 PM To 05:30 PM		Max. N	/larks: 70
Insti	ructio	ons: 1) Q. No. 1 is compulsory an book.	d should b	oe solved in first 30 minutes in	n answer
		2) Figure to the right indicate	s full mark	S.	
		MCQ/Objectiv	e Type Q	uestions	
Dura	ation:	30 Minutes		N	/larks: 14
Q.1	<b>Cho</b> 1)	Business intelligence (BI) is a br which includes a) Decision support c) OLAP	•		14
	2)	Which of the following is not an a a) K-means c) K-medoids	algorithm ( b) d)	of partitioning methods? DIANA CLARANS	
	3)	Which of the following is not a ty process?  a) Strategic Decision c) Tactical Decisions	pe of deci b) d)	sion in decision-making Operational Decisions MathematicalDecisions	
	4)	CRM refers to  a) Customer Relationship Mar b) Customers Relational Mana c) Consumer Relations Mana d) Consumer Relational Mana	agement gement		
	5)	Which of the following is the last a) Analyze the problem c) Identify the problem		Collect relevant data	
	6)	A decision is if it is based making procedure.  a) Structured Decisions c) Unstructured Decisions	l on well-do b) d)	Semi-structured decisions	-
	7)	<ul><li>describes the data contai</li><li>a) Relational data</li><li>c) Operational data</li></ul>	ned in the b) d)	data warehouse. Metadata Informational data	
	8)	Which of the following are stand transformation?  a) Decimal Scaling c) Min-max method	ardization b) d)	z-index All of the above	

Set P

9)	is an oriented graph consisting of nodes, which in the biologica analogy represent neurons, connected by arcs, which corresponds to dendrites and synapses.				
	a) c)	Neural networks Classification	b) d)	Regression Clustering	
10)	Wel a) c)	b mining method is used for Content mining Usage mining	 b) d)	Structure mining All of the above	
11)	The a) c)	type of relationship in star schen Many to many one to many	na is <sub>.</sub> b) d)	one to one	
12)		important aspect of the data war nd within the data warehouse is _ subject-oriented Integrated		 time-variant	
13)	a) b)	siness Intelligence and data warely Forecasting Data Mining Analysis of large volumes of pro All of the above			
14)	Whi a) b) c) d)	ich statement is true about the K- The output attributes must be cate All attribute values must be cate All attribute must be numeric Attribute values may be either ca	atego goric	rical al	

Seat No.	Set	Р
NO.		

		B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2	019
		Computer Science & Engineering BUSINESS INTELLIGENCE	
Day	& Da	ate: Saturday, 14-12-2019	Max. Marks: 56
Time	: 02:	30 PM To 05:30 PM	
Instr	ucti	ons: 1) All Questions are compulsory. 2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Att	empt any Four.	16
		What do you mean by effective and timely decisions? Describe th of a Business intelligence system.	_
	b)	How Data mining process provide useful knowledge to decision mexplain with neat diagram.	akers?
	•	List the differences between Star schema and Galaxy schema.  What is the purpose of Data exploratory analysis? Explain the thre phases of Data exploratory analysis.  Write a short note on Data Reduction.	ee main
Q.3	•		06
Q.S	a)	empt any One. Define Decision system. Describe the phases of Decision-making in detail.	
	b)	Draw architecture of business intelligence system and explain the Components of business intelligence system.	
Q.4	Wh	empt the following. at do you mean by Data validation? Explain techniques used for da dation.	<b>06</b> ata
		Section – II	
Q.5	Δtt	empt any Four.	16
<b>Q.</b> 5	a)	Describe the purpose of Regression models and list the types of regression.	10
	b)	Write a short note on Bayesian methods.	
	c)	Why exponential smoothing models are used?	
	d) e)	Compare Bivariate and multivariate analysis.  How Salesforce management play a critical role in the implementarily relational marketing?	ation of
Q.6	Att	empt any One.	06
4.0	a) b)	Define Time series. How evaluation and analysis of time series ta What are the various data mining techniques for BI? Explain class and its problems in detail.	ke place?
Q.7		empt the following. strate the Motivation and objectives of Relational Marketing in detai	<b>06</b>

Seat	Set	
No.	Set	¥

	B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019  Computer Science & Engineering  BUSINESS INTELLIGENCE						
•			aturday, 14-12-2019 // To 05:30 PM		Max. Marks	s: 70	
Inst	uctio	ns: 1	Q. No. 1 is compulsory and sho book.	ould b	pe solved in first 30 minutes in ans	swer	
		2	2) Figure to the right indicates full	mark	s.		
			MCQ/Objective Ty	pe Q	uestions		
Dura	ition: 3	30 M	inutes		Marks	s: 14	
Q.1	<b>Cho</b> 1)	Whi	the correct alternatives from the ich of the following are standardiz sformation?  Decimal Scaling  Min-max method	•		14	
	2)	ana den	is an oriented graph consisting logy represent neurons, connected drites and synapses.  Neural networks  Classification				
	3)	Wel a) c)	b mining method is used for Content mining Usage mining	 b) d)	Structure mining All of the above		
	4)	The a) c)	type of relationship in star scheme Many to many one to many	na is b) d)	one to one many to one		
	5)	four	important aspect of the data ware nd within the data warehouse is _ subject-oriented Integrated				
	<ul> <li>Business Intelligence and data warehousing is used for</li> <li>a) Forecasting</li> <li>b) Data Mining</li> <li>c) Analysis of large volumes of product sales data</li> <li>d) All of the above</li> </ul>						
	7)	Whi a) b) c) d)	ich statement is true about the K-r The output attributes must be cat All attribute values must be cate All attribute must be numeric Attribute values may be either ca	tego goric	rical al		

Set Q

8)		siness intelligence (BI) is a broad of chincludes	categ	ory of application programs
	a) c)	Decision support OLAP	b) d)	Data mining All of the mentioned
9)	Wh a) c)	ich of the following is not an algor K-means K-medoids	ithm b) d)	of partitioning methods? DIANA CLARANS
10)	pro	ich of the following is not a type or cess?		_
	a) c)	Strategic Decision Tactical Decisions	b) d)	Operational Decisions Mathematical Decisions
11)	a) b)		ent ent	
12)	Wh a) c)	ich of the following is the last step Analyze the problem Identify the problem		ecision-making process? Collect relevant data Ensure feedback
13)		ecision is if it is based on vking procedure.	vell-d	efined and recurring decision
	a) c)	Structured Decisions Unstructured Decisions	b) d)	Semi-structured decisions None of the above
14)	a)	describes the data contained i Relational data Operational data	n the b) d)	data warehouse. Metadata Informational data
	c)	Operational data	u)	IIIIUIIIIallUIIal Uala

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# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

	Computer Science & Engineering BUSINESS INTELLIGENCE	
		: 56
uctio	ons: 1) All Questions are compulsory. 2) Figure to the right indicates full marks.	
	Section – I	
Atte a)	What do you mean by effective and timely decisions? Describe the benefits	16
b)	How Data mining process provide useful knowledge to decision makers? Explain with neat diagram.	
d)	What is the purpose of Data exploratory analysis? Explain the three main phases of Data exploratory analysis.	
•		06
a)	Define Decision system. Describe the phases of Decision-making process in detail.	UO
b)	Draw architecture of business intelligence system and explain the Components of business intelligence system.	
Wh	at do you mean by Data validation? Explain techniques used for data	06
	Section – II	
Atte a)	Describe the purpose of Regression models and list the types of	16
	Write a short note on Bayesian methods. Why exponential smoothing models are used? Compare Bivariate and multivariate analysis. How Salesforce management play a critical role in the implementation of	
Atte a) b)	empt any One.  Define Time series. How evaluation and analysis of time series take place?  What are the various data mining techniques for BI? Explain classification	06
	and its problems in detail.	
	·	06
	c) c	BUSINESS INTELLIGENCE  A Date: Saturday, 14-12-2019 Max. Marks: 02:30 PM To 05:30 PM  uctions: 1) All Questions are compulsory. 2) Figure to the right indicates full marks.  Section – I  Attempt any Four. a) What do you mean by effective and timely decisions? Describe the benefits of a Business intelligence system. b) How Data mining process provide useful knowledge to decision makers? Explain with neat diagram. c) List the differences between Star schema and Galaxy schema. d) What is the purpose of Data exploratory analysis? Explain the three main phases of Data exploratory analysis. e) Write a short note on Data Reduction.  Attempt any One. a) Define Decision system. Describe the phases of Decision-making process in detail. b) Draw architecture of business intelligence system and explain the Components of business intelligence system.  Attempt the following.  What do you mean by Data validation? Explain techniques used for data validation.  Section – II  Attempt any Four. a) Describe the purpose of Regression models and list the types of regression. b) Write a short note on Bayesian methods. c) Why exponential smoothing models are used? d) Compare Bivariate and multivariate analysis. e) How Salesforce management play a critical role in the implementation of relational marketing?  Attempt any One. a) Define Time series. How evaluation and analysis of time series take place?

No. Set R
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		B.E	Computer S	<u>-</u>	•	
-			turday, 14-12-2019 To 05:30 PM		Max.	Marks: 70
Inst	ructio		book.		pe solved in first 30 minutes	s in answer
		2	) Figure to the right indic			
Dure	stion.	20 Mir	-	ctive Type Q	uestions	Marko: 11
		30 Mir		fuero the ent	··	Marks: 14
Q.1	1)	Whic a)	he correct alternatives th of the following is the Analyze the problem Identify the problem	last step in de b)	ecision-making process? Collect relevant data Ensure feedback	14
	2)	maki a)	cision is if it is baing procedure. Structured Decisions Unstructured Decisions	b)	efined and recurring decisions Semi-structured decisions None of the above	
	3)	,	_ describes the data co Relational data Operational data	ntained in the b) d)	data warehouse. Metadata Informational data	
	4)	trans a)	ch of the following are sta sformation? Decimal Scaling Min-max method	andardization b) d)	z-index All of the above	
	5)	dend a)			odes, which in the biologica arcs, which corresponds to Regression Clustering	
	6)	a)	mining method is used Content mining Usage mining	for b) d)	Structure mining All of the above	
	7)	a)	type of relationship in sta Many to many one to many	ar schema is b) d)	one to one many to one	
	8)	foun a)	important aspect of the o d within the data wareho subject-oriented Integrated		se environment is that data time-variant All of the above	

Set R

9)	Bus a) b) c) d)	siness Intelligence and data warel Forecasting Data Mining Analysis of large volumes of pro All of the above		
10)	Wh a) b) c) d)	ich statement is true about the K- The output attributes must be ca All attribute values must be cate All attribute must be numeric Attribute values may be either c	atego goric	rical eal
11)		siness intelligence (BI) is a broad on the characteristic characteristic characteristics. Since the characteristics is a broad of the characteristics of the characteristics are characteristics.		gory of application programs  Data mining  All of the mentioned
12)		ich of the following is not an algor K-means K-medoids	ithm b) d)	of partitioning methods? DIANA CLARANS
13)		ich of the following is not a type o cess? Strategic Decision Tactical Decisions	f dec b) d)	· ·
14)	CRI a) b) c) d)	M refers to Customer Relationship Manage Customers Relational Managem Consumer Relations Manageme Consumer Relational Manageme	ent ent	

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# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering	
		BUSINESS INTELLIGENCE	
-		ate: Saturday, 14-12-2019 Max. Max. Max. Max. Max. Max. Max. Max.	arks: 56
_	_	30 PM To 05:30 PM	
Instr	uctio	ons: 1) All Questions are compulsory. 2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Att	empt any Four.	16
	a)	What do you mean by effective and timely decisions? Describe the benefit of a Business intelligence system.	ts
	b)	How Data mining process provide useful knowledge to decision makers? Explain with neat diagram.	
	c) d)	List the differences between Star schema and Galaxy schema.  What is the purpose of Data exploratory analysis? Explain the three main phases of Data exploratory analysis.	
	e)	Write a short note on Data Reduction.	
Q.3	Atto a)	empt any One.  Define Decision system. Describe the phases of Decision-making process in detail.	06
	b)	Draw architecture of business intelligence system and explain the Components of business intelligence system.	
Q.4	Wh	empt the following. at do you mean by Data validation? Explain techniques used for data dation.	06
		Section – II	
Q.5	Atte	empt any Four.	16
	a)	Describe the purpose of Regression models and list the types of regression.	
	b)	Write a short note on Bayesian methods.	
	c)	Why exponential smoothing models are used?	
	d) e)	Compare Bivariate and multivariate analysis.  How Salesforce management play a critical role in the implementation of relational marketing?	
Q.6	Atto a) b)	empt any One.  Define Time series. How evaluation and analysis of time series take place  What are the various data mining techniques for BI? Explain classification  and its problems in detail.	
Q.7		empt the following.  strate the Motivation and objectives of Relational Marketing in detail.	06

Seat No.	Set	S

		B.E	E. (Part – I) (New) (CBCS) E Computer Science BUSINESS INT	8 E	ngineering	
•			aturday, 14-12-2019 M To 05:30 PM		Max.	Marks: 70
Inst	ructio	ns:	<ol> <li>Q. No. 1 is compulsory and sh book.</li> </ol>	ould	be solved in first 30 minutes	in answer
		4	2) Figure to the right indicates ful	l marl	KS.	
			MCQ/Objective T	ype C	uestions	
Dura	ation: 3	30 M	inutes			Marks: 14
Q.1	<b>Cho</b> 1)		the correct alternatives from the mining method is used for	ne op	tions.	14
	.,	a) c)	Content mining Usage mining	b) d)	Structure mining All of the above	
	2)	The a) c)	type of relationship in star sche Many to many one to many	ma is b) d)	one to one many to one	
	3)		e important aspect of the data wand within the data warehouse is subject-oriented Integrated		se environment is that data  time-variant All of the above	
	4)	Bus a) b) c) d)	siness Intelligence and data ware Forecasting Data Mining Analysis of large volumes of pro All of the above			
	5)	Wh a) b) c) d)	ich statement is true about the K The output attributes must be c All attribute values must be cate All attribute must be numeric Attribute values may be either o	atego egorio	rical al	
	6)		siness intelligence (BI) is a broad ch includes Decision support OLAP	cated b) d)	pory of application programs  Data mining  All of the mentioned	
	7)	Wh a) c)	ich of the following is not an algo K-means K-medoids	rithm b) d)	of partitioning methods? DIANA CLARANS	
	8)		ich of the following is not a type ocess? Strategic Decision Tactical Decisions	of dec b) d)	ision in decision-making Operational Decisions MathematicalDecisions	

Set S

9)	CRi a) b) c) d)	Customers Relational Management Consumer Relations Management	ent ent	
10)	a)	ich of the following is the last step Analyze the problem Identify the problem	b)	ecision-making process? Collect relevant data Ensure feedback
11)	mal a)	ecision is if it is based on v king procedure. Structured Decisions Unstructured Decisions		Semi-structured decisions
12)	a) c)	describes the data contained Relational data Operational data	b)	
13)	trar	ich of the following are standardiz nsformation? Decimal Scaling Min-max method		z-index All of the above
14)	ana	is an oriented graph consisting alogy represent neurons, connected adrites and synapses.  Neural networks  Classification	_	

No.	Seat No.		Set	S
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# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering BUSINESS INTELLIGENCE	
•		te: Saturday, 14-12-2019 Max. Marks 30 PM To 05:30 PM	: 56
Instr	uctio	ons: 1) All Questions are compulsory. 2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Atte a)	empt any Four.  What do you mean by effective and timely decisions? Describe the benefits of a Business intelligence system.	16
	b)	How Data mining process provide useful knowledge to decision makers?  Explain with neat diagram.	
	•	List the differences between Star schema and Galaxy schema.  What is the purpose of Data exploratory analysis? Explain the three main phases of Data exploratory analysis.  Write a short note on Data Reduction.	
<b>0</b> 2	•		06
Q.3	a)	empt any One.  Define Decision system. Describe the phases of Decision-making process in detail.	UO
	b)	Draw architecture of business intelligence system and explain the Components of business intelligence system.	
Q.4	Wh	empt the following. at do you mean by Data validation? Explain techniques used for data dation.	06
		Section – II	
Q.5	Atte a)	empt any Four.  Describe the purpose of Regression models and list the types of regression.	16
		Write a short note on Bayesian methods. Why exponential smoothing models are used? Compare Bivariate and multivariate analysis. How Salesforce management play a critical role in the implementation of	
		relational marketing?	
Q.6	Atte a) b)	Define Time series. How evaluation and analysis of time series take place? What are the various data mining techniques for BI? Explain classification and its problems in detail.	06
Q.7		empt the following.  strate the Motivation and objectives of Relational Marketing in detail.	06

Seat	Sat	<b>D</b>
No.	Set	<b> </b>

		B.E	E. (Part – I) (New) (CBCS) Computer Scien DATA	ce & E	ngineering
-			aturday, 14-12-2019 M To 05:30 PM		Max. Marks: 70
Inst	ructio	ns: ′	1) Q. No. 1 is compulsory and book.	should l	pe solved in first 30 minutes in answer
		2	) A figure to the right place ind	icates fu	ıll marks.
			MCQ/Objective	Type Q	uestions
Dura	ation: 3	30 M	inutes		Marks: 14
Q.1	<b>Cho</b> 1)	The	the correct alternatives from e process of forming general co cepts to be learned. deduction induction	•	
	2)	Dat a) c)	a mining is best described as t identifying patterns in data representing data	he proc b) d)	ess of deducing relationships in data simulating trends in data
	3)	Dat a) c)	a used to build a data mining n validation data test data	nodel. b) d)	training data hidden data
	4)	•	pervised learning differs from uning requires  at least one input attribute Input attributes to be categor at least one output attribute output attributes to be categor	ical	ised clustering in that supervised
	5)		earest neighbor approach is be with large-sized datasets when irrelevant attributes hav when a generalized model of when an explanation of what	e been the data	removed from the data
	6)	Cla	ssification problems are disting	juished '	from estimation problems in that
		a) b) c) d)	classification problems requir classification problems requir classification problems do no classification problems are de	e the out t allow a	itput attribute to be categorical in output attribute
	7)	Wh a) b) c) d)	ich statement is true about pre the output attribute must be c the output attribute must be n the resultant model is designe the resultant model is designe	ategoric umeric ed to de	al termine future outcomes

Set P

8)		Which statement is true about neural network and linear regression models?						
	a) b) c) d)	Both models require input attrib Both models require numeric at The output of both models is a	tribute catege hose value	es to range between 0 and 1 orical attribute value output is determined by a linear				
9)		nich statement is true about the de	ecision	n tree attribute selection process				
	des a)	scribed in your book? A categorical attribute may appe	ear in	a tree node several times but a				
	b)	numeric attribute may appear at A numeric attribute may appear						
	·	categorical attribute may appear	r at m	ost once				
	c)	Both numeric and categorical at nodes	tribute	es may appear in several tree				
	d)	Numeric and categorical attribut node	es ma	ay appear in at most one tree				
10)	Ass a)	, ,						
	b)	items listed in the association ru the percentage of instances that listed in the association rule		ain the consequent conditions				
	c)	the percentage of instances that association rule	t cont	ain all items listed in the				
	d)	the percentage of instances in the of the antecendent conditional it						
11)		D has been described as the app						
	a) c)	the waterfall model the scientific method	b) d)	object-oriented programming procedural intuition				
12)	A fea) b) c)	eed-forward neural network is said all nodes are connected to each all nodes at the same layer are all nodes at one layer are conne layer	othe	r ected to each other				
	d)	all hidden layer nodes are conn	ected	to all output layer nodes				
13)	attr	nple regression assumes a ibute and output attribute.		·				
	a) c)	linear reciprocal	b) d)	Quadratic Inverse				
14)	,	th Bayes classifier, missing data it	,					
-,	a) c)	treated as equal compares replaced with a default value	b)	treated as unequal compares				

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Seat	Set	D
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# B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		Computer Science & Engineering  DATA MINING	
-		ate: Saturday, 14-12-2019 Max. Max. Max. Max. Max. Max. Max. Max.	arks: 56
Instr	ucti	ions: 1) All questions are compulsory. 2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Atta a) b) c) d)	tempt any three What is data mining? Explain combining techniques. What do you mean by distance - based algorithm? What are different steps in Data Preprocessing?	12
Q.3	Att	tempt any two	
	a) b) c)	Define each of the following data mining functionalities: characterization, discrimination, association and correlation analysis, classification, regression, clustering, and outlier analysis. Give examples of each data mining functionality, using a real-life database that you are familiar with.	<b>16</b>
		Section – II	
Q.4	Atto a) b) c) d)	tempt any three Explain large itemset algorithm. How do you measure the quality of rules? What are advanced association rule techniques? Explain Crawlers.	12
Q.5	Atta a) b)	tempt any two Give an example for K-Means clustering. What do you mean Web content mining?	16

c) What do you mean by partitioning?

Seat	Set	
No.	Set	¥

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DATA MINING** Day & Date: Saturday, 14-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book. 2) A figure to the right place indicates full marks. **MCQ/Objective Type Questions Duration: 30 Minutes** Marks: 14 Q.1 Choose the correct alternatives from the options. 14 Which statement is true about neural network and linear regression models? Both models require input attributes to be numeric a) Both models require numeric attributes to range between 0 and 1 b) The output of both models is a categorical attribute value c) Both techniques build models whose output is determined by a linear sum of weighted input attribute values More than one of a,b,c or d is true e) Which statement is true about the decision tree attribute selection process 2) described in your book? A categorical attribute may appear in a tree node several times but a numeric attribute may appear at most once. A numeric attribute may appear in several tree nodes but a b) categorical attribute may appear at most once Both numeric and categorical attributes may appear in several tree Numeric and categorical attributes may appear in at most one tree d) Association rule support is defined as \_\_ 3) the percentage of instances that contain the antecendent conditional items listed in the association rule the percentage of instances that contain the consequent conditions listed in the association rule the percentage of instances that contain all items listed in the c) association rule the percentage of instances in the database that contain at least one of the antecendent conditional items listed in the association rule KDD has been described as the application of \_\_\_\_\_ to data mining. 4) object-oriented programming the waterfall model a) b)

d)

procedural intuition

the scientific method

Set Q

5)	<ul> <li>A feed-forward neural network is said to be fully connected when</li> <li>a) all nodes are connected to each other</li> <li>b) all nodes at the same layer are connected to each other</li> <li>c) all nodes at one layer are connected to all nodes in the next higher layer</li> </ul>				
	d)	all hidden layer nodes are conne	ected	to all output layer nodes	
6)	attri	ple regression assumes a bute and output attribute.		·	
	a) c)	linear reciprocal	b) d)	Quadratic Inverse	
7)	With a) c)	n Bayes classifier, missing data ite treated as equal compares replaced with a default value	b)	are treated as unequal compares Ignored	
8)	con	process of forming general concepts to be learned.	-	·	
	a) c)	deduction induction	b) d)	Abduction Conjunction	
9)	Data a) c)	a mining is best described as the identifying patterns in data representing data	proce b) d)	ess of deducing relationships in data simulating trends in data	
10)	Data a) c)	a used to build a data mining mod validation data test data	lel. b) d)	training data hidden data	
11)	Supervised learning differs from unsupervised clustering in that supervised learning requires  a) at least one input attribute  b) Input attributes to be categorical  c) at least one output attribute				
12)	<ul> <li>d) output attributes to be categorical</li> <li>A nearest neighbor approach is best used</li> <li>a) with large-sized datasets</li> <li>b) when irrelevant attributes have been removed from the data</li> <li>c) when a generalized model of the data is desireable</li> <li>d) when an explanation of what has been found is of primary importance</li> </ul>				
13)	Clas	ssification problems are distinguis	hed f	rom estimation problems in that	
	<ul> <li>a) classification problems require the output attribute to be numeric</li> <li>b) classification problems require the output attribute to be categorical</li> <li>c) classification problems do not allow an output attribute</li> <li>d) classification problems are designed to predict future outcome</li> </ul>				
14)	Which statement is true about prediction problems?  a) the output attribute must be categorical b) the output attribute must be numeric c) the resultant model is designed to determine future outcomes d) the resultant model is designed to classify current behavior				

Seat No.	Set	Q
NO.		

		B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019  Computer Science & Engineering  DATA MINING	
-		ate: Saturday, 14-12-2019 Max. Mar :30 PM To 05:30 PM	ks: 56
Instr	ucti	ions: 1) All questions are compulsory. 2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Atto a) b) c) d)	tempt any three What is data mining? Explain combining techniques. What do you mean by distance - based algorithm? What are different steps in Data Preprocessing?	12
Q.3	Atto a) b) c)	Define each of the following data mining functionalities: characterization, discrimination, association and correlation analysis, classification, regression, clustering, and outlier analysis. Give examples of each data mining functionality, using a real-life database that you are familiar with. Explain with an example Bayesian classification.  Use a flowchart to summarize the following procedures for attribute subset selection:  1) Stepwise forward selection 2) Stepwise backward elimination 3) a combination of forward selection and backward elimination	16
		Section – II	
Q.4	Atto a) b) c) d)	tempt any three Explain large itemset algorithm. How do you measure the quality of rules? What are advanced association rule techniques? Explain Crawlers.	12
Q.5	Atto a) b) c)	tempt any two Give an example for K-Means clustering. What do you mean Web content mining? What do you mean by partitioning?	16

Seat No.		Set	R
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# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering DATA MINING

Day & Date: Saturday, 14-12-2019 Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

2) A figure to the right place indicates full marks.

### **MCQ/Objective Type Questions**

Duration: 30 Minutes Marks: 14

### Q.1 Choose the correct alternatives from the options.

- 1) A nearest neighbor approach is best used . .
  - a) with large-sized datasets
  - b) when irrelevant attributes have been removed from the data
  - c) when a generalized model of the data is desireable
  - d) when an explanation of what has been found is of primary importance
- 2) Classification problems are distinguished from estimation problems in that
  - a) classification problems require the output attribute to be numeric
  - b) classification problems require the output attribute to be categorical
  - c) classification problems do not allow an output attribute
  - d) classification problems are designed to predict future outcome
- 3) Which statement is true about prediction problems?
  - a) the output attribute must be categorical
  - b) the output attribute must be numeric
  - c) the resultant model is designed to determine future outcomes
  - d) the resultant model is designed to classify current behavior
- 4) Which statement is true about neural network and linear regression models?
  - a) Both models require input attributes to be numeric
  - b) Both models require numeric attributes to range between 0 and 1
  - c) The output of both models is a categorical attribute value
  - d) Both techniques build models whose output is determined by a linear sum of weighted input attribute values
  - e) More than one of a,b,c or d is true
- 5) Which statement is true about the decision tree attribute selection process described in your book?
  - a) A categorical attribute may appear in a tree node several times but a numeric attribute may appear at most once.
  - b) A numeric attribute may appear in several tree nodes but a categorical attribute may appear at most once
  - Both numeric and categorical attributes may appear in several tree nodes
  - d) Numeric and categorical attributes may appear in at most one tree node

Set R

6)	Association rule support is defined as  a) the percentage of instances that contain the antecendent conditional					
	<ul> <li>items listed in the association rule</li> <li>b) the percentage of instances that contain the consequent conditions listed in the association rule</li> </ul>					
	c)	the percentage of instances that association rule	cont	ain all items listed in the		
	d)	the percentage of instances in the of the antecendent conditional item.				
7)		D has been described as the appl the waterfall model the scientific method		object-oriented programming		
8)	A fe a) b) c)	eed-forward neural network is said all nodes are connected to each all nodes at the same layer are d all nodes at one layer are conne layer	othe conne cted	r ected to each other to all nodes in the next higher		
0)	d)	all hidden layer nodes are conne		• •		
9)	attri	pple regression assumes a ibute and output attribute.		·		
	a) c)	linear reciprocal	b) d)	Quadratic Inverse		
10)		h Bayes classifier, missing data it				
	a) c)	treated as equal compares replaced with a default value				
11)		e process of forming general conc acepts to be learned.	ept d	efinitions from examples of		
	a)	•	b) d)	Abduction Conjunction		
12)	Dat a) c)	a mining is best described as the identifying patterns in data representing data	proce b) d)	ess of deducing relationships in data simulating trends in data		
13)	Dat a) c)	a used to build a data mining mod validation data test data	del. b) d)	training data hidden data		
14)		pervised learning differs from unsurning requires  at least one input attribute Input attributes to be categorical at least one output attribute output attributes to be categorical	I	ised clustering in that supervised		

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Seat	Set	D
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		B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019	
		Computer Science & Engineering DATA MINING	
Time	: 02:		Marks: 56
		Section – I	
Q.2	Atto a) b) c) d)	empt any three What is data mining? Explain combining techniques. What do you mean by distance - based algorithm? What are different steps in Data Preprocessing?	12
Q.3	Attra) b) c)	Define each of the following data mining functionalities: characterization discrimination, association and correlation analysis, classification, regression, clustering, and outlier analysis. Give examples of each data mining functionality, using a real-life database that you are familiar with Explain with an example Bayesian classification.  Use a flowchart to summarize the following procedures for attribute sub selection:  1) Stepwise forward selection 2) Stepwise backward elimination 3) a combination of forward selection and backward elimination	l
		Section – II	
Q.4	Atto a) b) c) d)	Empt any three Explain large itemset algorithm. How do you measure the quality of rules? What are advanced association rule techniques? Explain Crawlers.	12
Q.5	Atto a) b) c)	empt any two Give an example for K-Means clustering. What do you mean Web content mining? What do you mean by partitioning?	16

Seat	Set	S
No.		

## B.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

			Computer Science DATA M		
•			aturday, 14-12-2019 M To 05:30 PM		Max. Marks: 70
Insti	ructio	ns:	· · · · · · · · · · · · · · · · · · ·	nould	be solved in first 30 minutes in answer
		2	book.  2) A figure to the right place indicates.	ates fı	ull marks.
			MCQ/Objective T	ype Q	tuestions
Dura	tion:	30 M	inutes		Marks: 14
Q.1	2)	Ass a) b) c) d) KD( a) c)	items listed in the association ruthe percentage of instances that listed in the association rule the percentage of instances that association rule	as at contule at cont the da tems b blication b)	rain the antecendent conditional rain the consequent conditions rain all items listed in the stabase that contain at least one listed in the association rule on of to data mining.  object-oriented programming procedural intuition
	-,	a) b) c)	all nodes are connected to each all nodes at the same layer are all nodes at one layer are connlayer all hidden layer nodes are connected to each all nodes at the same layer are all nodes at one layer are connected to each all nodes at one layer are connected to each all nodes at one layer are connected to each all nodes at one layer are connected to each all nodes at one layer are connected to each all nodes at one layer are connected to each all nodes	h othe conne ected	er ected to each other to all nodes in the next higher
	4)		nple regression assumes a ibute and output attribute. linear reciprocal	_ relat b) d)	ionship between the input  Quadratic  Inverse
	5)	Wit a) c)	h Bayes classifier, missing data i treated as equal compares replaced with a default value	b)	are treated as unequal compares Ignored
	6)		e process of forming general con- acepts to be learned. deduction induction	cept d b) d)	lefinitions from examples of  Abduction  Conjunction
	7)	Dat a) c)	a mining is best described as the identifying patterns in data representing data	•	ess of  deducing relationships in data simulating trends in data

Set S

8)	Data a) c)	a used to build a data mining mod validation data test data	lel. b) d)	training data hidden data
9)	_	ervised learning differs from unsuning requires  at least one input attribute Input attributes to be categorical at least one output attribute output attributes to be categorical		sed clustering in that supervised
10)	A neal	earest neighbor approach is best with large-sized datasets when irrelevant attributes have but when a generalized model of the when an explanation of what has	een r data	emoved from the data is desireable
11)	Clas	ssification problems are distinguis	hed f	rom estimation problems in that
	a) b) c) d)	classification problems require the classification problems require the classification problems do not all classification problems are designation problems.	ne ou ow a	tput attribute to be categorical noutput attribute
12)	Whi a) b) c) d)	ch statement is true about predict the output attribute must be cated the output attribute must be num the resultant model is designed to the resultant model is designed to	gorica eric o det	ermine future outcomes
13)		ch statement is true about neural dels? Both models require input attributed Both models require numeric attributed the output of both models is a common Both techniques build models where sum of weighted input attribute where than one of a,b,c or d is true.	ites to ribute atego nose ralues	b be numeric s to range between 0 and 1 prical attribute value output is determined by a linear
14)	•	ch statement is true about the dec		tree attribute selection process
	dese a)	cribed in your book? A categorical attribute may appear at		
	b)	A numeric attribute may appear i categorical attribute may appear	n sev	reral tree nodes but a
	c)	Both numeric and categorical att		
	d)	nodes Numeric and categorical attribute node	es ma	y appear in at most one tree

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No.	Set	3

## B.F. (Part - I) (New) (CBCS) Examination Nov/Dec-2019

		D.L. (I alt - I) (New) (CDC3) Examination Nov/Dec-2	.013
		Computer Science & Engineering	
		DATA MINING	
Day	& Da	ate: Saturday, 14-12-2019	Max. Marks: 56
Time	: 02:	:30 PM To 05:30 PM	
Instr	ucti	ons: 1) All questions are compulsory.	
		2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Att	empt any three	12
	a)	What is data mining?	
	b)	Explain combining techniques.	
	c)	What do you mean by distance - based algorithm?	
	d)	What are different steps in Data Preprocessing?	
Q.3	Att	empt any two	
	a)	Define each of the following data mining functionalities: character	ization, 16
	•	discrimination, association and correlation analysis, classification	,
		regression, clustering, and outlier analysis. Give examples of each	
		mining functionality, using a real-life database that you are familia	ar with.
	p)	Explain with an example Bayesian classification.	
	c)	Use a flowchart to summarize the following procedures for attribu	te subset
		selection:	
		<ol> <li>Stepwise forward selection</li> <li>Stepwise backward elimination</li> </ol>	
		3) a combination of forward selection and backward elimination	
		,	
		Section – II	
Q.4	Att	empt any three	12
	a)	Explain large itemset algorithm.	
	p)	How do you measure the quality of rules?	
	c)	What are advanced association rule techniques?	
	d)	Explain Crawlers.	
Q.5		empt any two	16
	a)	Give an example for K-Means clustering.	
	b)	What do you mean Web content mining?	

c) What do you mean by partitioning?

Seat	Sat	D
No.	Set	

#### B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering Object Oriented Modeling and Design

Day & Date: Saturday, 14-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM

Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.							
	<ol><li>Figures to the right place indicate full marks.</li></ol>						
		MCQ/Objective Type	e Questions				
Durat	ion: 3	0 Minutes	Marks: 14				
Q.1	<b>Cho</b> (1)	ose the correct alternatives from the ordinary represent the	options. 14				
	,	•	b) Highest- Level pattern d) Design Pattern				
	2)	Each pattern has three Part Rule, which between a) A Context b)	ch expresses a relationship b) A Problem				
		c) A solution d)					
	3)	A method is robust if it  a) Does not avoid predefined limit b) Optimize the program until you get c) Does not fail even if it receives imp d) Don't include arguments that can't	proper parameter				
	4)	A Component is rendered as a  a) Rectangle with tabs b) c) Circle with tab d)	o) Ellipse with tabs				
	5)	<ul> <li>A collaboration is a society of</li> <li>a) Classes, interfaces &amp; other elemen</li> <li>b) Classes &amp; objects</li> <li>c) Objects &amp; interfaces</li> <li>d) Classes &amp; functions</li> </ul>	nt				
	6)	are called interaction diagram.  a) Sequence diagram b)  c) Both a & b d)	o) Collaboration Diagram d) None of the above				
	7)	A use case diagram is a diagram that so a) A set of use cases b) c) Their relationship d)	) Actors				
	8)	The state diagram  a) Depicts relationship between data of the diagram b) Depicts function that transform the c) Indicates how data are transformed d) Indicates system reactions to extern	e data flow ed by the system				

Set P

9)		is an event caused by the occ pse of a time interval.	urren	ice of an absolute time or the
	a) c)	•	b) d)	Time event State
10)	Wha) b) c) d)	nich is the correct order of phase of Analysis – system design – object Analysis – system design – Imple Object design – analysis – syste Object design – analysis – imple	ct des emen m des	sign – Implementation ntation – object design sign – Implementation
11)	a) c)	is data describe other data. database metadata	b) d)	function method
12)	A _ a) c)	is a collection of elements w sequence link	vith do b) d)	uplicates allowed. bag association
13)	a) c)	a description of the real world System Model Abstract Model	objed b) d)	cts reflected within the system. Application Model Domain Model
14)		means that the same operationsess.	n ma	y behave differently for different
	a) c)	Inheritance Polymorphism	b) d)	Classification Identity

Seat	Sat	D
No.	Set	

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering Object Oriented Modeling and Design

		Object Oriented Modeling and Design	
,		ate: Saturday, 14-12-2019 :30 PM To 05:30 PM	/lax. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li></ul>	
		Section – I	
Q.2	An a) b) c) d)	swer the following (Any Three) Explain link & association? Write note on Event? Describe Object oriented Themes? Explain OMT as a Software Engineering Methodology?	12
Q.3	dia	plain State diagram? How it differ from one shot state diagram? Draw gram for Phone line?  OR	
	Dra	aw Data flow Diagram for Hotel reservation System (Level 0, Level 1, l	_evel 2)?
Q.4		plain Objects & classes? And Draw class diagram for Air transportationstem.	n <b>08</b>
		Section – II	
Q.5	An a) b) c) d)	swer the following (Any Three)  Describe object Oriented Style?  What is a pattern and what makes a pattern?  Explain Pattern & Framework with example?  Write note on Object Oriented Language Features?	12
Q.6		plain Use case diagram? And Draw Use case diagram for Book publis  OR	h story? 08
	ΕX	plain Deployment diagram with example.	
<b>Q.7</b>	Ex	plain Time and space in detail?	08

Seat	Set	Q
No.	Set	¥

		B.E	E. (Part – I) (New) (CBCS) E Computer Science Object Oriented Mod	& E	ngineering
•			aturday, 14-12-2019 // To 05:30 PM		Max. Marks: 70
Instru	ıctior		l) Q. No. 1 is compulsory and shook.  2) Figures to the right place indica		be solved in first 30 minutes in answer
		_	MCQ/Objective Ty		
Durati	ion: 3	o Mi	inutes	<b>P</b> 0 <b>-</b>	Marks: 14
Q.1		ose	the correct alternatives from the state diagram Depicts relationship between da Depicts function that transform to Indicates how data are transform Indicates system reactions to expense.	ta ob he da ned b	tions. 14 jects ita flow y the system
	2)	elap a) c)	is an event caused by the occ ose of a time interval. Signal event Change event	b) d)	rce of an absolute time or the  Time event  State
	3)	Wh a) b) c) d)	ich is the correct order of phase of Analysis – system design – obje- Analysis – system design – Imple Object design – analysis – syste Object design – analysis – imple	ct des emer m de	sign – Implementation Itation – object design sign – Implementation
	4)	a) c)	is data describe other data. database metadata	b) d)	function method
	5)	A _ a) c)	is a collection of elements was sequence link	vith d b) d)	uplicates allowed. bag association
	6)	a) c)	a description of the real world System Model Abstract Model	objed b) d)	cts reflected within the system. Application Model Domain Model
	7)	clas a) c)	means that the same operationses. Inheritance Polymorphism	b) d)	y behave differently for different  Classification  Identity
	8)	Idio a) c)	ms represent the  Lowest- level pattern  Middle- Level pattern	b) d)	Highest- Level pattern Design Pattern

Set Q

9)	betv	ch pattern has three Part Rule, wh ween A Context A solution	iich e b) d)	xpresses a relationship  A Problem  All of the above
10)	a) b)	nethod is robust if it  Does not avoid predefined limit  Optimize the program until you g  Does not fail even if it receives ir  Don't include arguments that car	nprop	oer parameter
11)		Component is rendered as a Rectangle with tabs Circle with tab	 b) d)	Ellipse with tabs Both a, b & c
12)	a) b) c)	ollaboration is a society of Classes, interfaces & other elem Classes & objects Objects & interfaces Classes & functions		
13)	a) c)	are called interaction diagram Sequence diagram Both a & b	b) d)	Collaboration Diagram None of the above
14)	A u a) c)	se case diagram is a diagram tha A set of use cases Their relationship	t sho b) d)	ws Actors All of the above

Seat	Sat	
No.	Set	¥

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering Object Oriented Modeling and Design

		Object Oriented Modeling and Design	
_		ate: Saturday, 14-12-2019 :30 PM To 05:30 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	An a) b) c) d)	swer the following (Any Three) Explain link & association? Write note on Event? Describe Object oriented Themes? Explain OMT as a Software Engineering Methodology?	12
Q.3		olain State diagram? How it differ from one shot state diagram? Draggram for Phone line?  OR	w state 08
	Dra	aw Data flow Diagram for Hotel reservation System (Level 0, Level 1	, Level 2)?
Q.4		olain Objects & classes? And Draw class diagram for Air transportat stem.	ion <b>08</b>
		Section – II	
Q.5	An a) b) c) d)	swer the following (Any Three)  Describe object Oriented Style?  What is a pattern and what makes a pattern?  Explain Pattern & Framework with example?  Write note on Object Oriented Language Features?	12
Q.6		olain Use case diagram? And Draw Use case diagram for Book pub  OR	lish story? 08
	-	olain Deployment diagram with example.	
Q.7	Ex	plain Time and space in detail?	08

Seat	Set	D
No.	Set	K

		Б.	Computer	Science &	Engineering ng and Design	19
•			aturday, 14-12-2019 M To 05:30 PM		N	lax. Marks: 70
Instr	uctio		1) Q. No. 1 is compulso book. 2) Figures to the right pl		d be solved in first 30 minu ull marks.	ites in answer
			MCQ/Ob	jective Type	Questions	
Dura	tion: 3	30 M	inutes			Marks: 14
Q.1	<b>Cho</b> 1)	A c a) b)	the correct alternative ollaboration is a society Classes, interfaces & Classes & objects Objects & interfaces Classes & functions	of	ptions.	14
	2)	a) c)	are called interaction Sequence diagram Both a & b	n diagram. b) d)	Collaboration Diagram None of the above	
	3)	A u a) c)	se case diagram is a di A set of use cases Their relationship	agram that sh b) d)	ows Actors All of the above	
	4)	The a) b) c) d)	e state diagram  Depicts relationship be Depicts function that to Indicates how data are Indicates system react	ansform the castransformed	data flow by the system	
	5)	ela a) c)	is an event caused l pse of a time interval. Signal event Change event	b) b)	ence of an absolute time or Time event State	the
	6)	Wh a) b) c) d)	Analysis – system des Object design – analys	ign – object de ign – Impleme iis – system d	MT Methodology? esign – Implementation entation – object design esign – Implementation ntation – system design	
	7)	a) c)	is data describe othe database metadata	er data. b) d)	function method	
	8)	A _ a) c)	is a collection of e sequence link	lements with ( b) d)	duplicates allowed. bag association	

Set R

9)		a description of the real world	obje	cts reflected within the system.
	a)	System Model	b)	Application Model
	c)	Abstract Model	d)	Domain Model
10)		means that the same operationses.	n ma	y behave differently for different
	,	Inheritance Polymorphism	b) d)	Classification Identity
11)	a)	oms represent the  Lowest- level pattern  Middle- Level pattern	b) d)	Highest- Level pattern Design Pattern
12)	betv a)	ch pattern has three Part Rule, whween  A Context	b)	A Problem
13)	A m a) b)	A solution nethod is robust if it Does not avoid predefined limit Optimize the program until you g Does not fail even if it receives in Don't include arguments that can	get it v	per parameter
14)		Component is rendered as a Rectangle with tabs Circle with tab	 b) d)	Ellipse with tabs Both a, b & c

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Seat	Set	D
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# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering Object Oriented Modeling and Design

	Object Oriented Modeling and Design	
•	& Date: Saturday, 14-12-2019 Max. Marks: e: 02:30 PM To 05:30 PM	56
Instr	ructions: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
	Section – I	
Q.2	<ul> <li>Answer the following (Any Three)</li> <li>a) Explain link &amp; association?</li> <li>b) Write note on Event?</li> <li>c) Describe Object oriented Themes?</li> <li>d) Explain OMT as a Software Engineering Methodology?</li> </ul>	12
Q.3	Explain State diagram? How it differ from one shot state diagram? Draw state diagram for Phone line?  OR	80
	Draw Data flow Diagram for Hotel reservation System (Level 0, Level 1, Level 2)?	
Q.4	Explain Objects & classes? And Draw class diagram for Air transportation system.	80
	Section – II	
Q.5	<ul> <li>Answer the following (Any Three)</li> <li>a) Describe object Oriented Style?</li> <li>b) What is a pattern and what makes a pattern?</li> <li>c) Explain Pattern &amp; Framework with example?</li> <li>d) Write note on Object Oriented Language Features?</li> </ul>	12
Q.6	Explain Use case diagram? And Draw Use case diagram for Book publish story?  OR  Explain Deployment diagram with example.	80
Q.7	Explain Time and space in detail?	08
~	ZAPIGIT TITTO GITO OPAGO III GOTGIT	-

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No.	Set	3

#### B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 **Computer Science & Engineering Object Oriented Modeling and Design**

•			M To 05:30 PM		wax. N	narks: 70
Instr	uctio		<ol> <li>Q. No. 1 is compulsory and shook.</li> <li>Figures to the right place indicates</li> </ol>			n answer
			MCQ/Objective T	ype C	Questions	
Durat	tion: 3	30 M	inutes		N	/larks: 14
Q.1	<ul> <li>Choose the correct alternatives from the options.</li> <li>Which is the correct order of phase of OMT Methodology?</li> <li>a) Analysis – system design – object design – Implementation</li> <li>b) Analysis – system design – Implementation – object design</li> <li>c) Object design – analysis – system design – Implementation</li> <li>d) Object design – analysis – implementation – system design</li> </ul>					
	2)	a) c)	is data describe other data. database metadata	b) d)	function method	
	3)	A _ a) c)	is a collection of elements sequence link	with d b) d)	luplicates allowed. bag association	
	4)	a) c)	a description of the real world System Model Abstract Model	d obje b) d)	cts reflected within the system Application Model Domain Model	
	5)	clas a) c)	means that the same operationses. Inheritance Polymorphism	on ma b) d)	ay behave differently for differe Classification Identity	nt
	6)	ldic a) c)	oms represent the  Lowest- level pattern  Middle- Level pattern	b) d)	Highest- Level pattern Design Pattern	
	7)		ch pattern has three Part Rule, w ween A Context A solution	hich e b) d)	expresses a relationship  A Problem  All of the above	
	8)	A n a) b) c) d)	nethod is robust if it  Does not avoid predefined limit Optimize the program until you Does not fail even if it receives Don't include arguments that ca	impro	per parameter	

Set S

9)	A C a) c)	Component is rendered as a Rectangle with tabs Circle with tab	 b) d)	Ellipse with tabs Both a, b & c				
10)	a) b) c)	ollaboration is a society of Classes, interfaces & other elem Classes & objects Objects & interfaces Classes & functions						
11)		are called interaction diagram						
	a) c)	Sequence diagram  Both a & b	b) d)	Collaboration Diagram None of the above				
12)	A use case diagram is a diagram that shows							
		A set of use cases	b)	Actors				
	c)	Their relationship	d)	All of the above				
13)	a) b)	e state diagram  Depicts relationship between da  Depicts function that transform t  Indicates how data are transforn  Indicates system reactions to ex	he da ned b	ita flow y the system				
14)		is an event caused by the occ	urren	ce of an absolute time or the				
		ose of a time interval.		<del>_</del> .				
		Signal event	b)	Time event				
	C)	Change event	d)	State				

Seat	Set	C
No.	Set	3

# B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019 Computer Science & Engineering Object Oriented Modeling and Design

	Object Oriented Modeling and Design	
•	& Date: Saturday, 14-12-2019 Max. Marks e: 02:30 PM To 05:30 PM	: 56
Instr	ructions: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
	Section – I	
Q.2	<ul> <li>Answer the following (Any Three)</li> <li>a) Explain link &amp; association?</li> <li>b) Write note on Event?</li> <li>c) Describe Object oriented Themes?</li> <li>d) Explain OMT as a Software Engineering Methodology?</li> </ul>	12
Q.3	Explain State diagram? How it differ from one shot state diagram? Draw state diagram for Phone line?  OR	80
	Draw Data flow Diagram for Hotel reservation System (Level 0, Level 1, Level 2)?	
Q.4	Explain Objects & classes? And Draw class diagram for Air transportation system.	80
	Section – II	
Q.5	<ul> <li>Answer the following (Any Three)</li> <li>a) Describe object Oriented Style?</li> <li>b) What is a pattern and what makes a pattern?</li> <li>c) Explain Pattern &amp; Framework with example?</li> <li>d) Write note on Object Oriented Language Features?</li> </ul>	12
Q.6	Explain Use case diagram? And Draw Use case diagram for Book publish story?  OR  Explain Deployment diagram with example.	80
Q.7	Explain Time and space in detail?	80
	· · · · · · · · · · · · · · · · · · ·	

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# B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering ADVANCED COMPUTER ARCHITECTURE

			ADVANCED COMPU	TER A	RCHITECTURE
			urday, 07-12-2019 To 05:30 PM		Max. Marks: 70
Instr	uctior	ns: 1)	Q. No. 1 is compulsory and s book.	should b	e solved in first 30 minutes in answer
		2)	Figures to the right indicates	full mai	rks.
			MCQ/Objective	Type (	
Dura	tion: 3	0 Mir	nutes		Marks: 14
Q.1	<b>Choo</b> 1)	Fror a) b)	he correct alternatives from In the programmer's perspection Order set of instructions Executable file stored in secons Executable file stored on dis Quantum of work dealt with	ve a pro ondary r k	memory
	2)		reads.	b)	nronized creation and termination  PAR  All of the options
	3)	Prod a) b) c) d)	cess scheduling involves Declaration of distinct proces Specification of the state trai Statement of a scheduling po None of the options	ss states	
	4)	a co a)	n's classification is based on mputer. No of Data Units No of Control Units		and No of processors available in  No of Functional Units  No of Registers
	5)	a) c)	is not a Hazard. RAW WAR	b) d)	WAW RAR
	6)	cloc a) c)	is a set of instructions that k period. chime strip mining	could pound b) d)	otentially begin execution in one  Convex  Convoy
	7)	Basi a) c)	ic Vector architecture have 64 16	sca b) d)	alar registers in total. 32 8

Machine Processing element complexity is more than 1-bit.

DAP

MPP

b)

d)

8)

In \_

a)

c)

**CLIP** 

MasPar

### Set P

9)	Example system for coarse grain Machine is					
	a)	MPP	b)	CM-5		
	c)	Both a and b	ď)	None of above		
10)	 a)	is used in MPP for data forma Separate data I/O Registers				
	c)	Both a & b	d)	None of these		
11)	A sy	stem with few data element per	proce	essing element is		
	a)	Fine Grain	b)	Coarse Grain		
	c)	Both a & b	d)	None of above		
12)		is a dynamic interconnection	Netw	ork.		
,	a)	NN	b)	Pyramid		
	c)	Bus	d)	Hypercube		
13)	Pea	k performance rate of CM-5 Mad	chine	is MFLOPS.		
	a)	64	b)	256		
	c)	128	d)	512		
14)	Whi	ch is Correct Statement?				
	a)	FORK/JOIN Can be used to im	plem	ent COBEGIN/COEND		
	b)	COBEGIN/COEND Can be use	ed to i	mplement FORK/JOIN		
	c)	Both a and b				
	d)	None of above				

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#### B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering** ADVANCED COMPUTER ARCHITECTURE

Day & Date: Saturday, 07-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Answer any three questions. 12 List and Explain methods for creation and termination of Threads. Explain BTB with suitable diagram. With suitable diagram, explain steps involved in handling an instruction c) with BTB. Explain Strip mining code with suitable example. d) **Q.3** Answer any two questions. 16 Explain Tomasulo's algorithm with suitable Diagram. Write a code for DAXPY on MIPS and VMIPS. b) List and Explain Techniques for enhancing vector performance. Section - II Answer any three questions. 12 Q.4 Explain Pyramid Interconnection network with suitable diagram. List and explain main design issues of scalable MIMD computers. b) What is granularity? Explain coarse grained and fine grained systems. List and Explain distributed shared Memory classes. **Q.5** Explain MPP System in Detail. 80 OR List and explain alternative architectural classes. Differentiate between Data Flow Model and Control Flow Model. 80 **Q.6** 

		B.E	i. (Part – I) (Old) (CGPA) E Computer Scienc ADVANCED COMPUT	e & E	ingineering
-			turday, 07-12-2019 I To 05:30 PM		Max. Marks: 70
Instr	uctio	•	) Q. No. 1 is compulsory and sh book. ) Figures to the right indicates f		pe solved in first 30 minutes in answer rks.
			MCQ/Objective T	ype	
	ition: 3				Marks: 14
Q.1	<b>Cho</b> 1)	ose t In _ a) c)		-	tions and rewrite the sentence. 14 complexity is more than 1-bit.  DAP  MPP
	2)	Exa a) c)	mple system for coarse grain M MPP Both a and b	1achin b) d)	e is CM-5 None of above
	3)	a) c)	is used in MPP for data form Separate data I/O Registers Both a & b	nat Co b) d)	
	4)		stem with few data element pe Fine Grain Both a & b	r proc b) d)	essing element is Coarse Grain None of above
	5)	a) c)	is a dynamic interconnection NN Bus	n Netw b) d)	vork. Pyramid Hypercube
	6)	a)	k performance rate of CM-5 Ma 64 128	b)	is MFLOPS. 256 512
	7)	Whi a) b) c) d)	ch is Correct Statement? FORK/JOIN Can be used to in COBEGIN/COEND Can be us Both a and b None of above		
	8)	From a) b) c) d)	m the programmer's perspective Order set of instructions Executable file stored in secon Executable file stored on disk Quantum of work dealt with as	ndary	memory
	9)		cam-2 Language uses fo nreads. COBEGIN / COEND FORK /JOIN	r sync b) d)	hronized creation and termination  PAR  All of the options

Set Q

10)	Pro a) b) c) d)	Declaration of distinct process Specification of the state trans Statement of a scheduling pol None of the options	state sition o	
11)	-	nn's classification is based on _ omputer.	6	and No of processors available in
	a)	No of Data Units	b)	No of Functional Units
	c)	No of Control Units	d)	No of Registers
12)		is not a Hazard.		
,	a)	RAW	b)	WAW
	c)	WAR	ď)	RAR
13)		is a set of instructions that cock period.	ould p	otentially begin execution in one
	a)	chime	b)	Convex
	c)	strip mining	d)	Convoy
	,		,	•
14)	Bas	sic Vector architecture have	sc	•
	a)	64	b)	32
	c)	16	d)	8

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#### B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering** ADVANCED COMPUTER ARCHITECTURE

Day & Date: Saturday, 07-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Answer any three questions. 12 List and Explain methods for creation and termination of Threads. Explain BTB with suitable diagram. With suitable diagram, explain steps involved in handling an instruction c) with BTB. Explain Strip mining code with suitable example. d) **Q.3** Answer any two questions. 16 Explain Tomasulo's algorithm with suitable Diagram. Write a code for DAXPY on MIPS and VMIPS. b) List and Explain Techniques for enhancing vector performance. Section - II Answer any three questions. 12 Q.4 Explain Pyramid Interconnection network with suitable diagram. List and explain main design issues of scalable MIMD computers. b) What is granularity? Explain coarse grained and fine grained systems. List and Explain distributed shared Memory classes. **Q.5** Explain MPP System in Detail. 80 OR List and explain alternative architectural classes. Differentiate between Data Flow Model and Control Flow Model. 80 **Q.6** 

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No.	Set	R

		D.E	Computer Science	e & E	Engineering
	0 D. (	. 0	ADVANCED COMPUT	ER A	
-			turday, 07-12-2019 I To 05:30 PM		Max. Marks: 70
Instr	ructio	<b>ns:</b> 1	•	ould l	be solved in first 30 minutes in answer
		2	book. ) Figures to the right indicates for	ull ma	ırks.
			MCQ/Objective T	ype	Questions
Dura	ition: 3	30 Mii			Marks: 14
Q.1		ose t		he op	tions and rewrite the sentence. 14
	1)	a)	is not a Hazard. RAW	b)	WAW
		c)	WAR	d)	RAR
	2)	cloc	is a set of instructions that cook period.	ould p	ootentially begin execution in one
		a)	chime	b)	Convex
		c)	strip mining	d)	Convoy
	3)	Bas	ic Vector architecture have	sc	alar registers in total.
		a)	64	b)	32
		c)	16	d)	8
	4)	ln _			omplexity is more than 1-bit.
		a) c)	CLIP MasPar	b) d)	DAP MPP
	<b>E</b> \	,		,	
	5)	⊏xa a)	mple system for coarse grain M MPP	b)	ie is CM-5
		a) c)	Both a and b	d)	None of above
	6)	٠,	is used in MPP for data form	,	
	0)	a)	Separate data I/O Registers		
		c)	Both a & b	ď)	None of these
	7)	A sy	stem with few data element pe	r proc	essing element is
			Fine Grain	b)	Coarse Grain
		c)	Both a & b	d)	None of above
	8)		is a dynamic interconnection		
		a) c)	NN Bus	b) d)	Pyramid Hypercube
	٥)	,	lk performance rate of CM-5 Ma	,	• •
	9)	a)	•	b)	256
		c)	128	d)	512
	10)	Whi	ch is Correct Statement?	-	
	,	a)	FORK/JOIN Can be used to in		
		b)	COBEGIN/COEND Can be us	ed to	implement FORK/JOIN
		c)	Both a and b		

d)

None of above

Set R

11)	<ul> <li>a) Order set of instructions</li> <li>b) Executable file stored in secondary memory</li> <li>c) Executable file stored on disk</li> <li>d) Quantum of work dealt with as an entity</li> </ul>
12)	Occam-2 Language uses for synchronized creation and termination of threads.  a) COBEGIN / COEND b) PAR c) FORK /JOIN d) All of the options
13)	Process scheduling involves  a) Declaration of distinct process states b) Specification of the state transition diagram c) Statement of a scheduling policy d) None of the options
14)	Flynn's classification is based on and No of processors available in a computer.  a) No of Data Units b) No of Functional Units c) No of Control Units d) No of Registers

Seat No.		Set	R
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### B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

ADVANCED COMPUTER ARCHITECTURE Day & Date: Saturday, 07-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Answer any three questions. 12 List and Explain methods for creation and termination of Threads. Explain BTB with suitable diagram. With suitable diagram, explain steps involved in handling an instruction c) with BTB. Explain Strip mining code with suitable example. d) **Q.3** Answer any two questions. 16 Explain Tomasulo's algorithm with suitable Diagram. Write a code for DAXPY on MIPS and VMIPS. b) List and Explain Techniques for enhancing vector performance. Section - II Answer any three questions. 12 Q.4 Explain Pyramid Interconnection network with suitable diagram. List and explain main design issues of scalable MIMD computers. b) What is granularity? Explain coarse grained and fine grained systems. List and Explain distributed shared Memory classes. **Q.5** Explain MPP System in Detail. 80 OR List and explain alternative architectural classes. Differentiate between Data Flow Model and Control Flow Model. 80 **Q.6** 

Seat		
No.	Set	S

		B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019  Computer Science & Engineering  ADVANCED COMPUTER ARCHITECTURE
•		Saturday, 07-12-2019 Max. Marks: 70 PM To 05:30 PM
Insti	ructio	<ul><li>b: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.</li><li>2) Figures to the right indicates full marks.</li></ul>
		MCQ/Objective Type Questions
Dura	ation: 3	Minutes Marks: 14
Q.1	<b>Cho</b> 1)	se the correct alternatives from the options and rewrite the sentence.  is used in MPP for data format Conversion.  a) Separate data I/O Registers b) Staging Memory  b) Both a & b d) None of these
	2)	A system with few data element per processing element is  a) Fine Grain  b) Coarse Grain  c) Both a & b  d) None of above
	3)	a) NN b) Pyramid c) Bus d) Hypercube
	4)	Peak performance rate of CM-5 Machine is MFLOPS.  a) 64 b) 256 c) 128 d) 512
	5)	Which is Correct Statement?  a) FORK/JOIN Can be used to implement COBEGIN/COEND  b) COBEGIN/COEND Can be used to implement FORK/JOIN  c) Both a and b  d) None of above
	6)	From the programmer's perspective a program is an  a) Order set of instructions b) Executable file stored in secondary memory c) Executable file stored on disk d) Quantum of work dealt with as an entity
	7)	Occam-2 Language uses for synchronized creation and termination of threads.  a) COBEGIN / COEND b) PAR  c) FORK /JOIN d) All of the options
	8)	Process scheduling involves  a) Declaration of distinct process states b) Specification of the state transition diagram c) Statement of a scheduling policy d) None of the options

Set S

9)	•	n's classification is based on mputer.	a	nd No of processors available in
	a)	No of Data Units	b)	No of Functional Units
	c)	No of Control Units	d)	No of Registers
10)		is not a Hazard.		
•	a)	RAW	b)	WAW
	c)	WAR	ď)	RAR
11)		is a set of instructions that co k period.	uld po	otentially begin execution in one
	a)	chime	b)	Convex
	c)	strip mining	ď)	Convoy
12)	Basi	ic Vector architecture have	_ sca	ılar registers in total.
	a)	64	b)	32
	c)	16	d)	8
13)	In	Machine Processing eleme	nt co	mplexity is more than 1-bit.
	a)	CLIP	b)	DAP
	c)	MasPar	d)	MPP
14)	Exa	mple system for coarse grain Ma	achine	e is
	a)	MPP	b)	CM-5
	c)	Both a and b	ď)	None of above

Seat	
No.	

### B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

ADVANCED COMPUTER ARCHITECTURE Day & Date: Saturday, 07-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. Section - I Q.2 Answer any three questions. 12 List and Explain methods for creation and termination of Threads. Explain BTB with suitable diagram. With suitable diagram, explain steps involved in handling an instruction c) with BTB. Explain Strip mining code with suitable example. d) Answer any two questions. 16 Q.3 Explain Tomasulo's algorithm with suitable Diagram. Write a code for DAXPY on MIPS and VMIPS. b) List and Explain Techniques for enhancing vector performance. c) Section - II Q.4 Answer any three questions. 12 Explain Pyramid Interconnection network with suitable diagram. List and explain main design issues of scalable MIMD computers. b) What is granularity? Explain coarse grained and fine grained systems. List and Explain distributed shared Memory classes. Q.5 Explain MPP System in Detail. 80 OR List and explain alternative architectural classes. **Q.6** Differentiate between Data Flow Model and Control Flow Model. 80

Seat	Set	В
No.	Set	Г

## B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DISTRIBUTED SYSTEMS

Day & Date: Tuesday, 10-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer 2) Figures to the right indicate full marks. **MCQ/Objective Type Questions Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the sentence. 14 Distributed OS works on the \_\_\_\_\_ principle. b) File Foundation Single system image d) Networking image Multi system image c) Which of the following is not the issue in the design of distributed operating system? Scalability Resource sharing b) Performance d) Heterogeneity In distributed system each processor has its own . local memory b) Clock both a) and b) d) none of these c) representation of encoding and decoding the message data only contain program objects. a) tagged b) System c) labeled d) Untagged The \_\_\_\_\_ handles transmission of messages across the network 5) between client and server. a) RPCRuntime Server Stub c) Client stub d) Server requires each node to read the other node's clock value. 6) Process synchronization a) b) Clock synchronization Event synchronization d) All Which activity deals with the process of deciding which process should be assigned to which processor. Process migration b) Threads allocation Process allocation d) None of these Non-token based mutual exclusion algorithm logical clock are maintained and updated according to \_\_\_\_\_. Maekawa's algorithm b) Ricart-agrawala Lamport's scheme d) Generalized algorithm Lamport's algorithm requires messages to be delivered in the \_\_\_\_\_ order 9)

b) critical section

d) none of the above

between every pair of site.

a) FIFO

c) LIFO

Set P

10)		mechanism allows the bind ces to form a single hierarchicall cache manager file manager	_	•
11)		is commonly employed in di ne accessing of data. mount name server	strib b) d)	uted file system to reduce delays  Naming  Caching
12)	,	owing is not a form of memory co	oher b)	9
13)		owing is not a type specific cohe write-once object private object		e mechanism in Munin system. write-many object processor object
14)	Grid a) c)	ds are geographically syst distributed parallel	em. b) d)	Web Dynamic

Seat	Set	D
No.	Set	

		B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019	
		Computer Science & Engineering	
		DISTRIBUTED SYSTEMS	
•		ate: Tuesday, 10-12-2019 Max :30 PM To 05:30 PM	k. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figure to the right indicates full marks.</li></ul>	
		Section – I	
Q.2	Δtt	empt any Three.	12
Ψ.Ι.Σ	a) b) c) d) e)	Why distributed computing gaining popularity? What are the different protocols used in distributed systems? What is Buffering? Explain all the types of buffering. Explain Event ordering in distributed system. Write note on Distributed Operating System.	
Q.3	Atte a) b)	empt any One. Explain Group communication in distributed system in detail. Explain all process migration mechanisms.	08
Q.4		plain workstation-server, processor- pool and hybrid model of distributed stems in detail.	d <b>08</b>
		Section – II	
Q.5	Attention (a) b) c) d)	empt any Three. What is computation grid? Explain its type. Illustrate with example the non-token based distributed algorithm used implementation of mutual exclusion. Explain centralized server algorithm for distributed shared memory. Explain typical data access action in distributed file system.	<b>12</b> d for
Q.6	Atta a) b)	empt any One.  Explain deadlock handling strategies in distributed system in detail.  Draw and Explain architecture of distributed file system.	08
Q.7	Atto a) b)	empt any One. Explain component of load distribution algorithm? What are different types of grid? List and explain different application grid computing.	<b>08</b> of

Seat	Sat	
No.	Set	Q

#### B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering DISTRIBUTED SYSTEMS**

Day & Date: Tuesday, 10-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer 2) Figures to the right indicate full marks. **MCQ/Objective Type Questions Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the sentence. Non-token based mutual exclusion algorithm logical clock are maintained and updated according to \_\_\_\_\_. Maekawa's algorithm b) Ricart-agrawala Lamport's scheme d) Generalized algorithm c) 2) Lamport's algorithm requires messages to be delivered in the \_\_\_\_\_ order between every pair of site. a) FIFO b) critical section c) LIFO d) none of the above 3) A \_\_\_\_\_ mechanism allows the binding together of different filename spaces to form a single hierarchically structured name space. cache manager b) Mount a) c) file manager d) name server \_ is commonly employed in distributed file system to reduce delays 4) in the accessing of data. a) mount b) Naming name server d) Caching c) 5) Following is not a form of memory coherence. weak consistency b) memory consistency d) general consistency c) processor consistency Following is not a type specific coherence mechanism in Munin system. 6) write-once object b) write-many object d) processor object private object c) Grids are geographically \_\_\_\_\_ system. 7) a) distributed b) Web c) parallel d) Dynamic 8) Distributed OS works on the \_\_\_\_\_ principle. Single system image b) File Foundation a) Multi system image d) Networking image 9) Which of the following is not the issue in the design of distributed operating system?

b)

Resource sharing

d) Heterogeneity

Scalability

Performance

a)

c)

Set Q

10) In distributed system each processor has its own			as its own
	a) local memory	b)	Clock
	c) both a) and b)	d)	none of these
11)	In representation of encoding only contain program objects.	ng a	nd decoding the message data
	a) tagged	b)	System
	c) labeled	ď)	Untagged
12)	The handles transmission of between client and server.	mes	ssages across the network
	a) RPCRuntime	b)	Server Stub
	c) Client stub	ď)	Server
13)	<ul><li>requires each node to read</li><li>a) Process synchronization</li><li>c) Event synchronization</li></ul>	b)	
14)	Which activity deals with the process assigned to which processor.	s of	deciding which process should be
	a) Process migration	b)	Threads allocation
	c) Process allocation	ď)	None of these

Seat	Sat	
No.	Set	Q

## B.F. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019  Computer Science & Engineering	
		DISTRIBUTED SYSTEMS	
		ate: Tuesday, 10-12-2019 Max. Ma :30 PM To 05:30 PM	arks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figure to the right indicates full marks.</li></ul>	
		Section – I	
Q.2	a) b) c)	why distributed computing gaining popularity? What are the different protocols used in distributed systems? What is Buffering? Explain all the types of buffering. Explain Event ordering in distributed system. Write note on Distributed Operating System.	12
Q.3	a)	empt any One.  Explain Group communication in distributed system in detail.  Explain all process migration mechanisms.	08
Q.4		plain workstation-server, processor- pool and hybrid model of distributed stems in detail.	80
		Section – II	
Q.5		tempt any Three.  What is computation grid? Explain its type.  Illustrate with example the non-token based distributed algorithm used for implementation of mutual exclusion.  Explain centralized server algorithm for distributed shared memory.  Explain typical data access action in distributed file system.	12
Q.6	Att a) b)	tempt any One.  Explain deadlock handling strategies in distributed system in detail.  Draw and Explain architecture of distributed file system.	08
Q.7	Att a) b)	tempt any One.  Explain component of load distribution algorithm?  What are different types of grid? List and explain different application of grid computing.	80

Seat	Sot	В
No.	Set	K

## B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DISTRIBUTED SYSTEMS

Day & Date: Tuesday, 10-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer 2) Figures to the right indicate full marks. **MCQ/Objective Type Questions Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the sentence. 14 The \_\_\_\_\_ handles transmission of messages across the network 1) between client and server. a) RPCRuntime b) Server Stub c) Client stub d) Server requires each node to read the other node's clock value. 2) Process synchronization b) Clock synchronization Event synchronization d) ΑII c) Which activity deals with the process of deciding which process should be 3) assigned to which processor. a) Process migration b) Threads allocation c) Process allocation d) None of these Non-token based mutual exclusion algorithm logical clock are maintained 4) and updated according to \_\_\_\_\_. a) Maekawa's algorithm b) Ricart-agrawala Lamport's scheme d) Generalized algorithm c) 5) Lamport's algorithm requires messages to be delivered in the \_\_\_\_\_ order between every pair of site. **FIFO** b) critical section a) c) LIFO d) none of the above A \_\_\_\_\_ mechanism allows the binding together of different filename 6) spaces to form a single hierarchically structured name space. a) cache manager b) Mount c) file manager d) name server 7) is commonly employed in distributed file system to reduce delays in the accessing of data. **Naming** a) mount b)

9) Following is not a type specific coherence mechanism in Munin system.

Following is not a form of memory coherence.

a) write-once object

a) weak consistency

c) processor consistency

b) write-many object

b) memory consistency

d) general consistency

c) private object

c) name server

8)

d) processor object

d) Caching

Set R

10)	Grid a) c)	ds are geographically distributed parallel	•	Web Dynamic
11)	a)	ributed OS works on the Single system image Multi system image	b)	·
12)	ope	ch of the following is not the rating system? Scalability Performance		the design of distributed  Resource sharing  Heterogeneity
13)	a)	istributed system each proce local memory both a) and b)	essor has b) d)	
14)		representation of end contain program objects. tagged labeled	oding an b) d)	d decoding the message data  System  Untagged

	_	
Seat	Set	D
No.	Set	K

		B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-20	19
		Computer Science & Engineering	
		DISTRIBUTED SYSTEMS	
•		ate: Tuesday, 10-12-2019 :30 PM To 05:30 PM	lax. Marks: 56
_	_		
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figure to the right indicates full marks.</li></ul>	
		Section – I	
<b>Q.2</b>	Att	empt any Three.	12
	a) b) c) d) e)	Why distributed computing gaining popularity? What are the different protocols used in distributed systems? What is Buffering? Explain all the types of buffering. Explain Event ordering in distributed system. Write note on Distributed Operating System.	
Q.3	Att	empt any One.	08
	a) b)	Explain Group communication in distributed system in detail. Explain all process migration mechanisms.	
Q.4		plain workstation-server, processor- pool and hybrid model of distributems in detail.	ted <b>08</b>
		Section – II	
Q.5	Attention Attent	empt any Three.  What is computation grid? Explain its type.  Illustrate with example the non-token based distributed algorithm us implementation of mutual exclusion.  Explain centralized server algorithm for distributed shared memory.	
	d)	Explain typical data access action in distributed file system.	
Q.6	•	empt any One.  Explain deadlock handling strategies in distributed system in detail.  Draw and Explain architecture of distributed file system.	08
Q.7	Atte a) b)	empt any One. Explain component of load distribution algorithm? What are different types of grid? List and explain different application grid computing.	08 on of

Seat	Set	6
No.	Set	3

		B.I	E. (Part – I) (Old) (CGF Computer Sci DISTRIBL	ience & l	
-			uesday, 10-12-2019 M To 05:30 PM		Max. Marks: 70
Inst	ructio		1) Q. No. 1 is compulsory a book. 2) Figures to the right indica		be solved in first 30 minutes in answer
		•	MCQ/Object		
Dura	ation: 3	30 M	inutes		Marks: 14
Q.1	<b>Cho</b> 1)	Α_		e binding t	ptions and rewrite the sentence. 14 together of different filename uctured name space.  Mount name server
	2)	in that	is commonly employe he accessing of data. mount name server	d in distrib b) d)	uted file system to reduce delays  Naming  Caching
	3)		lowing is not a form of men weak consistency processor consistency	b)	memory consistency
	4)	Foll a) c)	lowing is not a type specific write-once object private object		e mechanism in Munin system. write-many object processor object
	5)	Grid a) c)	ds are geographically distributed parallel		Web Dynamic
	6)	Dis a) c)	tributed OS works on the _ Single system image Multi system image	•	File Foundation
	7)		ich of the following is not the rating system? Scalability Performance	ne issue in b) d)	the design of distributed  Resource sharing Heterogeneity
	8)	In c a) c)	listributed system each pro local memory both a) and b)	ocessor has b) d)	s its own Clock none of these
	9)		representation of er y contain program objects. tagged labeled	ncoding ar b) d)	nd decoding the message data  System  Untagged

Set S

10)		e handles transmission of ween client and server.	mes	sages across the network
	,	RPCRuntime Client stub	b) d)	Server Stub Server
11)	a)	requires each node to read Process synchronization Event synchronization	b)	Clock synchronization
12)	ass	igned to which processor.		deciding which process should be
	,	Process migration Process allocation	,	Threads allocation None of these
13)		n-token based mutual exclusion a updated according to	algor	ithm logical clock are maintained
	a)	Maekawa's algorithm Lamport's scheme		Ricart-agrawala Generalized algorithm
14)		nport's algorithm requires messa ween every pair of site.	ges	to be delivered in the order
	a)	FIFO	b)	critical section
	c)	LIFO	d)	none of the above

Seat No.	Set	S
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## B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering  DISTRIBUTED SYSTEMS	
		ate: Tuesday, 10-12-2019 Max. :30 PM To 05:30 PM	Marks: 56
		ons: 1) All questions are compulsory.	
		2) Figure to the right indicates full marks.	
0.0	<b>A</b> 11	Section – I	40
Q.2	a)	tempt any Three. Why distributed computing gaining popularity? What are the different protocols used in distributed systems? What is Buffering? Explain all the types of buffering. Explain Event ordering in distributed system. Write note on Distributed Operating System.	12
Q.3	a)	tempt any One.  Explain Group communication in distributed system in detail.  Explain all process migration mechanisms.	08
Q.4		plain workstation-server, processor- pool and hybrid model of distributed stems in detail.	08
		Section – II	
Q.5		tempt any Three.  What is computation grid? Explain its type.  Illustrate with example the non-token based distributed algorithm used implementation of mutual exclusion.  Explain centralized server algorithm for distributed shared memory.  Explain typical data access action in distributed file system.	for
Q.6	Att a) b)	tempt any One.  Explain deadlock handling strategies in distributed system in detail.  Draw and Explain architecture of distributed file system.	08
Q.7	Att a) b)	tempt any One. Explain component of load distribution algorithm? What are different types of grid? List and explain different application of grid computing.	<b>08</b> of

Seat	Set	D
No.	Set	

		B.E. (Part – I) (Old) (CGPA) I Computer Science MODERN DATAE	e & E	ingineering
•		e: Thursday, 12-12-2019 0 PM To 05:30 PM		Max. Marks: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory and sl Book. 2) Figures to the right indicates to		be solved in first 30 minutes in answer rks.
		MCQ/Objective 7	Гуре	Questions
Dura	tion: 3	30 Minutes		Marks: 14
Q.1	<b>Cho</b> (1)	ose the correct alternatives from the Protocol which ensures that a every site it executes is called a) Consistency protocol c) 2-PC Protocol	transa	
	2)	,	,	be implemented on n machines. Intraoperation Both a & b
	3)	Which of the following protocol has overhead on read operation?  a) Majority c) Quorum Consensus	the a b) d)	dvantages of imposing less Biased Primary copy
	4)	Some of the coloum of relation are following?  a) Horizontal Fragmentation b) Horizontal & vertical Fragment c) Vertical Fragmentation d) Data replication		erent sites in which of the
	5)	The generalization of a cross-tab, dimensions can be visualized as a	n n-dir	nensional cube, called the
		<ul><li>a) cross tab</li><li>c) n-tab</li></ul>	b) d)	data cube none
	6)	Cube (color, size) generates a) 1 c) 8	_ grou <sub>l</sub> b) d)	o. 2 4
	7)	If there are M partitions of relations asymmetric fragment and replicate a) M=1 c) M*N		•

## Set P

<ul> <li>In path expression, for object references, symbol used is</li></ul>	
to create a multiset of particular attribute.  a) Aggregate b) Group by c) Order by d) Collect  11) PostgreSQL can be used from just about any major programm language, including C, C++, Perl, Python, Java, Tcl, and PHP. a) True b) False  12) can be best described as a programming model used to Hadoop-based applications that can process massive amounts a) MapReduce b) Mahout c) Oozie d) All of the mentioned	ion
language, including C, C++, Perl, Python, Java, Tcl, and PHP.  a) True b) False  12) can be best described as a programming model used to Hadoop-based applications that can process massive amount a) MapReduce b) Mahout c) Oozie d) All of the mentioned d) All of the mentioned store information about networks, su	
Hadoop-based applications that can process massive amount a) MapReduce b) Mahout c) Oozie d) All of the mentioned 13) stores are used to store information about networks, su	
,	s of data.
a) Key-value b) Wide-column c) Document d) Graph	ıch as
<ul> <li>MongoDB has been adopted as software by a number websites and services.</li> <li>a) Frontend</li> <li>b) Backend</li> <li>c) Proprietary</li> <li>d) All of the mentioned</li> </ul>	of major

Seat	Sot	<b>D</b>
No.	Set	

## B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering MODERN DATABASE SYSTEMS

Day & Date: Thursday, 12-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.

2) Figures to the right indicates full marks.

#### Section - I

### Q.2 Answer any four.

16

- a) What is the objective of 2-phase commit protocol? Explain its working and its ability to handle failure of participating site.
- **b)** Write the queries for the operations.
  - 1) Cube
  - 2) Rollup
  - 3) Rank ()
  - 4) ntile ()
- **c)** Write the steps of bully algorithm.
- **d)** What are decision support systems? Explain several issues of decision support system.
- **e)** What is data mining? Explain classification and decision tree classifiers with example.

### Q.3 Answer any two.

12

- a) Explain and compare the partition techniques in IO Parallelism.
- **b)** What is data warehouse? Draw its architecture and explain the star schema of data warehouse.
- **c)** Explain the transaction server, its architecture and its component with diagram.

#### Section - II

### Q.4 Answer any four.

16

- Explain External Sort merge Algorithm in detail.
- **b)** Explain block nested loop join and its cost complexity.
- c) What is bigdata and explain its characteristic.
- **d)** With proper example, explain the structure type and inheritance type in object based database.
- e) Differentiate between RDBMS and MongoDB.

### Q.5 Answer any two.

12

- a) Write the features of HADOOP System and explain in detail Hadoop Ecosystem. How a secondary name node differs from the name node in HDFS.
- **b)** What is NOSQL database? List the application where NOSQL is used.
- **c)** What are the basic steps in query processing? Explain different factors to measure the query cost.

		Computer Scien  MODERN DATA	ce & En	gineering
		e: Thursday, 12-12-2019 30 PM To 05:30 PM		Max. Marks: 70
			should be	solved in first 30 minutes in answer
		Figures to the right indicates	full mark	S.
		MCQ/Objective	Type Q	uestions
Dura	ation: 3	30 Minutes	7.	Marks: 14
Q.1	<b>Cho</b> 1)	ose the correct alternatives from A scheme with fact table, multiple that fact table to the dimension tab a) Snowflake Schema c) Both a & b	dimension ble is calle b)	n tables and foreign key from
	2)	In path expression, for object refe a) * c) →		ymbol used is &
	3)	In object oriented databases, nest to create a multiset of particular aa) Aggregate c) Order by	ttribute. b) (	e done using function Group by Collect
	4)	PostgreSQL can be used from julanguage, including C, C++, Perl, a) True	Python, J	
	5)	can be best described as a Hadoop-based applications that can be a) MapReduce c) Oozie	an proces b) I	ming model used to develop as massive amounts of data. Mahout All of the mentioned
	6)	stores are used to store in social connections. a) Key-value c) Document	b) \	about networks, such as Wide-column Graph
	7)	MongoDB has been adopted as websites and services.  a) Frontend c) Proprietary	b) i	ware by a number of major  Backend  All of the mentioned
	8)	The Protocol which ensures that every site it executes is called a) Consistency protocol c) 2-PC Protocol	 b) l	ion is terminated same way at  Logging Protocol  Concurrency Control Protocol

Set Q

9)	<ul><li>parallelism, single operation</li><li>Interoperation</li><li>Pipelined parallelism</li></ul>	can b b) d)	e implemented on n machines. Intraoperation Both a & b
10)	Which of the following protocol has overhead on read operation?  a) Majority	the ad	dvantages of imposing less Biased
	c) Quorum Consensus	d)	Primary copy
11)	Some of the coloum of relation are following?  a) Horizontal Fragmentation b) Horizontal & vertical Fragmentation c) Vertical Fragmentation d) Data replication		erent sites in which of the
12)	The generalization of a cross-tab, v dimensions can be visualized as ar		
	a) cross tab c) n-tab	b) d)	data cube none
13)	Cube (color, size) generates a) 1 c) 8	group b) d)	). 2 4
14)	If there are M partitions of relations asymmetric fragment and replicate a) M=1 c) M*N		•

Seat	Set	
No.	Set	Q

## B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering MODERN DATABASE SYSTEMS

Day & Date: Thursday, 12-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.

2) Figures to the right indicates full marks.

#### Section - I

### Q.2 Answer any four.

16

- a) What is the objective of 2-phase commit protocol? Explain its working and its ability to handle failure of participating site.
- **b)** Write the queries for the operations.
  - 1) Cube
  - 2) Rollup
  - 3) Rank ()
  - 4) ntile ()
- c) Write the steps of bully algorithm.
- **d)** What are decision support systems? Explain several issues of decision support system.
- **e)** What is data mining? Explain classification and decision tree classifiers with example.

### Q.3 Answer any two.

12

- a) Explain and compare the partition techniques in IO Parallelism.
- **b)** What is data warehouse? Draw its architecture and explain the star schema of data warehouse.
- **c)** Explain the transaction server, its architecture and its component with diagram.

#### Section - II

### Q.4 Answer any four.

16

- Explain External Sort merge Algorithm in detail.
- **b)** Explain block nested loop join and its cost complexity.
- c) What is bigdata and explain its characteristic.
- **d)** With proper example, explain the structure type and inheritance type in object based database.
- e) Differentiate between RDBMS and MongoDB.

### Q.5 Answer any two.

12

- a) Write the features of HADOOP System and explain in detail Hadoop Ecosystem. How a secondary name node differs from the name node in HDFS.
- **b)** What is NOSQL database? List the application where NOSQL is used.
- **c)** What are the basic steps in query processing? Explain different factors to measure the query cost.

Seat	Set	R
No.	Jet l	11

## B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science MODERN DATAE		•	
•		e: Thursday, 12-12-2019 30 PM To 05:30 PM		Max. Marks: 70	
Insti	ructio	Book.		be solved in first 30 minutes in answer	
		2) Figures to the right indicates			
Dura	ation: 3	MCQ/Objective T	Гуре	<b>Questions</b> Marks: 14	
<ul> <li>Q.1 Choose the correct alternatives from the options and rewrite the sente</li> <li>1) The generalization of a cross-tab, which is two-dimensional, to n dimensions can be visualized as an n-dimensional cube, called the</li> </ul>					
		a) cross tab c) n-tab	b) d)	data cube none	
	2)	Cube (color, size) generates a) 1 c) 8	_ grou b) d)		
	3)	If there are M partitions of relations asymmetric fragment and replicate a) M=1 c) M*N			
	4)	A scheme with fact table, multiple that fact table to the dimension table a) Snowflake Schema c) Both a & b			
	5)	In path expression, for object refer a) * c) →	ences, b) d)	, symbol used is & :	
	6)	In object oriented databases, nesti to create a multiset of particular atta) Aggregate c) Order by			
	7)	PostgreSQL can be used from just language, including C, C++, Perl, Fa) True			
	8)	can be best described as a Hadoop-based applications that can a) MapReduce c) Oozie		amming model used to develop cess massive amounts of data.  Mahout  All of the mentioned	

Set R

9)	stores are used to store information about networks, su social connections.				
	a) Key-value c) Document	b) d)	Wide-column Graph		
10)	MongoDB has been adopted as _ websites and services.	so	oftware by a number of major		
	a) Frontend	b)			
	c) Proprietary	d)	All of the mentioned		
11)	The Protocol which ensures that a every site it executes is called		ction is terminated same way at		
	a) Consistency protocol	b)			
	c) 2-PC Protocol	d)	Concurrency Control Protocol		
12)	parallelism, single operation a) Interoperation	n can b b)	e implemented on n machines. Intraoperation		
	c) Pipelined parallelism	d)	•		
13)	Which of the following protocol has overhead on read operation?	s the a	dvantages of imposing less		
	a) Majority	b)	Biased		
	c) Quorum Consensus	d)	Primary copy		
14)	Some of the coloum of relation are following?	at diff	erent sites in which of the		
	a) Horizontal Fragmentation				
	b) Horizontal & vertical Fragmen	tation			
	c) Vertical Fragmentation				
	d) Data replication				

Seat	Cat	П
No.	Set	K

## B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering MODERN DATABASE SYSTEMS

Day & Date: Thursday, 12-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicates full marks.

#### Section - I

#### Q.2 Answer any four.

16

- a) What is the objective of 2-phase commit protocol? Explain its working and its ability to handle failure of participating site.
- **b)** Write the queries for the operations.
  - 1) Cube
  - 2) Rollup
  - 3) Rank ()
  - 4) ntile ()
- c) Write the steps of bully algorithm.
- **d)** What are decision support systems? Explain several issues of decision support system.
- **e)** What is data mining? Explain classification and decision tree classifiers with example.

### Q.3 Answer any two.

12

- a) Explain and compare the partition techniques in IO Parallelism.
- **b)** What is data warehouse? Draw its architecture and explain the star schema of data warehouse.
- **c)** Explain the transaction server, its architecture and its component with diagram.

#### Section - II

### Q.4 Answer any four.

16

- a) Explain External Sort merge Algorithm in detail.
- **b)** Explain block nested loop join and its cost complexity.
- **c)** What is bigdata and explain its characteristic.
- **d)** With proper example, explain the structure type and inheritance type in object based database.
- e) Differentiate between RDBMS and MongoDB.

### Q.5 Answer any two.

12

- a) Write the features of HADOOP System and explain in detail Hadoop Ecosystem. How a secondary name node differs from the name node in HDFS.
- **b)** What is NOSQL database? List the application where NOSQL is used.
- **c)** What are the basic steps in query processing? Explain different factors to measure the query cost.

Seat No.	Set S
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		B.E	E. (Part – I) (Old) (CGF Computer Sc MODERN DA	ience & E		
•			ursday, 12-12-2019 // To 05:30 PM		Max. Marks: 70	)
Instr	ructio		) Q. No. 1 is compulsory a Book. 2) Figures to the right indica		e solved in first 30 minutes in answer ks.	
			MCQ/Object	ive Type (	Questions	
Dura	ation: 3	80 Mi			Marks: 14	1
Q.1	<b>Cho</b> (1)	In c		nesting can	tions and rewrite the sentence. 14 be done using function  Group by Collect	ŀ
	2)	lan	stgreSQL can be used fron guage, including C, C++, P True	•	, , , ,	
	3)	a)			mming model used to develop ess massive amounts of data. Mahout All of the mentioned	
	4)	a)	stores are used to stor cial connections. Key-value Document	e informatio b) d)	n about networks, such as Wide-column Graph	
	5)	wel	ngoDB has been adopted obsites and services. Frontend Proprietary		oftware by a number of major  Backend  All of the mentioned	
	6)	eve	e Protocol which ensures thery site it executes is called Consistency protocol 2-PC Protocol		ction is terminated same way at  Logging Protocol  Concurrency Control Protocol	
	7)	a) c)	parallelism, single ope Interoperation Pipelined parallelism	ration can be b) d)	e implemented on n machines. Intraoperation Both a & b	
	8)		ich of the following protoco erhead on read operation? Majority Quorum Consensus	ol has the ac b) d)	dvantages of imposing less Biased Primary copy	

Set S

9)	follo a) b)	ne of the coloum of relation are a owing? Horizontal Fragmentation Horizontal & vertical Fragmental Vertical Fragmentation Data replication		erent sites in which of the
10)		e generalization of a cross-tab, whensions can be visualized as an		
	a) c)	cross tab n-tab	b) d)	data cube none
11)	Cuk a) c)	pe (color, size) generates 1 8	group b) d)	2 4
12)		nere are M partitions of relations r rmmetric fragment and replicate jo M=1 M*N		
13)		cheme with fact table, multiple di t fact table to the dimension table i Snowflake Schema Both a & b		
14)	In p a) c)	oath expression, for object referer  *  →	nces, b) d)	symbol used is & :

Seat	Set	9
No.	Set	3

## B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering MODERN DATABASE SYSTEMS

Day & Date: Thursday, 12-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicates full marks.

#### Section - I

### Q.2 Answer any four.

16

- a) What is the objective of 2-phase commit protocol? Explain its working and its ability to handle failure of participating site.
- **b)** Write the queries for the operations.
  - 1) Cube
  - 2) Rollup
  - 3) Rank ()
  - 4) ntile ()
- c) Write the steps of bully algorithm.
- **d)** What are decision support systems? Explain several issues of decision support system.
- **e)** What is data mining? Explain classification and decision tree classifiers with example.

### Q.3 Answer any two.

12

- a) Explain and compare the partition techniques in IO Parallelism.
- **b)** What is data warehouse? Draw its architecture and explain the star schema of data warehouse.
- **c)** Explain the transaction server, its architecture and its component with diagram.

#### Section - II

### Q.4 Answer any four.

16

- Explain External Sort merge Algorithm in detail.
- **b)** Explain block nested loop join and its cost complexity.
- c) What is bigdata and explain its characteristic.
- **d)** With proper example, explain the structure type and inheritance type in object based database.
- e) Differentiate between RDBMS and MongoDB.

### Q.5 Answer any two.

12

- a) Write the features of HADOOP System and explain in detail Hadoop Ecosystem. How a secondary name node differs from the name node in HDFS.
- **b)** What is NOSQL database? List the application where NOSQL is used.
- **c)** What are the basic steps in query processing? Explain different factors to measure the query cost.

Seat	Set	D
No.	Set	

## B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering HUMAN COMPUTER INTERACTION**

Day & Date: Saturday,14-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Q. No. 1 is compulsory and it should be solved in first 30 minutes in answer book. 2) Assume the suitable data whenever necessary. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options. 14 \_\_\_\_ memory for aural stimuli. 1) a) Iconic b) **Echoic** c) Haptic d) None of these \_\_\_ are used quite successfully to teach new concepts in terms of ones 2) which are already understood. a) Metaphor **Direct Manipulation** b) c) Programming None of these d) prototype is not discarded and serves as the basis for the next 3) iteration of design. a) Throw-away b) Incremental **Evolutionary** d) None of these c) 4) QOC is a) Query-Objective-Control b) **Question-Option-Criterion** c) Question-Objective-Consistent d) None of these focuses on the user's ability to determine the effect of future 5) interactions. a) Predictability Synthesizability b) Generalizability c) Familiarity d) can be used as a means of describing the user's day-to-day 6) activities. a) Storyboarding Workshops b) c) Brainstorming d) Pencil and paper exercises Which utterance points of clarification and elaborations? 7) a) Substantive Annotative b) c) Procedural d) None of these 8) \_\_ discussions usually focus on the decisions to be made by network designers and operators. a) Quality of Service Quality of Productivity b) c) Quality of Design None of these d) can provide indexes of terms, keyword searches, step by step 9) guidance and access to complementary web information

Online Help

**Journals** 

b) d)

a) Context-Sensitive help

c) Guides

Set P

10)	a) In		b)	nallenges of Information Analysis All of these
11)	a) Sa	is the best example for which ame Place, Same Time fferent Place, Same Time	b)	• •
12)	,	displays are attractive to users olor ertical	s, and b) d)	I can often improve task. Structured Angular
13)	applica a) Dy	web content can be used for co ations. ynamic omplex	omple b) d)	ete web-based business Static Simple
14)	a) M	is global hypermedia syst ultimedia ypertext	em b) d)	World wide web Virtual reality

Seat	Set	D
No.	Set	F

# B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering HUMAN COMPUTER INTERACTION	,,,
•		e: Saturday,14-12-2019 0 PM To 05:30 PM	Max. Marks: 56
		ns: 1) All questions are compulsory.  2) Assume the suitable data if necessary.  SECTION I	
Q.2	Ansv a) b) c) d) e) f)	wer any four of the following.  Explain the model of the structure of memory.  Explain any two Text entry devices.  Explain why should you know the users in designing the interact systems?  Explain any one technique of evaluation through user participation who are stakeholders? And explain different categories of stake What do you mean by backchannels? Explain how it affects the face communication?	on. holders.
Q.3	Ansv a) b) c)	wer any two of the following.  Explain the framework for human-computer interaction with resp Social and Organizational context.  Explain the Shneiderman's eight golden rules of interface design Explain CUSTOM methodology.  SECTION II	
Q.4	Ansv a) b) c) d) e) f)	wer any four of the following.  Explain the importance of quality of service.  Write a note on groupware systems.  Explain multimedia document searches in information search.  Define Hypertext. Explain the applications areas of hypertext.  Compare and contrast online help with offline help.  Explain how do you balance function and fashion in designing in system.	<b>16</b> teraction
Q.5	Ansv a) b)	wer any two of the following.  What is Dynamic web content? Explain how dynamic web pages  Write a note on Virtual Reality and Augmented Reality devices a applications.  Explain the issues of web technology.	

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No.	Set	¥

## B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering HUMAN COMPUTER INTERACTION**

Day & Date: Saturday,14-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Q. No. 1 is compulsory and it should be solved in first 30 minutes in answer book. 2) Assume the suitable data whenever necessary. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options. 14 \_\_\_\_\_ discussions usually focus on the decisions to be made by network designers and operators. a) Quality of Service b) Quality of Productivity c) Quality of Design None of these d) 2) can provide indexes of terms, keyword searches, step by step guidance and access to complementary web information a) Context-Sensitive help b) Online Help c) Guides d) **Journals** View large volumes of data is one of the challenges of \_ 3) a) Information Search Information Analysis b) c) Information Visualization All of these d) E-mail is the best example for which of the collaboration approach? 4) a) Same Place, Same Time Same Place, Different Time b) c) Different Place, Same Time Different Place, Different Time d) \_\_\_\_ displays are attractive to users, and can often improve task. 5) a) Color Structured b) c) Vertical Angular d) \_web content can be used for complete web-based business 6) applications. a) Dynamic b) Static Complex d) Simple 7) The is global hypermedia system a) Multimedia World wide web b) c) Hypertext d) Virtual reality \_ memory for aural stimuli. 8) a) Iconic b) **Echoic** None of these c) Haptic d) are used quite successfully to teach new concepts in terms of ones 9) which are already understood. a) Metaphor b) **Direct Manipulation** 

None of these

d)

**Programming** 

Set Q

10)	prototype is not discarded and serves as the basis for the next iteration of design.							
	a) Throw-away	b)	Incremental					
	c) Evolutionary	ď)	None of these					
11)	QOC is							
,	a) Query-Objective-Control	b)	Question-Option-Criterion					
	c) Question-Objective-Consistent	ď)	None of these					
12)	focuses on the user's ability to	o dete	ermine the effect of future					
	interactions.							
	a) Predictability	b)	Synthesizability					
	c) Familiarity	d)	Generalizability					
13)	can be used as a means of d	escrib	ing the user's day-to-day					
	activities.							
	a) Storyboarding	b)	Workshops					
	c) Brainstorming	d)	Pencil and paper exercises					
14)	Which utterance points of clarificatio	n and	elaborations?					
	a) Substantive	b)	Annotative					
	c) Procedural	d)	None of these					

Seat	Set	0
No.	Set	Q

# B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering HUMAN COMPUTER INTERACTION	
•		e: Saturday,14-12-2019 0 PM To 05:30 PM	Max. Marks: 56
Instr	uction	ns: 1) All questions are compulsory. 2) Assume the suitable data if necessary. SECTION I	
Q.2	Ansv a) b) c) d) e) f)	wer any four of the following.  Explain the model of the structure of memory.  Explain any two Text entry devices.  Explain why should you know the users in designing the interact systems?  Explain any one technique of evaluation through user participation who are stakeholders? And explain different categories of stake What do you mean by backchannels? Explain how it affects the face communication?	on. holders.
Q.3	Ansv a) b) c)	wer any two of the following.  Explain the framework for human-computer interaction with resp Social and Organizational context.  Explain the Shneiderman's eight golden rules of interface design Explain CUSTOM methodology.  SECTION II	
Q.4	Ansv a) b) c) d) e) f)	wer any four of the following.  Explain the importance of quality of service.  Write a note on groupware systems.  Explain multimedia document searches in information search.  Define Hypertext. Explain the applications areas of hypertext.  Compare and contrast online help with offline help.  Explain how do you balance function and fashion in designing in system.	16
Q.5	Ansv a) b)	wer any two of the following.  What is Dynamic web content? Explain how dynamic web pages  Write a note on Virtual Reality and Augmented Reality devices a applications.  Explain the issues of web technology.	

Seat No.	Set	R
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## B.F. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		D.L	Computer So HUMAN COM	ience & E	•	
-			turday,14-12-2019 To 05:30 PM	FOIERINI		/larks: 70
Instr	uctio		) Q. No. 1 is compulsory answer book. ) Assume the suitable da		be solved in first 30 minutes necessary.	in
			MCQ/Objec	tive Type 0	Questions	
Dura	tion: 3	30 Mi	_			/larks: 14
Q.1	<b>Cho</b> 1)	ose t	he correct alternatives focuses on the user's	-	ions. ermine the effect of future	14
		a)	ractions. Predictability Familiarity	b) d)	Synthesizability Generalizability	
	2)	a)	vities. Storyboarding	b)	ing the user's day-to-day Workshops	
	3)	Whi	Brainstorming ch utterance points of cla Substantive Procedural	d) rification and b) d)	Pencil and paper exercises elaborations? Annotative None of these	
	4)	des a)		,	ecisions to be made by netwood Quality of Productivity None of these	rk
	5)	guic a) c)	lance and access to com		ord searches, step by step eb information Online Help Journals	
	6)	Viev a) c)	v large volumes of data is Information Search Information Visualization	b)	hallenges of Information Analysis All of these	
	7)	E-m a) c)	ail is the best example fo Same Place, Same Time Different Place, Same Ti	e b)	e collaboration approach? Same Place, Different Time Different Place, Different Tin	ne
	8)	a) c)	displays are attractive Color Vertical	to users, and b) d)	d can often improve task. Structured Angular	
	9)	app a) c)	web content can be us lications. Dynamic Complex	ed for comple b) d)	ete web-based business Static Simple	

Set R

10)	The is global hypermedia sys	tem	
•	a) Multimedia	b)	World wide web
	c) Hypertext	ď)	Virtual reality
11)	memory for aural stimuli.		
	a) Iconic	b)	Echoic
	c) Haptic	d)	None of these
12)	are used quite successfully to	teac	h new concepts in terms of ones
	which are already understood.	b)	Direct Manipulation
	a) Metaphor	,	Direct Manipulation  None of these
	c) Programming	d)	None of these
13)	prototype is not discarded an	d ser\	es as the basis for the next
	iteration of design.		
	a) Throw-away	b)	Incremental
	c) Evolutionary	d)	None of these
14)	QOC is		
	a) Query-Objective-Control	b)	Question-Option-Criterion
	c) Question-Objective-Consistent	d)	None of these

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# B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering HUMAN COMPUTER INTERACTION	,,,
•		e: Saturday,14-12-2019 0 PM To 05:30 PM	Max. Marks: 56
Instr	uctio	ns: 1) All questions are compulsory. 2) Assume the suitable data if necessary. SECTION I	
Q.2	Ansv a) b) c) d) e) f)	wer any four of the following.  Explain the model of the structure of memory.  Explain any two Text entry devices.  Explain why should you know the users in designing the interact systems?  Explain any one technique of evaluation through user participation who are stakeholders? And explain different categories of stake What do you mean by backchannels? Explain how it affects the face communication?	on. holders.
Q.3	Ansv a) b) c)	wer any two of the following.  Explain the framework for human-computer interaction with resp Social and Organizational context.  Explain the Shneiderman's eight golden rules of interface design Explain CUSTOM methodology.  SECTION II	
Q.4	Ansv a) b) c) d) e) f)	wer any four of the following.  Explain the importance of quality of service.  Write a note on groupware systems.  Explain multimedia document searches in information search.  Define Hypertext. Explain the applications areas of hypertext.  Compare and contrast online help with offline help.  Explain how do you balance function and fashion in designing in system.	<b>16</b> teraction
Q.5	Ansv a) b)	wer any two of the following.  What is Dynamic web content? Explain how dynamic web pages  Write a note on Virtual Reality and Augmented Reality devices a applications.  Explain the issues of web technology.	

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Seat		Set	C
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## B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering HUMAN COMPUTER INTERACTION**

Day & Date: Saturday,14-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Q. No. 1 is compulsory and it should be solved in first 30 minutes in answer book. 2) Assume the suitable data whenever necessary. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options. 14 View large volumes of data is one of the challenges of \_ a) Information Search Information Analysis b) c) Information Visualization All of these d) E-mail is the best example for which of the collaboration approach? 2) a) Same Place, Same Time Same Place, Different Time b) c) Different Place, Same Time Different Place, Different Time d) 3) \_ displays are attractive to users, and can often improve task. a) Color Structured b) Angular c) Vertical d) 4) web content can be used for complete web-based business applications. a) Dynamic Static b) c) Complex Simple d) The \_\_\_\_\_ is global hypermedia system 5) a) Multimedia World wide web b) c) Hypertext d) Virtual reality 6) \_\_ memory for aural stimuli. a) Iconic b) **Echoic** d) None of these c) Haptic 7) \_\_\_\_ are used quite successfully to teach new concepts in terms of ones which are already understood. a) Metaphor **Direct Manipulation** b) None of these **Programming** d) 8) prototype is not discarded and serves as the basis for the next iteration of design. a) Throw-away b) Incremental c) Evolutionary d) None of these QOC is 9) a) Query-Objective-Control **Question-Option-Criterion** 

b)

None of these

c) Question-Objective-Consistent d)

Set S

10)	focuses on the user's ability to determine the effect of future				
•	interactions.	-			
	a) Predictability	b)	Synthesizability		
	c) Familiarity	ď)	Generalizability		
11)	can be used as a means	of describ	ing the user's day-to-day		
,	activities.				
	a) Storyboarding	b)	Workshops		
	c) Brainstorming	d)	Pencil and paper exercises		
12)	Which utterance points of clarific	ation and	elaborations?		
	a) Substantive	b)	Annotative		
	c) Procedural	d)	None of these		
13)	discussions usually focus	on the de	ecisions to be made by network		
•	designers and operators.		•		
	a) Quality of Service	b)	Quality of Productivity		
	c) Quality of Design	d)	None of these		
14)	can provide indexes of ter	ms, keyw	ord searches, step by step		
	guidance and access to compler	nentary w	eb information		
	a) Context-Sensitive help	b)	Online Help		
	c) Guides	d)	Journals		

Seat	Set	0
No.	Set	3

		Computer Science & Engineering HUMAN COMPUTER INTERACTION	719
•		e: Saturday,14-12-2019 O PM To 05:30 PM	Max. Marks: 56
Instru	uction	ns: 1) All questions are compulsory. 2) Assume the suitable data if necessary. SECTION I	
Q.2	a) b) c) d) e) f)	ver any four of the following.  Explain the model of the structure of memory.  Explain any two Text entry devices.  Explain why should you know the users in designing the interact systems?  Explain any one technique of evaluation through user participatic Who are stakeholders? And explain different categories of stake What do you mean by backchannels? Explain how it affects the face communication?	on. holders. face-to
Q.3	Answ a) b) c)	ver any two of the following.  Explain the framework for human-computer interaction with resp Social and Organizational context.  Explain the Shneiderman's eight golden rules of interface design Explain CUSTOM methodology.  SECTION II	
Q.4	Answ a) b) c) d) e) f)	ver any four of the following.  Explain the importance of quality of service.  Write a note on groupware systems.  Explain multimedia document searches in information search.  Define Hypertext. Explain the applications areas of hypertext.  Compare and contrast online help with offline help.  Explain how do you balance function and fashion in designing in system.	<b>16</b> teraction
Q.5	Answ a) b) c)	ver any two of the following.  What is Dynamic web content? Explain how dynamic web pages  Write a note on Virtual Reality and Augmented Reality devices a  applications.  Explain the issues of web technology.	

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		B.	E. (Part -I) (Old) (CGPA) Ex Computer Science DIGITAL SIGNAL	& E	ngineering
-			turday,14-12-2019 I To 05:30 PM		Max. Marks: 70
Insti	ruction		book.		e solved in first 30 minutes in answer
		2	) Figures to the right indicate full		
Dura	ation: 3	0 Mii	MCQ/Objective Ty	/pe (	Auestions  Marks: 14
Q.1	Choo 1)	If x	he correct alternatives from the (n) is a discrete-time signal, then n' is	-	ions. 14 value of $x(n)$ at non integer value
		a) c)	Zero Negative	b) d)	Positive Not Defined
	2)	an	e discrete time function defined a  Unit sample signal Unit ramp signal		$0 = n$ for $n \ge 0$ ; $= 0$ for $n < 0$ is  Unit step signal  None of the mentioned
	3)	Wh	at is the ROC of the system func- tem is BIBO stable?	tion F	
	4)		e ROC of z-transform of any sign True	al car b)	nnot contain poles. False
	5)	1) 2)	e several ways to perform an inver- Direct computation Long division Partial fraction expansion with to Direct inversion 1, 2 and 3 are correct only 1 and 3 correct		
	6)	vie	e realization of FIR filter by frequence wed as cascade of how many filto Two Four	-	sampling realization can be Three None of above
	7)	sys	lirect form-I realization, all-pole s tem. True	ysten b)	n is placed before the all-zero False
	8)	whi	e anti-symmetric condition with M ch of the following linear-phase f Low pass Band pass		

Set P

9)	What is die value of in (M-1/2) if the symmetric? a) 0	unit s b)	ample response is anti-
	c) -1	d)	None of above
10)	How many complex multiplications FFT algorithm?	are ne	ed to be performed for each
	a) (N/2)logN	b)	•
	c) (N/2)log2N	d)	None of these
11)	The similarity between the Fourier t	ransfo	rm and the z transform is that
	<ul> <li>a) Both convert frequency Spectre</li> <li>b) Both convert discrete time dome</li> <li>c) Both convert analog signal to of</li> <li>d) None of these</li> </ul>	nain to	frequency spectrum domain
12)	Which of the following block is not r RADAR signal?	equire	d in digital processing of an
	a) A/D converter	b)	
	c) DSP	d)	All above
13)	Which among the following has/hav filtering?	e a pr	ovision to support an adaptive
	a) IIR	b)	FIR
	c) Both a and b	d)	None of above
14)	If we store the signal row wise then a) True	the re	sult must be read column wise. False

Seat No.	Set	Р

## B.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

DIGITAL SIGNAL PROCESSING Day & Date: Saturday,14-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full mark. Section - I Attempt any three questions 12 Q.2 List and Explain properties of z transform. Sketch and label following signals. b) 1) u(n-1) 2) u (3-n) 3) x(3n)4) x(3n+1)State the properties of ROC. c) d) Find the DFT of x[n] =an for  $0 \le n \le 3$ = 0 otherwise Q.3 Attempt any two questions 16 Obtain direct form I, direct form II and cascade realizations of system a) described by the equation, y[n]=y[n-1]-(1/2)y[n-2]+x[n]-x[n-1]+x[n-2]Realize H(z) =  $\frac{1+0.6z^{-2}+0.2z^{-1}}{3+5z^{-1}+4^{-2}}$  using Direct form I and Direct form II b) structures. Explain Basic structure for FIR Systems. c) Section - II **Q.4** Attempt any three questions 12 Describe the applications of DSP in RADAR. a) Explain in brief the architectural features of First generation TMS320C1X b) processor. Explain the Windowing techniques for FIR filter design along with different c) window functions. Explain the place computations with respect to FFT algorithm. d) Q.5 Attempt any two question 16 Convert the following analog transfer function in to digital using bilinear a) transform with T=1sec.H(s)  $\frac{s}{(s+3)(s+9)}$ 

b)

Explain the Bilinear transformation for digital filters in detail.

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Seat	Set	$\mathbf{a}$
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# B.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Scier DIGITAL SIGNA	nce & Ei			
•		e: Saturday,14-12-2019 0 PM To 05:30 PM		Max. Marks: 70		
Instr	uction	ns: 1) Q. No. 1 is compulsory and book.	should be	e solved in first 30 minutes in answer		
		2) Figures to the right indicate	full mark.			
_		MCQ/Objective	Type C			
		0 Minutes		Marks: 14		
Q.1	<b>Choo</b> 1)	The anti-symmetric condition wit which of the following linear-phases  a) Low pass c) Band pass	h M even	is not used in the design of		
	2)	What is die value of in (M-1/2) if symmetric? a) 0	,	·		
		c) -1	d)	None of above		
	3)	How many complex multiplication FFT algorithm?  a) (N/2)logN	ns are ne b)	ed to be performed for each  N log2 N		
		c) (N/2)log2N	d)	None of these		
	4)	The similarity between the Fourier transform and the z transform is that				
		<ul><li>a) Both convert frequency Spe</li><li>b) Both convert discrete time d</li><li>c) Both convert analog signal t</li><li>d) None of these</li></ul>	lomain to	· · · · · · · · · · · · · · · · · · ·		
	5)	Which of the following block is no RADAR signal?	•			
		<ul><li>a) A/D converter</li><li>c) DSP</li></ul>	b) d)	D/A Converter All above		
	6)	Which among the following has/l filtering?  a) IIR	nave a pro b)	ovision to support an adaptive		
		c) Both a and b	d)	None of above		
	7)	If we store the signal row wise tha) True	en the re b)	sult must be read column wise. False		
	8)	If $x(n)$ is a discrete-time signal, t of 'n' is	hen the v	alue of x(n) at non integer value		
		a) Zero c) Negative	b) d)	Positive Not Defined		

Set Q

9)		e discrete time function defined as	s u(n)	= n for $n \ge 0$ ; = 0 for $n < 0$ is
		Unit sample signal Unit ramp signal	b) d)	Unit step signal None of the mentioned
10)		at is the ROC of the system function tem is BIBO stable?	tion H	(z) if the discrete time LTI
	a) c)	Entire z-plane, except at $z=0$ Contain unit circle	b) d)	
11)		ROC of z-transform of any signation	al can b)	not contain poles. False
12)	1) 2) 3) 4) a)	e several ways to perform an inverse Direct computation Long division Partial fraction expansion with to Direct inversion 1, 2 and 3 are correct only 1 and 3 correct	able lo	
13)	The viev	e realization of FIR filter by freque wed as cascade of how many filte Two Four	ncy s	
14)	sys	lirect form-I realization, all-pole sy tem.		·
	a)	True	b)	False

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Seat	Set	0
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## B.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering DIGITAL SIGNAL PROCESSING**

Day & Date: Saturday,14-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full mark. Section - I Attempt any three questions 12 Q.2 List and Explain properties of z transform. b) Sketch and label following signals. 1) u(n-1) 2) u (3-n) 3) x(3n) 4) x(3n+1)State the properties of ROC. c) Find the DFT of x[n] =an for  $0 \le n \le 3$ d) = 0 otherwise Attempt any two questions 16 Q.3 Obtain direct form I, direct form II and cascade realizations of system described by the equation, y[n]=y[n-1]-(1/2)y[n-2]+x[n]-x[n-1]+x[n-2]Realize H(z) =  $\frac{1+0.6z^{-2}+0.2z^{-1}}{3+5z^{-1}+4^{-2}}$  using Direct form I and Direct form II b) structures. c) Explain Basic structure for FIR Systems. Section - II **Q.4** Attempt any three questions 12 a) Describe the applications of DSP in RADAR. Explain in brief the architectural features of First generation TMS320C1X b) processor. Explain the Windowing techniques for FIR filter design along with different c) window functions. Explain the place computations with respect to FFT algorithm. d) Attempt any two question 16 **Q.5** Convert the following analog transfer function in to digital using bilinear a) transform with T=1sec.H(s)  $\frac{s}{(s+3)(s+9)}$ Explain the Bilinear transformation for digital filters in detail. b) Explain with example how to design of discrete time IIR filters from

c)

continuous time filters.

Seat No.	Set	R
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## B.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019

Computer Science & Engineering DIGITAL SIGNAL PROCESSING									
•			urday,14-12-2019 To 05:30 PM	LPKO	Max. Marks: 70				
Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer									
book. 2) Figures to the right indicate full mark.									
MCQ/Objective Type Questions									
Duratio	n: 30	Min	utes		Marks: 14				
<b>Q.1 C</b> 1)		The 1) 2) 3) 4) a)	e correct alternatives from several ways to perform an in Direct computation Long division Partial fraction expansion wit Direct inversion 1, 2 and 3 are correct only 1 and 3 correct	nverse Z h table lo b)	transform are				
2)		view a)	realization of FIR filter by free yed as cascade of how many Two Four	filters?	ampling realization can be Three None of above				
3)		syst	n direct form-I realization, all-pole system is placed before the all-zero system. a) True b) False						
4)		whic a)	anti-symmetric condition with th of the following linear-phas Low pass Band pass						
5)			at is die value of in (M-1/2) if t metric? 0 -1	he unit sa b) d)	ample response is anti- 1 None of above				
6)			many complex multiplication algorithm? (N/2)logN (N/2)log2N	s are ned b) d)	ed to be performed for each  N log2 N  None of these				
7)			similarity between the Fouries—.  Both convert frequency Special Both convert discrete time do Both convert analog signal to None of these	trum doromain to	frequency spectrum domain				

Set R

8)	RAD a)	ch of the following block is not re DAR signal? A/D converter DSP	quired b) d)	d in digital processing of an  D/A Converter  All above			
_,	,		,				
9)	Which among the following has/have a provision to support an adaptive filtering?						
	a)	IIŘ	b)	FIR			
	c)	Both a and b	d)	None of above			
10)		e store the signal row wise then the true	he res	sult must be read column wise. False			
11)	<ol> <li>If x(n) is a discrete-time signal, then the value of x(n) at non in of 'n' is</li> </ol>						
	a)	Zero	b)	Positive			
	c)	Negative	ď)	Not Defined			
12)	The discrete time function defined as $u(n)=n$ for $n\geq 0;=0$ for $n<0$ is an						
	a) _	Unit sample signal	b)	Unit step signal			
	c)	Unit ramp signal	ď)	None of the mentioned			
13)	What is the ROC of the system function H(z) if the discrete time LTI system is BIBO stable?						
	a) c)	Entire z-plane, except at $z=0$ Contain unit circle	b) d)	Entire z-plane, except at $z=\infty$ None of the mentioned			
14)	The a)	ROC of z-transform of any signature	ıl canı b)	not contain poles. False			

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# B.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DIGITAL SIGNAL PROCESSING** Day & Date: Saturday,14-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full mark. Section - I Attempt any three questions 12 Q.2 List and Explain properties of z transform. b) Sketch and label following signals. 1) u(n-1) 2) u (3-n) 3) x(3n) 4) x(3n+1)State the properties of ROC. c) Find the DFT of x[n] =an for  $0 \le n \le 3$ d) = 0 otherwise Attempt any two questions 16 Q.3 Obtain direct form I, direct form II and cascade realizations of system described by the equation, y[n]=y[n-1]-(1/2)y[n-2]+x[n]-x[n-1]+x[n-2]Realize H(z) =  $\frac{1+0.6z^{-2}+0.2z^{-1}}{3+5z^{-1}+4^{-2}}$  using Direct form I and Direct form II b) structures. c) Explain Basic structure for FIR Systems. Section - II **Q.4** Attempt any three questions 12 a) Describe the applications of DSP in RADAR. Explain in brief the architectural features of First generation TMS320C1X b) processor. Explain the Windowing techniques for FIR filter design along with different c) window functions. Explain the place computations with respect to FFT algorithm. d) Attempt any two question 16 **Q.5** Convert the following analog transfer function in to digital using bilinear a) transform with T=1sec.H(s)  $\frac{s}{(s+3)(s+9)}$ Explain the Bilinear transformation for digital filters in detail. b)

Explain with example how to design of discrete time IIR filters from

c)

continuous time filters.

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# B.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019

			Computer Science DIGITAL SIGNAL		
-			turday,14-12-2019 To 05:30 PM		Max. Marks: 70
Instr	uction	ns: 1	Q. No. 1 is compulsory and sho	uld b	e solved in first 30 minutes in answer
		2	) Figures to the right indicate full	mark	
			MCQ/Objective Ty	pe (	Questions
Dura	tion: 3	0 Mir	nutes		Marks: 14
Q.1	<b>Choo</b> 1)	Нον	he correct alternatives from the many complex multiplications and algorithm?	-	
		a) c)	(N/2)logN (N/2)log2N	b) d)	N log2 N None of these
	2)	The	e similarity between the Fourier to	ansfo	rm and the z transform is that
		,	Both convert frequency Spectru Both convert discrete time dom Both convert analog signal to d None of these	ain to	frequency spectrum domain
	3)		ich of the following block is not re DAR signal?	equire	ed in digital processing of an
		a) c)	A/D converter DSP	b) d)	D/A Converter All above
	4)		ich among the following has/hav	e a pr	ovision to support an adaptive
		a) c)	IIR Both a and b	b) d)	FIR None of above
	5)	If w a)	e store the signal row wise then True	the re b)	sult must be read column wise. False
	6)		n' is		ralue of x(n) at non integer value
		a) c)	Zero Negative	b) d)	Positive Not Defined
	7)	The	e discrete time function defined a	s u(n)	
		a) c)	Unit sample signal Unit ramp signal	b) d)	Unit step signal None of the mentioned
	8)		at is the ROC of the system function is BIBO stable?	tion F	
		a) c)	Entire z-plane, except at $z = 0$ Contain unit circle	b) d)	Entire z-plane, except at $z = \infty$ None of the mentioned

Set S

9)		ROC of z-transform of any signa True	al canı b)	not contain poles. False
10)	1) 2) 3)	several ways to perform an inve Direct computation Long division Partial fraction expansion with ta Direct inversion		
	,	1, 2 and 3 are correct only 1 and 3 correct	b) d)	•
11)	viev a)	realization of FIR filter by freque ved as cascade of how many filte Two Four	•	ampling realization can be Three None of above
12)	syst	irect form-I realization, all-pole sy em.		·
	a)	True	b)	False
13)	whice a)	anti-symmetric condition with M ch of the following linear-phase F Low pass Band pass		•
14)	Wha	at is die value of in (M-1/2) if the imetric?	unit sa	ample response is anti-
	a)	0	b)	1
	c)	-1	d)	None of above

Seat No.	Set	S
110.		

# B.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering DIGITAL SIGNAL PROCESSING	
•		e: Saturday,14-12-2019 Max. Marks 0 PM To 05:30 PM	: 56
Instr	uction	ns: 1) All questions are compulsory. 2) Figures to the right indicate full mark.	
		Section - I	
Q.2	Attera) b)	mpt any three questions List and Explain properties of z transform. Sketch and label following signals. 1) u(n-1) 2) u (3-n) 3) x(3n) 4) x(3n+1)	12
	c) d)	State the properties of ROC. Find the DFT of $x[n] = an$ for $0 \le n \le 3$ = 0 otherwise	
Q.3	a)	mpt any two questions  Obtain direct form I, direct form II and cascade realizations of system described by the equation, y[n]=y[n-1]-(1/2)y[n-2]+x[n]-x[n-1]+x[n-2]	16
	b)	Realize H(z) = $\frac{1+0.6z^{-2}+0.2z^{-1}}{3+5z^{-1}+4^{-2}}$ using Direct form I and Direct form II structures.	
	c)	Explain Basic structure for FIR Systems.	
		Section - II	
Q.4	Attera) b)	mpt any three questions  Describe the applications of DSP in RADAR.  Explain in brief the architectural features of First generation TMS320C1X processor.	12
	c)	Explain the Windowing techniques for FIR filter design along with different window functions.	
	d)	Explain the place computations with respect to FFT algorithm.	
Q.5	Attei a)	mpt any two question  Convert the following analog transfer function in to digital using bilinear transform with T=1sec.H(s) $\frac{s}{(s+3)(s+9)}$	16
	c)	Explain the Bilinear transformation for digital filters in detail.  Explain with example how to design of discrete time IIR filters from continuous time filters.	

	1	
Seat	Set	D
No.	Set	

		B.I	E. (Part – I) (OId) (CGI	•		
			Computer Sc SOFTWARE TESTING			
Day	& Date	e: Sa	aturday, 14-12-2019	o a goal	Max. Marks	s: 70
•			И To 05:30 PM			
Instr	uctio	ns: ′	<ol> <li>Q. No. 1 is compulsory a Book.</li> </ol>	nd should b	e solved in first 30 minutes in ansv	ver
		2	2) Figures to the right indicate	ate full mark	S.	
			MCQ/Object	ive Type (	Questions	
Dura	ition: 3	30 M	inutes		Marks	s: 14
Q.1	<b>Cho</b> (1)	Thi	the correct alternatives for its money is considered as a latity work.	•	t <b>ions.</b> nt by the organisation in doing	14
		a) c)	Blue Money Green Money	b) d)	White Money Red Money	
	2)		s an activity where we chec ndards, guidelines and pro Validation Verification		·	
	3)	des a)	is testing involves testing o sign. Big Bang Requirement Testing	f high-level b) d)	design as well as low-level  Design Testing  Code Testing	
	4)	sof a) c)	coverage involves trac tware. Data flow Information flow	king a piece b) d)	of data completely through the Process flow None	
	5)	tes a) c)	is the process of methon t cases into a much smalle Test Planning Test Design	•	icing the huge set of possible qually effective set. Test Strategy Equivalence Partitioning	
	6)	intr a) c)	is intended to determing oduced any error in uncha Regression Testing UsabilityTesting		ne changed components have onents of the system. Stress Testing Installation Testing	
	7)		this type of Compatibility, the new platform similar to its Neutral Compatibility Enemy Compatibility		n does not perform as expected m. Friend Compatibility System Compatibility	
	8)	Re a) c)	asons for not fixing all the l Too risky to fix Inefficient bug reporting	b) d)	Not enough time All	

Set P

<ol><li>This defines the step-by-step details of exactly how to perform the cases</li></ol>				
	a) c)	Test Design Test Phases	b) d)	Test Procedures Test Planning
10)	a) b)	can Achieve Software quality by Project Management Techniques Quality Control Quality Assurance All	_	·
11)	proof thos a)	effective software process applied duct that provides measurable vase who use it. This can be defined Software Quality  Software Availability	lue fo d as: _	r those who produce it and
12)	spe a)	e probability of failure free operation cified environment for a specified Software Availability Software Reliability	time	
13)		analyser is an example of a Data Flow Information flow	viewi b) d)	
14)	you	test tool allows you to see det wouldn't normally be able to see Viewers and Monitors		f the software's operation that  Drivers
	c)	Stubs	d)	Stress and Load Tools

Seat	Sot	<b>D</b>
No.	Set	

	B.E. (Part – I) (Old) (CGPA) Examination Nov/D	ec-2019
	Computer Science & Engineering	
	SOFTWARE TESTING & QUALITY ASSURA	
	& Date: Saturday, 14-12-2019 e: 02:30 PM To 05:30 PM	Max. Marks: 56
Instr	ructions: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
	Section – I	
Q.2	<ul> <li>Answer any three questions</li> <li>a) What are the misconceptions about testing?</li> <li>b) Explain Developing Test Strategy in detail.</li> <li>c) Explain State Testing in brief.</li> <li>d) Write Short note on Equivalence Partitioning.</li> <li>e) Explain Compatibility testing in detail.</li> </ul>	12
Q.3	<ul> <li>Answer any two questions</li> <li>a) Explain different test methodologies in detail.</li> <li>b) Explain Data Testing and State Testing in detail.</li> <li>c) Write short notes on: Performance testing, Volume (Load) Stress testing.</li> <li>Section – II</li> </ul>	16 testing and
		40
<b>Q.4</b>	<ul> <li>Answer any three questions</li> <li>a) Explain goals of Test Case Planning.</li> <li>b) Why it is not possible to fix all the bugs?</li> <li>c) Write note on Six Sigma Standard.</li> <li>d) Explain the Concept of Software Reliability.</li> <li>e) Explain Random Testing in automation.</li> </ul>	12
Q.5	<ul> <li>Answer any two questions</li> <li>a) Explain Test case planning in detail with diagram.</li> <li>b) What are the CMM Levels?</li> <li>c) Write few benefits of using software test tools and automat</li> </ul>	<b>16</b> ion.

		B.I	E. (Part – I) (OId) (CGPA)  Computer Science  SOFTWARE TESTING &	e & E	ngineering	
-			aturday, 14-12-2019 // To 05:30 PM	QUAL	Max. Marks:	70
nstr	uctio		Book.		e solved in first 30 minutes in answe	er
		2	2) Figures to the right indicate for			
Dura	tion: 3	n M	MCQ/Objective	Туре (	Questions Marks:	11
				the ent		
Q.1	1)		the correct alternatives from asons for not fixing all the bugs Too risky to fix Inefficient bug reporting	•	Not enough time	14
	2)	cas				
		a) c)	Test Design Test Phases	b) d)	Test Procedures Test Planning	
	3)	a) b) c)	e can Achieve Software quality I Project Management Technique Quality Control Quality Assurance All		<u> </u>	
	4)	pro tho a)	effective software process app duct that provides measurable se who use it. This can be defir Software Quality Software Availability	value fo	or those who produce it and	
	5)		e probability of failure free opera ecified environment for a specifi Software Availability Software Reliability			
	6)	A _ a) c)	analyser is an example o Data Flow Information flow	f a view b) d)	ring tool. Code coverage All	
	7)	you a) c)	ı wouldn't normally be able to s		of the software's operation that  Drivers  Stress and Load Tools	
	8)		s money is considered as an in ality work. Blue Money Green Money	vestme b) d)	nt by the organisation in doing White Money Red Money	

Set Q

9)	It is an activity where we check the work products with reference to standards, guidelines and procedures.			
	a) c)	Validation Verification	b) d)	Quality Assurance None
10)		s testing involves testing of high-l sign.	evel	design as well as low-level
	a) c)	Big Bang Requirement Testing	b) d)	Design Testing Code Testing
11)	soft	coverage involves tracking a tware.	piece	of data completely through the
	a) c)		b) d)	Process flow None
12)		is the process of methodically t cases into a much smaller, but s Test Planning Test Design	still ec	• • •
13)		is intended to determine whet oduced any error in unchanged c	ompo	onents of the system.
	a) c)	Regression Testing UsabilityTesting	b) d)	Stress Testing Installation Testing
14)		his type of Compatibility, the appl new platform similar to its base p		
	a) c)	Neutral Compatibility	b) d)	Friend Compatibility System Compatibility

Seat No. Set	Q
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	B.E. (Part – I) (Old) (CGPA) Examination No	ov/Dec-2019
	Computer Science & Engineerin	•
	SOFTWARE TESTING & QUALITY ASS	
,	& Date: Saturday, 14-12-2019 e: 02:30 PM To 05:30 PM	Max. Marks: 56
Instr	ructions: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
	Section – I	
Q.2	<ul> <li>Answer any three questions</li> <li>a) What are the misconceptions about testing?</li> <li>b) Explain Developing Test Strategy in detail.</li> <li>c) Explain State Testing in brief.</li> <li>d) Write Short note on Equivalence Partitioning.</li> <li>e) Explain Compatibility testing in detail.</li> </ul>	12
Q.3	<ul> <li>Answer any two questions</li> <li>a) Explain different test methodologies in detail.</li> <li>b) Explain Data Testing and State Testing in detail.</li> <li>c) Write short notes on: Performance testing, Volume (Less testing).</li> <li>Section – II</li> </ul>	oad) testing and
		40
<b>Q.</b> 4	<ul> <li>Answer any three questions</li> <li>a) Explain goals of Test Case Planning.</li> <li>b) Why it is not possible to fix all the bugs?</li> <li>c) Write note on Six Sigma Standard.</li> <li>d) Explain the Concept of Software Reliability.</li> <li>e) Explain Random Testing in automation.</li> </ul>	12
Q.5	<ul> <li>Answer any two questions</li> <li>a) Explain Test case planning in detail with diagram.</li> <li>b) What are the CMM Levels?</li> <li>c) Write few benefits of using software test tools and aut</li> </ul>	omation.

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Seat	Set	D
No.	Set	ĸ

		B.E	E. (Part – I) (Old) (Co Computer S SOFTWARE TESTI	Science &	Eı	•	
-			aturday, 14-12-2019 // To 05:30 PM			Max. Mar	ks: 70
Instr	uctio		Book.			e solved in first 30 minutes in an	swer
		2	2) Figures to the right inc				
Dura	tion: 3	80 Mi	MCQ/Objedinutes	clive Type	;		ks: 14
Q.1	<b>Cho</b> (1)	tes	the correct alternatives is the process of me t cases into a much sma Test Planning Test Design	thodically re	edu eq	cing the huge set of possible	14
	2)	intr	<b>o</b>		ipo	ne changed components have	
	3)		his type of Compatibility, new platform similar to it Neutral Compatibility Enemy Compatibility		orr	n does not perform as expected n. Friend Compatibility System Compatibility	
	4)	Rea a) c)	asons for not fixing all th Too risky to fix Inefficient bug reporting	b)		Not enough time All	
	5)		s defines the step-by-ste ses Test Design Test Phases	ep details of b) d)	)	actly how to perform the test  Test Procedures  Test Planning	
	6)	We a) b) c) d)	can Achieve Software of Project Management To Quality Control Quality Assurance All	quality by us		J	
	7)	pro	duct that provides meas se who use it. This can t Software Quality	urable value	e fo is: i	manner that creates a useful or those who produce it and  Quality Control All	
	8)		ecified environment for a	•	me	a computer program in a is termed as Software Safety All	

Set R

9)	Α_	analyser is an example of a	a view	ing tool.
	a)	Data Flow	b)	Code coverage
	c)	Information flow	d)	All
10)		test tool allows you to see de wouldn't normally be able to see		of the software's operation that
	a)	Viewers and Monitors	b)	Drivers
	c)	Stubs	ď)	Stress and Load Tools
11)		s money is considered as an inve ality work.	estme	nt by the organisation in doing
	•	Blue Money	b)	White Money
	c)	_	ď)	Red Money
12)		an activity where we check the value and procedure		products with reference to
	a)	Validation	b)	Quality Assurance
	c)	Verification	ď)	None
13)		s testing involves testing of high- sign.	level (	design as well as low-level
		Big Bang	b)	Design Testing
	c)	Requirement Testing	d)	Code Testing
14)		coverage involves tracking a	piece	of data completely through the
	soft	tware.		
	a)	Data flow	b)	Process flow
	c)	Information flow	d)	None

Seat No.		Set	R
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		B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2	019
		Computer Science & Engineering SOFTWARE TESTING & QUALITY ASSURANCE	
,		te: Saturday, 14-12-2019 30 PM To 05:30 PM	Max. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
		Section – I	
Q.2	Ans a) b) c) d) e)	wer any three questions What are the misconceptions about testing? Explain Developing Test Strategy in detail. Explain State Testing in brief. Write Short note on Equivalence Partitioning. Explain Compatibility testing in detail.	12
Q.3	Ans a) b) c)	Explain different test methodologies in detail.  Explain Data Testing and State Testing in detail.  Write short notes on: Performance testing, Volume (Load) testing Stress testing.	<b>16</b> g and
		Section – II	
Q.4	Ans a) b) c) d) e)	Explain goals of Test Case Planning. Why it is not possible to fix all the bugs? Write note on Six Sigma Standard. Explain the Concept of Software Reliability. Explain Random Testing in automation.	12
Q.5	Ans a) b) c)	swer any two questions Explain Test case planning in detail with diagram. What are the CMM Levels? Write few benefits of using software test tools and automation.	16

Seat		
No.	Set	S

		B.E. (Part – I) (Old) (CGPA) E Computer Science SOFTWARE TESTING & (	e & E	ingineering	
•		e: Saturday, 14-12-2019 0 PM To 05:30 PM		Max. Marks	s: 70
Insti	uctio	<b>ns:</b> 1) Q. No. 1 is compulsory and sh Book. 2) Figures to the right indicate fu			wer
		MCQ/Objective T			
Dura	ition: 3	0 Minutes	ypo	Marks	s: 14
Q.1	<b>Choo</b> 1)	Dose the correct alternatives from to We can Achieve Software quality body a) Project Management Technique b) Quality Control c) Quality Assurance d) All	y usin		14
	2)	An effective software process appli product that provides measurable withose who use it. This can be defined a) Software Quality c) Software Availability	alue f	or those who produce it and	
	3)	The probability of failure free opera specified environment for a specifie a) Software Availability c) Software Reliability			
	4)	<ul><li>A analyser is an example of</li><li>a) Data Flow</li><li>c) Information flow</li></ul>	a viev b) d)	ving tool. Code coverage All	
	5)	test tool allows you to see do you wouldn't normally be able to se a) Viewers and Monitors c) Stubs		of the software's operation that  Drivers  Stress and Load Tools	
	6)	This money is considered as an invaluality work.  a) Blue Money c) Green Money	vestme b) d)	ent by the organisation in doing White Money Red Money	
	7)	It is an activity where we check the standards, guidelines and procedura) Validation c) Verification		products with reference to  Quality Assurance  None	
	8)	This testing involves testing of high design.  a) Big Bang c) Requirement Testing	-level b) d)	design as well as low-level  Design Testing  Code Testing	

Set S

9)	coverage involves tracking a software.	piece	of data completely through the
	a) Data flow c) Information flow	b) d)	Process flow None
10)	is the process of methodically test cases into a much smaller, but sa) Test Planning c) Test Design		
11)	is intended to determine when introduced any error in unchanged can an error in unchanged can be an error in unchanged can be an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged can be a second and interesting an error in unchanged an error in unchanged and interesting an error in unchanged an error in unchanged an error in unchanged and interesting an error in unchanged an error in unchanged and in unchanged and in unchanged an error in unchanged an error in unchanged and in unchanged an error in unchanged an error in unchanged and in unchanged an error in unchanged an error in unchanged and in unchanged an error in unchanged and in unchanged an error in unchanged and in unchanged an error in unchange	ompo b)	•
12)	In this type of Compatibility, the appl on new platform similar to its base p a) Neutral Compatibility c) Enemy Compatibility	latforı	
13)	Reasons for not fixing all the bugs _ a) Too risky to fix c) Inefficient bug reporting	b) d)	Not enough time All
14)	This defines the step-by-step details cases	of ex	actly how to perform the test
	<ul><li>a) Test Design</li><li>c) Test Phases</li></ul>	b) d)	Test Procedures Test Planning

Seat No.	Set S
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	B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2	2019
	Computer Science & Engineering SOFTWARE TESTING & QUALITY ASSURANCE	•
	& Date: Saturday, 14-12-2019 e: 02:30 PM To 05:30 PM	- Max. Marks: 56
Instr	ructions: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
	Section - I	
Q.2	<ul> <li>Answer any three questions</li> <li>a) What are the misconceptions about testing?</li> <li>b) Explain Developing Test Strategy in detail.</li> <li>c) Explain State Testing in brief.</li> <li>d) Write Short note on Equivalence Partitioning.</li> <li>e) Explain Compatibility testing in detail.</li> </ul>	12
Q.3	<ul> <li>Answer any two questions</li> <li>a) Explain different test methodologies in detail.</li> <li>b) Explain Data Testing and State Testing in detail.</li> <li>c) Write short notes on: Performance testing, Volume (Load) testin Stress testing.</li> </ul>	16 ng and
	Section – II	
Q.4	<ul> <li>Answer any three questions</li> <li>a) Explain goals of Test Case Planning.</li> <li>b) Why it is not possible to fix all the bugs?</li> <li>c) Write note on Six Sigma Standard.</li> <li>d) Explain the Concept of Software Reliability.</li> <li>e) Explain Random Testing in automation.</li> </ul>	12
Q.5	<ul> <li>Answer any two questions</li> <li>a) Explain Test case planning in detail with diagram.</li> <li>b) What are the CMM Levels?</li> <li>c) Write few benefits of using software test tools and automation.</li> </ul>	16

	1	
Seat	Set	D
No.	Set	

		B.I	E. (Part – I) (Old) (CGPA) E Computer Science BUSINESS INT	& E	ngineering	
			aturday, 14-12-2019 M To 05:30 PM		Max. N	Marks: 70
Instr	uctio	ns: 1	<ol> <li>Q. No. 1 is compulsory and sho Book.</li> </ol>	ould b	e solved in first 30 minutes in	answer
		2	2) Figures to the right indicate full	mark	KS.	
D	4:	)	MCQ/Objective Ty	ype (		4 a ul . a . 4 . 4
			inutes			Marks: 14
Q.1	<b>Cho</b> (1)		d loading operations arc executed	like (	tions. data extraction, transformation  Data integration	<b>14</b> n
		c)	ETL	ď)	None of the mentioned	
	2)	a) c)	describes the data contained Relational data Metadata	in the b) d)	e data warehouse. Operational data Informational data	
	3)		siness intelligence (BI) is a broad ich includes: Decision support OLAP	b)	gory of application programs  Data mining  All of the mentioned	
	4)		M refers to Customer Relationship Manage Consumer Relations Manageme Customers Relational Managen Consumer Relational Manageme	ent nent		
	5)	The a) c)	e star schema is composed of One Three	b) d)	act table. Two Four	
	6)	a) c)	modeling is used for the desi Relational model Object-oriented model	gn of b) d)	the data warehouse. Dimensional model None of the above	
	7)	ET a) c)	L is a part of architecture. Front room Both a & b	b) d)	Back room None of mentioned	
	8)	Mu a) c)	Itiple fact tables and multiple dim Star schema Constellation schema	ensio b) d)	n tables present in Snowflake schema All the above	

Set P

9)	Dat	ta Integration is a view of t	he cu	stomer.			
	a)	90 degree	b)	180 degree			
	c)	360 degree	ď)	None			
10)	Wh	ich of the following is/are categor	y of f	act?			
	a)	Additive fact	b)	Semi-additive fact			
	c)	Non-additive fact	d)	All the above			
11)	Connected to the fact table and located at the edges of the star or snowflake schema.						
	a)		b)	Fact table			
	c)	Both a and b	d)	None			
12)	Wh	ich of the following is/are the type	es of l	B.I. applications?			
	a)	Spreadsheets	b)	Data Mining			
	c)	OLAP	d)	All of the above			
13)	The	The load and index is					
	a)	<ul> <li>a) a process to reject data from the data warehouse and to create the necessary indexes</li> </ul>					
	b)	a process to load the data in the necessary indexes	data	warehouse and to create the			
	c)						
	d)		of da	ata before it is moved into a data			
14)		cardinality exists between din	nensi	on tables to fact table.			
,	a)	one-to-many	b)	many-to-one			
	c)	many-to-many	ď)	none of these			

No. Set F	Seat No.
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# B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering BUSINESS INTELLIGENCE

**BUSINESS INTELLIGENCE** Day & Date: Saturday, 14-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I 12 Attempt any three. Differentiate between fact table and dimension table. Compare ER modelling and dimensional modeling. Write short note on Metadata. c) Describe Enterprise Data Warehouse Bus Architecture. d) Attempt any one. 80 Q.3 What are the various steps involve in dimensional modeling? Describe with example. Draw architecture of business intelligence system and explain the b) Components of business intelligence system. What is BI? Why it is important? List the functions of Business Intelligence. 08 Section - II Q.5 Attempt any three. 12 What are the various types of BI applications? Write a short note on security in BI. b) Describe BI application resource planning. What do you mean by Extracting data into data warehouse? Attempt any one. 80 Q.6 What do you mean by cleaning and conforming data in ETL process? Describe analytical cycle for BI. Q.7 Why 34 subsystems of ETL are required? List and describe 34 subsystems of 80 ETI.

Seat	Set	O
No.		G

		Computer Science BUSINESS IN	ce & E	ngineering
-		e: Saturday, 14-12-2019 80 PM To 05:30 PM		Max. Marks: 70
		ns: 1) Q. No. 1 is compulsory and s	should b	pe solved in first 30 minutes in answer
		Book. 2) Figures to the right indicate t	full marl	KS.
		MCQ/Objective	Type	Questions
Dura	ition: 3	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	ose the correct alternatives from Multiple fact tables and multiple d a) Star schema c) Constellation schema	•	
	2)	Data Integration is a view of a) 90 degree c) 360 degree	of the cu b) d)	ustomer. 180 degree None
	3)	Which of the following is/are cates a) Additive fact c) Non-additive fact	gory of t b) d)	fact? Semi-additive fact All the above
	4)	Connected to the fact table snowflake schema. a) Dimension table c) Both a and b	e and loo b) d)	cated at the edges of the star or  Fact table  None
	5)	Which of the following is/are the ty a) Spreadsheets c) OLAP	ypes of b) d)	B.I. applications? Data Mining All of the above
	6)	necessary indexes c) a process to upgrade the qua warehouse	the data	a warehouse and to create the a warehouse and to create the ata after it is moved into a data ata before it is moved into a data
	7)	<ul><li>cardinality exists between</li><li>one-to-many</li><li>many-to-many</li></ul>	dimensi b) d)	on tables to fact table. many-to-one none of these
	8)	is a system where operation and loading operations are executa) Data staging c) ETL		data extraction, transformation  Data integration  None of the mentioned

Set Q

9)		describes the data contained	in the	e data warehouse.
,		Relational data	b)	Operational data
	c)	Metadata	d)	Informational data
10)	whi	siness intelligence (BI) is a broad ich includes:		
		Decision support	b)	Data mining
	c)	OLAP	d)	All of the mentioned
11)	a) b)	M refers to Customer Relationship Manage Consumer Relations Manageme Customers Relational Manageme Consumer Relational Manageme	ent nent	
12)	The a) c)	e star schema is composed of One Three	b) d)	act table. Two Four
13)		modeling is used for the design Relational model Object-oriented model	gn of b) d)	Dimensional model
14)	ETI a) c)	L is a part of architecture. Front room Both a & b	b) d)	Back room None of mentioned

Seat No. Set	Q
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# B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering BUSINESS INTELLIGENCE

**BUSINESS INTELLIGENCE** Day & Date: Saturday, 14-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I 12 Attempt any three. Differentiate between fact table and dimension table. Compare ER modelling and dimensional modeling. Write short note on Metadata. c) Describe Enterprise Data Warehouse Bus Architecture. d) Q.3 Attempt any one. 80 What are the various steps involve in dimensional modeling? Describe with example. Draw architecture of business intelligence system and explain the b) Components of business intelligence system. What is BI? Why it is important? List the functions of Business Intelligence. 08 Section - II Q.5 Attempt any three. 12 What are the various types of BI applications? Write a short note on security in BI. b) Describe BI application resource planning. What do you mean by Extracting data into data warehouse? Attempt any one. 80 Q.6 What do you mean by cleaning and conforming data in ETL process? Describe analytical cycle for BI. Why 34 subsystems of ETL are required? List and describe 34 subsystems of Q.7 80 ETI.

Seat	Set	D
No.	Set	K

# B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		٥.,	Computer Science BUSINESS INT	& E	ingineering	713
•			aturday, 14-12-2019 M To 05:30 PM			Max. Marks: 70
Instr	uctio		<ol> <li>Q. No. 1 is compulsory and sh Book.</li> <li>Figures to the right indicate fu</li> </ol>			utes in answer
		4	,			
Dura	tion: 3	30 M	MCQ/Objective T inutes	ype	Questions	Marks: 14
Q.1	<b>Cho</b> 1)		the correct alternatives from the star schema is composed of One Three	-		14
	2)	a) c)	modeling is used for the des Relational model Object-oriented model	b)	the data warehouse. Dimensional model None of the above	
	3)		L is a part of architecture. Front room Both a & b		Back room None of mentioned	
	4)		Iltiple fact tables and multiple dim Star schema Constellation schema		on tables present in Snowflake schema All the above	
	5)	a)	ta Integration is a view of 90 degree 360 degree	the co b) d)	ustomer. 180 degree None	
	6)		nich of the following is/are catego Additive fact Non-additive fact		fact? Semi-additive fact All the above	
	7)	sno a) c)	Connected to the fact table a complete such that table and table both a and b	and lo b) d)	cated at the edges of the Fact table None	e star or
	8)	Wh a) c)	nich of the following is/are the typ Spreadsheets OLAP	es of b) d)	B.I. applications? Data Mining All of the above	

Set R

9)	The load and index is						
	a)	a process to reject data from the necessary indexes	data	warehouse and to create the			
	b)	a process to load the data in the necessary indexes	data	warehouse and to create the			
	c)	a process to upgrade the quality warehouse	of da	ata after it is moved into a data			
	d)	a process to upgrade the quality warehouse	of da	ata before it is moved into a data			
10)		cardinality exists between dim	nensi	on tables to fact table.			
,	a)	-	b)	many-to-one			
	c)	many-to-many	d)	none of these			
11)		is a system where operations loading operations are executed					
	a) c)	Data staging ETL	b) d)	Data integration  None of the mentioned			
12)	a) c)	describes the data contained Relational data Metadata	in the b) d)	e data warehouse. Operational data Informational data			
13)		siness intelligence (BI) is a broad ch includes:	categ	gory of application programs			
	a) c)	Decision support	b) d)	Data mining All of the mentioned			
14)	a) b)	M refers to Customer Relationship Manager Consumer Relations Manageme Customers Relational Manageme Consumer Relational Manageme	ent ent				

Seat No.		Set	R
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# B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering BUSINESS INTELLIGENCE

**BUSINESS INTELLIGENCE** Day & Date: Saturday, 14-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I 12 Attempt any three. Differentiate between fact table and dimension table. Compare ER modelling and dimensional modeling. Write short note on Metadata. c) Describe Enterprise Data Warehouse Bus Architecture. d) Attempt any one. 80 Q.3 What are the various steps involve in dimensional modeling? Describe with example. Draw architecture of business intelligence system and explain the b) Components of business intelligence system. What is BI? Why it is important? List the functions of Business Intelligence. 08 Section - II Q.5 Attempt any three. 12 What are the various types of BI applications? Write a short note on security in BI. b) Describe BI application resource planning. What do you mean by Extracting data into data warehouse? Attempt any one. 80 Q.6 What do you mean by cleaning and conforming data in ETL process? Describe analytical cycle for BI. Q.7 Why 34 subsystems of ETL are required? List and describe 34 subsystems of 80 ETI.

Seat		
No.	Set	S

		B.E	e. (Part – I) (Old) (CGPA) E Computer Science BUSINESS INT	& E	ngineering
•			nturday, 14-12-2019 M To 05:30 PM		Max. Marks: 70
Instr	uction	<b>ns:</b> 1	) Q. No. 1 is compulsory and she Book.	ould b	e solved in first 30 minutes in answer
		2	2) Figures to the right indicate ful	l mark	S.
_			MCQ/Objective T	ype (	
	tion: 3				Marks: 14
Q.1	1)		the correct alternatives from the ich of the following is/are catego Additive fact  Non-additive fact	ry of f b) d)	act? Semi-additive fact All the above
	2)	a)	Connected to the fact table a owflake schema. Dimension table Both a and b	b) d)	cated at the edges of the star or  Fact table  None
	3)	Wh a) c)	ich of the following is/are the typ Spreadsheets OLAP	es of b) d)	B.I. applications? Data Mining All of the above
	4)	The a) b) c) d)	e load and index is  a process to reject data from the necessary indexes a process to load the data in the necessary indexes a process to upgrade the quality warehouse a process to upgrade the quality warehouse	e data	warehouse and to create the
	5)	a) c)	cardinality exists between dir one-to-many many-to-many	mensi b) d)	on tables to fact table. many-to-one none of these
	6)	and a) c)	is a system where operations I loading operations arc executed Data staging ETL		data extraction, transformation  Data integration  None of the mentioned
	7)	a) c)	describes the data contained Relational data Metadata	in the b)	e data warehouse. Operational data Informational data

Set S

8)	whi	siness intelligence (BI) is a broad ch includes:		
	a) c)	Decision support OLAP	b) d)	Data mining All of the mentioned
9)	a) b) c)	M refers to Customer Relationship Manage Consumer Relations Manageme Customers Relational Manageme Consumer Relational Managem	ent nent	
10)	The a) c)	e star schema is composed of One Three	b) d)	act table. Two Four
11)	,	modeling is used for the design Relational model Object-oriented model	b)	the data warehouse. Dimensional model None of the above
12)	ETI a) c)	L is a part of architecture. Front room Both a & b	b) d)	Back room None of mentioned
13)	Mul a) c)	Itiple fact tables and multiple dime Star schema Constellation schema	ensio b) d)	Snowflake schema
14)	a)	ta Integration is a view of t 90 degree 360 degree	he cu b) d)	

Seat	Set	0
No.	Set	S

# B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering BUSINESS INTELLIGENCE

**BUSINESS INTELLIGENCE** Day & Date: Saturday, 14-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I 12 Attempt any three. Differentiate between fact table and dimension table. Compare ER modelling and dimensional modeling. Write short note on Metadata. c) Describe Enterprise Data Warehouse Bus Architecture. d) Attempt any one. 80 Q.3 What are the various steps involve in dimensional modeling? Describe with example. Draw architecture of business intelligence system and explain the b) Components of business intelligence system. What is BI? Why it is important? List the functions of Business Intelligence. 08 Section - II Q.5 Attempt any three. 12 What are the various types of BI applications? Write a short note on security in BI. b) Describe BI application resource planning. What do you mean by Extracting data into data warehouse? Attempt any one. 80 Q.6 What do you mean by cleaning and conforming data in ETL process? Describe analytical cycle for BI. Q.7 Why 34 subsystems of ETL are required? List and describe 34 subsystems of 80 ETI.

Seat		
No.	Set	Р

		B.E	Computer	Science & E	Engineering ELING & DESIGN
			esday, 17-12-2019 I To 05:30 PM		Max. Marks: 70
Insti	ructio		) Q.No.1 is compulsory Book Page No.3 ) Figures to the right ir		e solved in first 30 Minutes in answerk.
			MCQ/Obje	ective Type	Questions
Dura	ation:	30 Mii	nutes		Marks: 14
Q.1	<b>Cho</b> 1)		he correct alternative at is the programming so Invariant relationship Algorithms Classes and objects Goals, often express	style of the obje s	ect oriented conceptual model?
	2)	Abs a) c)	traction is classified in 4 2	to types b) d)	3 1
	3)	-	ect oriented technology se elements are collect Von Neumann Mode Structured Model	ctively called as	a sound engineering foundation, S Object Model Programming Model
	4)	Call a) c)	back is an operation p Inheritance Modularity	rovided by b) d)	Encapsulation Abstraction
	5)	Whi a) c)	ch of the following prop State Identity	perty is associa b) d)	ated with objects? Behavior All of the mentioned
	6)		is a special memlects of its class. Constructor Selector	ber function wh b) d)	nose task is to initialize the  Destructor  Iterator
	7)	An a a) c)	attribute is a data item Class All of the mentioned	held by which ( b) d)	of the following? Object None of the mentioned
	8)	An o a) c) e)	operation can be descr Object behavior Functions None of the mentione	b) d)	Class behavior a.b

Set P

9)	An c a) c)	biject symbol is divided into what Top compartment All of the mentioned	•	s? Bottom Compartment None of the mentioned
10)	Whice a) b) c) d)	ch of these are the heuristics?  Name classes, attributes, and r  Name operations and associati  Stick to binary associations  All of the mentioned		•
11)		is a description of a set of crations, relationships, and seman Structure  Constructor	-	s that share the same attributes, Class Function
12)	Whice a) b) c) d)	ch of the following is not the prime describing the customer completes establishing a basis for the createstablishing a set of requirements to software is built none of the mentioned	aints ation o	of a software design
13)	Wha a) c)	at can be requested from any obj object operation	ect of b) d)	the class to affect behavior? Attribute instance
14)	Idior a) c)	ns represent the Lowest level pattern Middle level pattern	b) d)	Highest level pattern Design pattern

Seat	Set	D
No.	Set	F

#### B.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering OBJECT ORIENTED MODELING & DESIGN**

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Assume the suitable data if necessary. 3) Figures to the right indicate full marks. Section - I Q.2 Solve any four. 20 Explain the concept of generalization. a) Explain with suitable example modeling as design technique. b) Differentiate between aggregation, association generalization c) Draw state diagram for phone line. d) With an example define derived objects links and attributes. e) Q.3Solve any one. 08 Explain with respect to dynamic model. Entry and exit action 2) Internal action Describe DFD with example. b) Section - II Solve any four. 20 Q.4 What are building blocks of UML? a) Compare Interactive and activity diagrams. b) Write a short note on deployment diagram. c) Explain Patterns and Frame works. d) Explain communication pattern and forwarder-receiver pattern. e) Q.5 Solve any one. 80 Write a short note on a) 1) Extensibility 2) Robustness

Draw and explain Sequence and Collaboration diagram For ATM System.

b)

Seat	Sat	
No.	Set	3

# B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		<b>J</b>	Computer Scien OBJECT ORIENTED	ce & E	ngineering	
•			esday, 17-12-2019 To 05:30 PM		Max. Mar	ks: 70
Instr	uctio	·	Q.No.1 is compulsory and sl Book Page No.3 Figures to the right indicate		solved in first 30 Minutes in ans	wer
		,	MCQ/Objective			
Dura	tion: 3	30 Mir				ks: 14
Q.1	<b>Choo</b> 1)		he correct alternatives from operation can be described as Object behavior Functions None of the mentioned	•	class behavior a.b	14
	2)	An c a) c)	object symbol is divided into w Top compartment All of the mentioned	hat part b) d)	s? Bottom Compartment None of the mentioned	
	3)	Whice a) b) c) d)	ch of these are the heuristics' Name classes, attributes, ar Name operations and assoc Stick to binary associations All of the mentioned	nd roles	•	
	4)		is a description of a set or rations, relationships, and ser Structure Constructor	-	s that share the same attributes, Class Function	
	5)	Whice a) b) c) d)	ch of the following is not the p describing the customer con establishing a basis for the o defining a set of requiremen software is built none of the mentioned	nplaints creation		
	6)	Wha a) c)	at can be requested from any object operation	object of b) d)	f the class to affect behavior? Attribute instance	
	7)	Idior a) c)	ns represent the Lowest level pattern Middle level pattern	b) d)	Highest level pattern Design pattern	
	8)	Wha a) b) c) d)	at is the programming style of Invariant relationships Algorithms Classes and objects Goals, often expressed in a		ect oriented conceptual model? e calculus	

Set Q

9)	a)	raction is classified into 4 2	b)	3 1
10)	-	ect oriented technology is built u	•	sound engineering foundation,
	whos a) c)	se elements are collectively cal Von Neumann Model Structured Model	led as b) d)	Object Model
11)	,	pack is an operation provided be Inheritance Modularity	у	 Encapsulation Abstraction
12)	Whice a) c)	ch of the following property is a State Identity	ssociat b) d)	ed with objects? Behavior All of the mentioned
13)		is a special member functicts of its class. Constructor Selector	on who b) d)	ose task is to initialize the  Destructor Iterator
14)	An a a) c)	ttribute is a data item held by w Class All of the mentioned	vhich o b) d)	f the following? Object None of the mentioned

Seat	Set	
No.	Set	Q

# B.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019

	Computer Science & Engineering OBJECT ORIENTED MODELING & DESIGN	13
•	& Date: Tuesday, 17-12-2019 : 02:30 PM To 05:30 PM	Max. Marks: 56
Instr	uctions: 1) All questions are compulsory. 2) Assume the suitable data if necessary. 3) Figures to the right indicate full marks.	
	Section – I	
Q.2	<ul> <li>Solve any four.</li> <li>a) Explain the concept of generalization.</li> <li>b) Explain with suitable example modeling as design technique.</li> <li>c) Differentiate between aggregation, association generalization</li> <li>d) Draw state diagram for phone line.</li> <li>e) With an example define derived objects links and attributes.</li> </ul>	20
Q.3	Solve any one.  a) Explain with respect to dynamic model.  1) Entry and exit action  2) Internal action  b) Describe DFD with example.	08
Q.4	Solve any four.  a) What are building blocks of UML?  b) Compare Interactive and activity diagrams.  c) Write a short note on deployment diagram.  d) Explain Patterns and Frame works.  e) Explain communication pattern and forwarder-receiver pattern.	20
Q.5	Solve any one.  a) Write a short note on  1) Extensibility 2) Robustness  b) Draw and explain Sequence and Collaboration diagram For ATM	<b>08</b> 1 System.

Seat	Set	R
No.		- `

# B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		2,2	Computer Science OBJECT ORIENTED MO	& E	ingineering	
•			esday, 17-12-2019 I To 05:30 PM	JUL	Max. Marks:	70
Insti	ructio		) Q.No.1 is compulsory and shou Book Page No.3 ) Figures to the right indicate full		e solved in first 30 Minutes in answe k.	r
			MCQ/Objective Ty	уре (	Questions	
Dura	ation:	30 Mir	nutes		Marks:	14
Q.1	<b>Cho</b> 1)		he correct alternatives from th ch of the following property is as State Identity	•		14
	2)		is a special member function ects of its class.  Constructor  Selector	bn wh b) d)	ose task is to initialize the  Destructor  Iterator	
	3)	An a a) c)	attribute is a data item held by wh Class All of the mentioned	hich d b) d)	of the following? Object None of the mentioned	
	4)	An c a) c) e)	operation can be described as? Object behavior Functions None of the mentioned	b) d)	Class behavior a.b	
	5)	An c a) c)	object symbol is divided into wha Top compartment All of the mentioned	t part b) d)	ts? Bottom Compartment None of the mentioned	
	6)	Whi a) b) c) d)	ch of these are the heuristics?  Name classes, attributes, and relations and associations to binary associations  All of the mentioned		•	
	7)	A _ ope a) c)	is a description of a set of crations, relationships, and seman Structure Constructor	-	ts that share the same attributes,  Class  Function	
<ul> <li>8) Which of the following is not the primary objective in the analysis model?</li> <li>a) describing the customer complaints</li> <li>b) establishing a basis for the creation of a software design</li> <li>c) defining a set of requirements that can be validated once the software is built</li> </ul>				of a software design		

d) none of the mentioned

Set R

9)	Wha a) c)	it can be requested from any obj object operation	ect of b) d)	the class to affect behavior? Attribute instance		
10)		ns represent the Lowest level pattern Middle level pattern	b) d)	Highest level pattern Design pattern		
11)	<ul> <li>What is the programming style of the object oriented conceptual model?</li> <li>a) Invariant relationships</li> <li>b) Algorithms</li> <li>c) Classes and objects</li> <li>d) Goals, often expressed in a predicate calculus</li> </ul>					
12)	Abst a) c)	raction is classified into ty 4 2	-	3 1		
13)	Object oriented technology is built upon a sound engineering foundation whose elements are collectively called as  a) Von Neumann Model b) Object Model c) Structured Model d) Programming Model					
14)	Callb a) c)	pack is an operation provided by Inheritance Modularity		 Encapsulation Abstraction		

Seat	Set	D
No.	Set	K

# B.F. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering OBJECT ORIENTED MODELING & DESIGN	19
-		e: Tuesday, 17-12-2019 0 PM To 05:30 PM	Max. Marks: 56
Instr	uctior	<ul><li>1) All questions are compulsory.</li><li>2) Assume the suitable data if necessary.</li><li>3) Figures to the right indicate full marks.</li></ul>	
		Section – I	
Q.2	Solve a) b) c) d) e)	e any four.  Explain the concept of generalization.  Explain with suitable example modeling as design technique.  Differentiate between aggregation, association generalization  Draw state diagram for phone line.  With an example define derived objects links and attributes.	20
Q.3	Solve a) b)	e any one.  Explain with respect to dynamic model.  1) Entry and exit action  2) Internal action  Describe DFD with example.	08
		Section – II	
Q.4	Solve a) b) c) d) e)	e any four.  What are building blocks of UML?  Compare Interactive and activity diagrams.  Write a short note on deployment diagram.  Explain Patterns and Frame works.  Explain communication pattern and forwarder-receiver pattern.	20
Q.5	Solve a) b)	e any one. Write a short note on 1) Extensibility 2) Robustness Draw and explain Sequence and Collaboration diagram For ATM	<b>08</b> System.

Seat	Set	9
No.	Set	3

		B.E	i. (Part - I) (Old) (CGP <i>I</i> Computer Scie OBJECT ORIENTEI	nce & E	ngineering	119
			esday, 17-12-2019 To 05:30 PM	) WODE		Max. Marks: 70
Insti	ructio	·	Q.No.1 is compulsory and Book Page No.3 Figures to the right indicat			tes in answer
			MCQ/Objectiv	е Туре (	Questions	
Dura	tion: 3	30 Mir	nutes			Marks: 14
Q.1	<b>Cho</b> 1)		ne correct alternatives from the second of these are the heuristic Name classes, attributes, Name operations and association All of the mentioned	s? and roles ociations v	with noun phrases	14
	2)		is a description of a se rations, relationships, and s Structure Constructor		s that share the same a Class Function	attributes,
	3)	Whice a) b) c) d)	ch of the following is not the describing the customer control establishing a basis for the defining a set of requirements of tware is built none of the mentioned	omplaints e creation	of a software design	
	4)	Wha a) c)	at can be requested from an object operation	y object o b) d)	f the class to affect beh Attribute instance	avior?
	5)	Idior a) c)	ns represent the Lowest level pattern Middle level pattern	b) d)	Highest level pattern Design pattern	
	6)	Wha a) b) c) d)	It is the programming style Invariant relationships Algorithms Classes and objects Goals, often expressed in	·	·	model?
	7)	Abst a) c)	raction is classified into 4 2	types. b) d)	3 1	
	8)	-	ect oriented technology is be se elements are collectively Von Neumann Model Structured Model	•		ndation,

Set S

9)	Callb a) c)	pack is an operation provided by Inheritance Modularity	b) d)	
10)	,	ch of the following property is as: State Identity	,	
11)		is a special member functio cts of its class. Constructor Selector	n who b) d)	ose task is to initialize the Destructor Iterator
12)		attribute is a data item held by wh Class All of the mentioned	nich o b) d)	f the following? Object None of the mentioned
13)	a)	peration can be described as? Object behavior Functions None of the mentioned	b) d)	Class behavior a.b
14)	An c a) c)	bject symbol is divided into what Top compartment All of the mentioned	t parts b) d)	s? Bottom Compartment None of the mentioned

Seat	Set	0
No.	Set	3

# B.F. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019

	Computer Science & Engineering OBJECT ORIENTED MODELING & DESIGN	013
•	& Date: Tuesday, 17-12-2019 : 02:30 PM To 05:30 PM	Max. Marks: 56
Instr	<ul><li>uctions: 1) All questions are compulsory.</li><li>2) Assume the suitable data if necessary.</li><li>3) Figures to the right indicate full marks.</li></ul>	
	Section – I	
Q.2	<ul> <li>Solve any four.</li> <li>a) Explain the concept of generalization.</li> <li>b) Explain with suitable example modeling as design technique.</li> <li>c) Differentiate between aggregation, association generalization</li> <li>d) Draw state diagram for phone line.</li> <li>e) With an example define derived objects links and attributes.</li> </ul>	20
Q.3	<ul> <li>Solve any one.</li> <li>a) Explain with respect to dynamic model.</li> <li>1) Entry and exit action</li> <li>2) Internal action</li> <li>b) Describe DFD with example.</li> </ul>	08
	Section – II	
Q.4	<ul> <li>Solve any four.</li> <li>a) What are building blocks of UML?</li> <li>b) Compare Interactive and activity diagrams.</li> <li>c) Write a short note on deployment diagram.</li> <li>d) Explain Patterns and Frame works.</li> <li>e) Explain communication pattern and forwarder-receiver pattern.</li> </ul>	20
Q.5	Solve any one.  a) Write a short note on  1) Extensibility  2) Robustness	08

**b)** Draw and explain Sequence and Collaboration diagram For ATM System.

Seat	Set	В
No.	Set	

		Б.Е	Computer Science			
			Computer Science WIRELESS AD HO		•	
-			esday, 17-12-2019 I To 05:30 PM		Max. Marks	s: 70
Instr	uctio	<b>ns:</b> 1	) Q. No. 1 is compulsory and sho	ould b	pe solved in first 30 minutes in ans	wer
		2	2) Figures to the right indicate full	mark	KS.	
			MCQ/Objective Ty			
Dura	ition: 3	30 Mi		, 1-	Marks	s: 14
Q.1	<b>Cho</b> (1)	In _ a)	the correct alternatives from th model, the speed of node in Direction Persistent RBS	-		14
	2)	,		,	source to destination is created. Permanent None	
	3)	net a)	e optimal transmit power is the m work disconnection ability	inimu b) d)	m power sufficient to guarantee  Traffic  Connectivity	
	4)	a)	atial density will be considered as d <sub>link</sub> N/A	b) d)	$\lambda$ None	
	5)	by <sub>.</sub> a)	wo Dimension Poisson Node Dis  w N/A	stribu b) d)	tion, nearest neighbor is denoted  d <sub>link</sub> None	
	6)		etooth unit will change the carrie cond. 1602 1600	r freq b) d)	uency (hop) times in 600 2600	
	7)	Wh a) c)	ich of the following is energy sav Nearest-Neighbor Both	ing ro b) d)	outing strategy? Random finding None	
	8)	UN a) b) c) d)	II stands for Unlicensed National Information Undestined Node In Infrastructu Unlicensed Node Information In Understanding National Informa	ıre frastr	ructure	

Set P

9)	measured on a large scale moven		on is
	<ul><li>a) Reyleigh fading</li><li>c) Time dispersion</li></ul>	<ul><li>b) Log-normal fading</li><li>d) None of these</li></ul>	
10)	The protocol header containal MAC c) L2CAP	ns logical channel identificat b) Reactive d) None	ion bits.
11)	is generally refer to any recap) Attenuation c) Fading	uction in the strength of a si b) AWGN d) None	ignal.
12)	routing is energy saving in a) Nearest-Neighbor c) Proactive	Vireless routing protocol. b) Reactive d) None	
13)	Distance between neighbord   neighbor	ing nodes of Regular grid to b) Two d) None	pology is
14)	A packet is relayed, throug nodes, until it reaches to destinational to the hop by Hop c) Both		ghboring

No. Set F	Seat No.
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B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering WIRELESS AD HOC NETWORKS** Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any three questions. 12 Write a short note on Link communication model without INI scenario. Define any two definitions of Quasi-Regular Topology. b) Explain Wireless LAN Technologies. Write a short note on Digital Radio Properties. d) Q.3 Explain Preliminaries used in Ideal Scenario of theoretic Framework for multi-80 hop Adhoc Wireless Network. OR Explain with mathematic equation Inter Node Interference. **Q.4** Explain with neat diagram Simplified Bluetooth Protocol Stack. 80 Section - II Q.5 Attempt any four questions. 12 With Ideal scenario of Aggregate effective transport capacity. a) Explain RBS Scheme in Route Reservation. b) Write a short note on Performance matrix in WAN. Write a short note on Optimal Common Transmit Power with Square Grid Topology. Derive & Explain the equation for average sustainable number of hops for 80 Q.6 Transport Capacity. Q.7 What are the Switching Models in Impact of Mobility? Explain any one of them 80 in details. OR Derive and explain the equation for BER at the end of multi-hop route for Random Topology.

Seat		
No.	Set	3

		Computer Scie	ence & E	ngineering
-		e: Tuesday, 17-12-2019 0 PM To 05:30 PM	, 1100 KI	Max. Marks: 70
		ns: 1) Q. No. 1 is compulsory an	d should b	e solved in first 30 minutes in answer
		Book. 2) Figures to the right indicat	e full mark	S.
_		MCQ/Objectiv	e Type C	
		0 Minutes	11	Marks: 14
Q.1	1)	ose the correct alternatives fro UNII stands for	om tne opt	ions. 14
	.,	<ul> <li>a) Unlicensed National Inform</li> <li>b) Undestined Node In Infrast</li> <li>c) Unlicensed Node Information</li> </ul>	ructure	
		d) Understanding National Inf	ormation Ir	nfrastructure
	2)	describes the fading affermeasured on a large scale move	/ement.	
		<ul><li>a) Reyleigh fading</li><li>c) Time dispersion</li></ul>	b) d)	Log-normal fading None of these
	3)	The protocol header con a) MAC c) L2CAP	ntains logic b) d)	al channel identification bits. Reactive None
	4)	<ul><li>is generally refer to any</li><li>Attenuation</li><li>Fading</li></ul>	reduction i b) d)	n the strength of a signal. AWGN None
	5)	<ul><li>routing is energy saving</li><li>a) Nearest-Neighbor</li><li>c) Proactive</li></ul>	in Wireles b) d)	s routing protocol. Reactive None
	6)	Distance between neigh d <sub>link</sub> . a) All c) Three	boring nod b) d)	es of Regular grid topology is Two None
	7)	A packet is relayed, thro nodes, until it reaches to destin a) Hop by Hop c) Both		
	8)	In model, the speed of n a) Direction Persistent c) RBS	ode is con b) d)	stant. Direction Non-Persistent None
	9)	In ONRBS, a multi-hop rational tentative c) reserved	route from b) d)	source to destination is created. Permanent None

Set Q

10)	n power sufficient to guarantee		
	a) disconnection	b)	Traffic
	c) ability	d)	Connectivity
11)	Spatial density will be considered as		·
	a) d <sub>link</sub>	b)	λ
	c) N/A	d)	None
12)	In Two Dimension Poisson Node Disby	stribut	ion, nearest neighbor is denoted
	a) w	b)	d <sub>link</sub>
	c) N/A	ď)	None
13)	Bluetooth unit will change the carrier second.	frequ	uency (hop) times in
	a) 1602	b)	600
	c) 1600	ď)	2600
14)	Which of the following is energy savi a) Nearest-Neighbor	ng ro b)	uting strategy? Random finding
	c) Both	d)	None

Seat	Set	
No.	Set	Q

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering WIRELESS AD HOC NETWORKS** Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any three questions. 12 Write a short note on Link communication model without INI scenario. Define any two definitions of Quasi-Regular Topology. b) Explain Wireless LAN Technologies. Write a short note on Digital Radio Properties. d) Q.3 Explain Preliminaries used in Ideal Scenario of theoretic Framework for multi-80 hop Adhoc Wireless Network. OR Explain with mathematic equation Inter Node Interference. Q.4 Explain with neat diagram Simplified Bluetooth Protocol Stack. 80 Section - II Q.5 Attempt any four questions. 12 With Ideal scenario of Aggregate effective transport capacity. a) Explain RBS Scheme in Route Reservation. b) Write a short note on Performance matrix in WAN. Write a short note on Optimal Common Transmit Power with Square Grid Topology. Derive & Explain the equation for average sustainable number of hops for 80 Q.6 Transport Capacity. Q.7 What are the Switching Models in Impact of Mobility? Explain any one of them 80 in details. OR Derive and explain the equation for BER at the end of multi-hop route for Random Topology.

Seat	Set	D
No.	Set	K

		B.E. (Part – I) (Old) (CGPA) Ex Computer Science WIRELESS AD HO	& E	ngineering
•		e: Tuesday, 17-12-2019 80 PM To 05:30 PM		Max. Marks: 70
Instr	uction	ns: 1) Q. No. 1 is compulsory and sho Book.		
		2) Figures to the right indicate full		
Dura	tion: 3	MCQ/Objective Ty 30 Minutes	/pe (	Questions  Marks: 14
Q.1		ose the correct alternatives from the In Two Dimension Poisson Node Distriction by	-	tions. 14
		a) w c) N/A	b) d)	d <sub>link</sub> None
	2)	Bluetooth unit will change the carrier second. a) 1602 c) 1600	r freq b) d)	uency (hop) times in  600 2600
	3)	Which of the following is energy savia) Nearest-Neighbor c) Both	ing ro b) d)	outing strategy? Random finding None
	4)	UNII stands for  a) Unlicensed National Information b) Undestined Node In Infrastructu c) Unlicensed Node Information Information Understanding National Informa	re frastr	ucture
	5)	describes the fading affect who measured on a large scale movemental and Reyleigh fading continuous time dispersion		ignal strength variation is  Log-normal fading  None of these
	6)	The protocol header contains a) MAC c) L2CAP	logic b) d)	cal channel identification bits. Reactive None
	7)	is generally refer to any reduce a) Attenuation c) Fading	ction b) d)	in the strength of a signal. AWGN None
	8)	routing is energy saving in W a) Nearest-Neighbor c) Proactive	ireles b) d)	s routing protocol. Reactive None
	9)	Distance between neighborin d <sub>link</sub> . a) All	g noo b)	des of Regular grid topology is Two

ď)

None

c) Three

Set R

10)	nodes, until it reaches to destination		
	<ul><li>a) Hop by Hop</li><li>c) Both</li></ul>	b) d)	Jumping None
11)	In model, the speed of node a) Direction Persistent c) RBS		stant. Direction Non-Persistent None
12)	In ONRBS, a multi-hop route a) tentative c) reserved	from b) d)	source to destination is created. Permanent None
13)	The optimal transmit power is the m network a) disconnection c) ability	inimu b) d)	m power sufficient to guarantee  Traffic  Connectivity
14)	Spatial density will be considered as a) d <sub>link</sub> c) N/A	b) d)	 λ None

Seat	Sat	D
No.	Set	K

### B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**WIRELESS AD HOC NETWORKS** Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any three questions. 12 Write a short note on Link communication model without INI scenario. Define any two definitions of Quasi-Regular Topology. b) Explain Wireless LAN Technologies. Write a short note on Digital Radio Properties. d) Q.3 Explain Preliminaries used in Ideal Scenario of theoretic Framework for multi-80 hop Adhoc Wireless Network. OR Explain with mathematic equation Inter Node Interference. **Q.4** Explain with neat diagram Simplified Bluetooth Protocol Stack. 80 Section - II Q.5 Attempt any four questions. 12 With Ideal scenario of Aggregate effective transport capacity. a) Explain RBS Scheme in Route Reservation. b) Write a short note on Performance matrix in WAN. Write a short note on Optimal Common Transmit Power with Square Grid Topology. Derive & Explain the equation for average sustainable number of hops for 80 Q.6 Transport Capacity. Q.7 What are the Switching Models in Impact of Mobility? Explain any one of them 80 in details. OR Derive and explain the equation for BER at the end of multi-hop route for

Random Topology.

Seat	Set	9
No.	Set	၂၁

	B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering WIRELESS AD HOC NETWORKS						
-		: Tuesday, 17-12-2019 Max. Marks: 7 PM To 05:30 PM	0				
Instr	uctio	<ul><li>s: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.</li><li>2) Figures to the right indicate full marks.</li></ul>	•				
		MCQ/Objective Type Questions					
Dura	tion: 3	) Minutes Marks: 1	4				
Q.1	<b>Cho</b> (1)	se the correct alternatives from the options.  The protocol header contains logical channel identification bits.  a) MAC	4				
	2)	is generally refer to any reduction in the strength of a signal. a) Attenuation b) AWGN c) Fading d) None					
	3)	routing is energy saving in Wireless routing protocol. a) Nearest-Neighbor b) Reactive c) Proactive d) None					
	4)	Distance between neighboring nodes of Regular grid topology is d <sub>link</sub> .  a) All b) Two c) Three d) None					
	5)	A packet is relayed, through a sequence of nearest neighboring nodes, until it reaches to destination nodes.  a) Hop by Hop b) Jumping c) Both d) None					
	6)	In model, the speed of node is constant.  a) Direction Persistent b) Direction Non-Persistent c) RBS d) None					
	7)	In ONRBS, a multi-hop route from source to destination is created.  a) tentative b) Permanent c) reserved d) None					
	8)	The optimal transmit power is the minimum power sufficient to guarantee network  a) disconnection b) Traffic c) ability d) Connectivity					
	9)	Spatial density will be considered as a) $d_{link}$ b) $\lambda$ c) N/A d) None					

Set S

10)	In Two Dimension Poisson Node Distribution, nearest neighbor is denoted by				
	a) w c) N/A	b) d)	d <sub>link</sub> None		
11)	Bluetooth unit will change the carrisecond.	rier frequ	uency (hop) times in		
	a) 1602	b)	600		
	c) 1600	d)	2600		
12)	Which of the following is energy s a) Nearest-Neighbor c) Both	_	outing strategy? Random finding None		
13)	UNII stands for  a) Unlicensed National Information b) Undestined Node In Infrastruct c) Unlicensed Node Information d) Understanding National Information	cture Infrastr	ucture		
14)	describes the fading affect measured on a large scale mover		ignal strength variation is		
	a) Reyleigh fading	b)	Log-normal fading		
	c) Time dispersion	d)	None of these		

Seat No.	Set S
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B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering WIRELESS AD HOC NETWORKS** Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any three questions. 12 Write a short note on Link communication model without INI scenario. Define any two definitions of Quasi-Regular Topology. b) Explain Wireless LAN Technologies. Write a short note on Digital Radio Properties. d) Q.3 Explain Preliminaries used in Ideal Scenario of theoretic Framework for multi-80 hop Adhoc Wireless Network. OR Explain with mathematic equation Inter Node Interference. **Q.4** Explain with neat diagram Simplified Bluetooth Protocol Stack. 80 Section - II Q.5 Attempt any four questions. 12 With Ideal scenario of Aggregate effective transport capacity. a) Explain RBS Scheme in Route Reservation. b) Write a short note on Performance matrix in WAN. Write a short note on Optimal Common Transmit Power with Square Grid Topology. Derive & Explain the equation for average sustainable number of hops for 80 Q.6 Transport Capacity. Q.7 What are the Switching Models in Impact of Mobility? Explain any one of them 80 in details. OR Derive and explain the equation for BER at the end of multi-hop route for Random Topology.

Page **12** of **12** 

Max. Marks: 70

Seat	Set	D
No.	Set	

## B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering INTELLIGENT SYSTEMS

Day & Date: Tuesday, 17-12-2019

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.

2) Figures to the right indicates full marks.

#### **MCQ/Objective Type Questions**

Duration: 30 Minutes Marks: 14

#### Q.1 Choose the correct alternatives from the options.

14

- 1) What were the two main streams of research that led to the evolution and development of the concept of Decision Support Systems?
  - a) Theoretical studies of organizational decision making and technical work on interactive computer systems
  - b) Theoretical studies of organizational behavior and technical work on relational data bases
  - c) Empirical studies of graphical displays and technical work on artificial intelligence
- 2) What should be a major characteristic of a DSS?
  - a) Automates decision making
  - b) Includes a spreadsheet model
  - c) Responds quickly to the changing needs of decision makers
- 3) In which of Steven Alter's categories of DSS would you place data warehouses?
  - a) Analysis Information systems
  - b) Accounting and financial models
  - c) Data analysis systems
- 4) What would one conclude after visiting DSS-related sites on the World-Wide Web?
  - There is limited support for DSS researchers and practitioners on the World-Wide Web
  - b) The Web is where the DSS research and development action is occurring
  - c) The quality and value of DSS-related Web sites is outstanding
- 5) What is a data warehouse?
  - a) A database application that searches for hidden patterns in a data base
  - A database designed to support decision making in organizations. It is batch updated and structured for rapid on-line queries and managerial summaries
  - An interactive computer based system which helps decision makers utilize data and models to identify and solve problems and make decisions

Set P

- What general type of DSS would include file drawer systems, data warehouses, on- line analytical processing (OLAP) systems, and Executive Information Systems?
  - a) Communications-Driven DSS
  - b) Data-Driven DSS
  - c) Document-Driven DSS
- 7) What type of computerized system recordes current information and emphasizes data integrity and consistency?
  - a) Data Analysis System
  - b) File Drawer System
  - c) Transaction Processing System
- 8) What is the most important component of a Decision Support System?
  - a) Architecture and network design
  - b) Database
  - c) User interface
- 9) Which of the following web sites provides organized information on a wide variety of Decision Support Systems topics?
  - a) http://DSSResources.COM
- b) http://www.usatoday.com
- c) <a href="http://www.zoogdisney.com">http://www.zoogdisney.com</a>
- d) http://www.hotmail.com
- 10) What category of software technology enables analysts, managers and executives to gain insight into data through fast, consistent, interactive access to a wide variety of possible views of information that has been transformed from raw data to reflect the real dimensionality of the enterprise as understood by the user?
  - a) Data Warehouse software
  - b) On-line Analytical Processing (OLAP) software
  - c) On-line Transaction Processing (OLTP) software
- 11) Which of the following level of managers develop short- and medium-range plans, schedules, and budgets and specify the policies, procedures, and business objectives for their sub-units of the company?
  - a) Strategic
  - b) Tactical
  - c) Operational
- 12) Information that is outdated, inaccurate, or hard to understand would be very meaningful, useful, or valuable to you or other business professionals.
  - a) True

- b) False
- 13) Information has three dimensions. There are \_\_\_\_\_.
  - a) Time, consent, and form
  - b) Time, content, and form
  - c) Cost, content, and form
- 14) The growth of corporate intranets, extranets, as well as the web, has accelerated the development and use of "executive class" information delivery and decision support software tools by lower levels of management and by individuals and teams of business professionals. This dramatic expansion has opened the door to the use of which of the following tool?
  - a) Business intelligence (BI)
  - b) Business Knowledge (BK)
  - c) Business Ideas (BI)

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**INTELLIGENT SYSTEMS** Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any four. Q.2 80 What are ANN's? What is a DSS? b) What is DSS development? c) d) What are Expert Systems? List the phases of decision making probes. 10 Q.3 Attempt any two. List characteristics and capabilities of DSS a) What are the components of a DSS? Illustrate each. b) What is prototyping? State the steps involved Attempt any one. Q.4 10 How does a KBMS work? Illustrate the DSS Development. Section - II Q.5 Attempt any four. 80 What is a Group decision making? What is an Executive IS? b) Compare between ERP and SCM What is Knowledge management? What is the role of people in KM? e) Q.6 Attempt any two. 10 What is the impact of MSS? a) What are the approaches to knowledge management? How is success ensured in management? Q.7 Attempt any one. 10 State characteristics of MRP, ERP and SCM. State the impact of MSS.

Seat	Sat	_
No.	Set	Q

## B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering INTELLIGENT SYSTEMS
Day 8	& Date	e: Tuesday, 17-12-2019 Max. Marks: 70
•		0 PM To 05:30 PM
Instr	uctior	ns: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.
		Figures to the right indicates full marks.
		MCQ/Objective Type Questions
Dura	tion: 3	0 Minutes Marks: 14
Q.1	<b>Choo</b> 1)	What is the most important component of a Decision Support System?  a) Architecture and network design  b) Database c) User interface
	2)	Which of the following web sites provides organized information on a wide variety of Decision Support Systems topics?  a) http://DSSResources.COM b) <a href="http://www.usatoday.com">http://www.usatoday.com</a> c) <a href="http://www.zoogdisney.com">http://www.zoogdisney.com</a> d) http://www.hotmail.com
	3)	What category of software technology enables analysts, managers and executives to gain insight into data through fast, consistent, interactive access to a wide variety of possible views of information that has been transformed from raw data to reflect the real dimensionality of the enterprise as understood by the user?  a) Data Warehouse software b) On-line Analytical Processing (OLAP) software c) On-line Transaction Processing (OLTP) software
	4)	Which of the following level of managers develop short- and medium-range plans, schedules, and budgets and specify the policies, procedures, and business objectives for their sub-units of the company?  a) Strategic b) Tactical c) Operational
	5)	Information that is outdated, inaccurate, or hard to understand would be very meaningful, useful, or valuable to you or other business professionals.  a) True b) False
	6)	Information has three dimensions. There are  a) Time, consent, and form b) Time, content, and form

c) Cost, content, and form

- 7) The growth of corporate intranets, extranets, as well as the web, has accelerated the development and use of "executive class" information delivery and decision support software tools by lower levels of management and by individuals and teams of business professionals. This dramatic expansion has opened the door to the use of which of the following tool?
  - a) Business intelligence (BI)
  - b) Business Knowledge (BK)
  - c) Business Ideas (BI)
- 8) What were the two main streams of research that led to the evolution and development of the concept of Decision Support Systems?
  - a) Theoretical studies of organizational decision making and technical work on interactive computer systems
  - b) Theoretical studies of organizational behavior and technical work on relational data bases
  - Empirical studies of graphical displays and technical work on artificial intelligence
- 9) What should be a major characteristic of a DSS?
  - a) Automates decision making
  - b) Includes a spreadsheet model
  - c) Responds quickly to the changing needs of decision makers
- 10) In which of Steven Alter's categories of DSS would you place data warehouses?
  - a) Analysis Information systems
  - b) Accounting and financial models
  - c) Data analysis systems
- 11) What would one conclude after visiting DSS-related sites on the World-Wide Web?
  - There is limited support for DSS researchers and practitioners on the World-Wide Web
  - b) The Web is where the DSS research and development action is occurring
  - c) The quality and value of DSS-related Web sites is outstanding
- 12) What is a data warehouse?
  - a) A database application that searches for hidden patterns in a data base
  - A database designed to support decision making in organizations. It is batch updated and structured for rapid on-line queries and managerial summaries
  - An interactive computer based system which helps decision makers utilize data and models to identify and solve problems and make decisions
- 13) What general type of DSS would include file drawer systems, data warehouses, on- line analytical processing (OLAP) systems, and Executive Information Systems?
  - a) Communications-Driven DSS
  - b) Data-Driven DSS
  - c) Document-Driven DSS
- 14) What type of computerized system recordes current information and emphasizes data integrity and consistency?
  - a) Data Analysis System
  - b) File Drawer System
  - c) Transaction Processing System

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**INTELLIGENT SYSTEMS** Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any four. Q.2 80 What are ANN's? What is a DSS? b) What is DSS development? c) d) What are Expert Systems? List the phases of decision making probes. 10 Q.3 Attempt any two. List characteristics and capabilities of DSS a) What are the components of a DSS? Illustrate each. b) What is prototyping? State the steps involved Attempt any one. Q.4 10 How does a KBMS work? Illustrate the DSS Development. Section - II Q.5 Attempt any four. 80 What is a Group decision making? What is an Executive IS? b) Compare between ERP and SCM What is Knowledge management? What is the role of people in KM? e) Q.6 Attempt any two. 10 What is the impact of MSS? a) What are the approaches to knowledge management? How is success ensured in management? Q.7 Attempt any one. 10 State characteristics of MRP, ERP and SCM. State the impact of MSS.

Seat	Set	D
No.	Set	K

Day & Date: Tuesday, 17-12-2019

Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.

2) Figures to the right indicates full marks.

#### **MCQ/Objective Type Questions**

Duration: 30 Minutes Marks: 14

#### Q.1 Choose the correct alternatives from the options.

14

- 1) What is a data warehouse?
  - a) A database application that searches for hidden patterns in a data base
  - A database designed to support decision making in organizations. It is batch updated and structured for rapid on-line queries and managerial summaries
  - An interactive computer based system which helps decision makers utilize data and models to identify and solve problems and make decisions
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  - c) Document-Driven DSS
- 3) What type of computerized system recordes current information and emphasizes data integrity and consistency?
  - a) Data Analysis System
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  - c) Transaction Processing System
- 4) What is the most important component of a Decision Support System?
  - a) Architecture and network design
  - b) Database
  - c) User interface
- 5) Which of the following web sites provides organized information on a wide variety of Decision Support Systems topics?
  - a) http://DSSResources.COM
- b) <a href="http://www.usatoday.com">http://www.usatoday.com</a>
- c) http://www.zoogdisney.com
- d) http://www.hotmail.com
- What category of software technology enables analysts, managers and executives to gain insight into data through fast, consistent, interactive access to a wide variety of possible views of information that has been transformed from raw data to reflect the real dimensionality of the enterprise as understood by the user?
  - a) Data Warehouse software
  - b) On-line Analytical Processing (OLAP) software
  - c) On-line Transaction Processing (OLTP) software

Set R

- 7) Which of the following level of managers develop short- and medium-range plans, schedules, and budgets and specify the policies, procedures, and business objectives for their sub-units of the company?
  - a) Strategic
  - b) Tactical
  - c) Operational
- 8) Information that is outdated, inaccurate, or hard to understand would be very meaningful, useful, or valuable to you or other business professionals.
  - a) True b) Fals
- Information has three dimensions. There are \_\_\_\_\_.
  - a) Time, consent, and form
  - b) Time, content, and form
  - c) Cost, content, and form
- 10) The growth of corporate intranets, extranets, as well as the web, has accelerated the development and use of "executive class" information delivery and decision support software tools by lower levels of management and by individuals and teams of business professionals. This dramatic expansion has opened the door to the use of which of the following tool?
  - a) Business intelligence (BI)
  - b) Business Knowledge (BK)
  - c) Business Ideas (BI)
- 11) What were the two main streams of research that led to the evolution and development of the concept of Decision Support Systems?
  - Theoretical studies of organizational decision making and technical work on interactive computer systems
  - b) Theoretical studies of organizational behavior and technical work on relational data bases
  - Empirical studies of graphical displays and technical work on artificial intelligence
- 12) What should be a major characteristic of a DSS?
  - a) Automates decision making
  - b) Includes a spreadsheet model
  - c) Responds quickly to the changing needs of decision makers
- 13) In which of Steven Alter's categories of DSS would you place data warehouses?
  - a) Analysis Information systems
  - b) Accounting and financial models
  - c) Data analysis systems
- 14) What would one conclude after visiting DSS-related sites on the World-Wide Web?
  - There is limited support for DSS researchers and practitioners on the World-Wide Web
  - b) The Web is where the DSS research and development action is occurring
  - c) The quality and value of DSS-related Web sites is outstanding

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**INTELLIGENT SYSTEMS** Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any four. 80 What are ANN's? What is a DSS? b) What is DSS development? c) d) What are Expert Systems? List the phases of decision making probes. Q.3 Attempt any two. 10 List characteristics and capabilities of DSS What are the components of a DSS? Illustrate each. What is prototyping? State the steps involved Attempt any one. 10 How does a KBMS work? a) Illustrate the DSS Development. b) Section - II Q.5 Attempt any four. 80 What is a Group decision making? What is an Executive IS? b) Compare between ERP and SCM c) What is Knowledge management? d) What is the role of people in KM? Q.6 Attempt any two. 10 What is the impact of MSS? a) What are the approaches to knowledge management? How is success ensured in management? Q.7 Attempt any one. 10 State characteristics of MRP, ERP and SCM. a) State the impact of MSS. b)

Seat	Set	9
No.	Set	3

Day & Date: Tuesday, 17-12-2019 Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book

2) Figures to the right indicates full marks.

#### **MCQ/Objective Type Questions**

Duration: 30 Minutes Marks: 14

#### Q.1 Choose the correct alternatives from the options.

- 14
- 1) What category of software technology enables analysts, managers and executives to gain insight into data through fast, consistent, interactive access to a wide variety of possible views of information that has been transformed from raw data to reflect the real dimensionality of the enterprise as understood by the user?
  - a) Data Warehouse software
  - b) On-line Analytical Processing (OLAP) software
  - c) On-line Transaction Processing (OLTP) software
- 2) Which of the following level of managers develop short- and medium-range plans, schedules, and budgets and specify the policies, procedures, and business objectives for their sub-units of the company?
  - a) Strategic
  - b) Tactical
  - c) Operational
- 3) Information that is outdated, inaccurate, or hard to understand would be very meaningful, useful, or valuable to you or other business professionals.
  - a) True b) False
- 4) Information has three dimensions. There are \_\_\_\_\_.
  - a) Time, consent, and form
  - b) Time, content, and form
  - c) Cost, content, and form
- The growth of corporate intranets, extranets, as well as the web, has accelerated the development and use of "executive class" information delivery and decision support software tools by lower levels of management and by individuals and teams of business professionals. This dramatic expansion has opened the door to the use of which of the following tool?
  - a) Business intelligence (BI)
  - b) Business Knowledge (BK)
  - c) Business Ideas (BI)
- 6) What were the two main streams of research that led to the evolution and development of the concept of Decision Support Systems?
  - a) Theoretical studies of organizational decision making and technical work on interactive computer systems
  - b) Theoretical studies of organizational behavior and technical work on relational data bases
  - Empirical studies of graphical displays and technical work on artificial intelligence

- 7) What should be a major characteristic of a DSS?
  - a) Automates decision making
  - b) Includes a spreadsheet model
  - c) Responds quickly to the changing needs of decision makers
- 8) In which of Steven Alter's categories of DSS would you place data warehouses?
  - a) Analysis Information systems
  - b) Accounting and financial models
  - c) Data analysis systems
- 9) What would one conclude after visiting DSS-related sites on the World-Wide Web?
  - There is limited support for DSS researchers and practitioners on the World-Wide Web
  - b) The Web is where the DSS research and development action is occurring
  - c) The quality and value of DSS-related Web sites is outstanding
- 10) What is a data warehouse?
  - a) A database application that searches for hidden patterns in a data base
  - A database designed to support decision making in organizations. It is batch updated and structured for rapid on-line queries and managerial summaries
  - An interactive computer based system which helps decision makers utilize data and models to identify and solve problems and make decisions
- 11) What general type of DSS would include file drawer systems, data warehouses, on- line analytical processing (OLAP) systems, and Executive Information Systems?
  - a) Communications-Driven DSS
  - b) Data-Driven DSS
  - c) Document-Driven DSS
- 12) What type of computerized system recordes current information and emphasizes data integrity and consistency?
  - a) Data Analysis System
  - b) File Drawer System
  - c) Transaction Processing System
- 13) What is the most important component of a Decision Support System?
  - a) Architecture and network design
  - b) Database
  - c) User interface
- 14) Which of the following web sites provides organized information on a wide variety of Decision Support Systems topics?
  - a) http://DSSResources.COM
- b) <a href="http://www.usatoday.com">http://www.usatoday.com</a>
- c) http://www.zoogdisney.com
- d) http://www.hotmail.com

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Day & Date: Tuesday, 17-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any four. 80 What are ANN's? What is a DSS? b) What is DSS development? c) d) What are Expert Systems? List the phases of decision making probes. Q.3 Attempt any two. 10 List characteristics and capabilities of DSS What are the components of a DSS? Illustrate each. What is prototyping? State the steps involved Q.4 Attempt any one. 10 How does a KBMS work? a) Illustrate the DSS Development. b) Section - II Q.5 Attempt any four. 80 What is a Group decision making? What is an Executive IS? b) Compare between ERP and SCM c) What is Knowledge management? d) What is the role of people in KM? Attempt any two. 10 Q.6 What is the impact of MSS? a) What are the approaches to knowledge management? How is success ensured in management? Q.7 Attempt any one. 10 State characteristics of MRP, ERP and SCM. a) State the impact of MSS. b)

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## B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

			Computer Science MOBILE APPLICATIO	& E	ngineering	
-			uesday, 17-12-2019 // To 05:30 PM		Max	Marks: 70
Instr	uctio	ns: 1	Q. No. 1 is compulsory and shook.	ould k	pe solved in first 30 minutes	s in answer
		2)	Figures to the right indicates ful	l marl	ks.	
			MCQ/Objective Ty	pe (	Questions	
Dura	ition: 3	30 M	inutes			Marks: 14
Q.1	<b>Cho</b> 1)		the correct alternatives from that are the indirect Direct subclass RecognitionService SpellCheckerService	•	Services?	14
	2)		at are the Direct subclasses of Ad AccountAuthenticatorActivity ExpandableListActivity	•	? ActivityGroup All of the above	
	3)	Hov a) c)	v many ways to start services? Started a & b	b) d)	Bound None of the above	
	4)		Iroid component that manages aped layout view	b) d)	ance and format on screen Intent Fragment	is
	5)		at does the following line of code ont intent = new Intent(FirstActivity Creates an hidden Intent Create an explicit Intent	/.this, b)		
	6)	Whi a) c)	ich is not included in the Android WindowManager DialerManager	applid b) d)	cation framework? NotificationManager PackageManager	
	7)		ich of these files contains text val lication? AndroidManifest.xml res/layout/Main.xml	ues th b) d)	nat you can use in your res/Text.xml res/values/strings.xml	
	8)	a) c)	is methods in Media Player of seekTo() pause()	class. b) d)	start() All	
	9)	Ima fold a)	ge to be moved by in quick succe er. Drawable_hdpi Drawable_mdpi	essior b) d)	of time are saved in  drawable_ldpi in either a or b or c	_

Set P

	method in Cursor returns num	per of	columns in selection query
resu	ılt set.		
a)	getColumnCount	b)	getCount
c)	getRowCount	d)	None
	animation can be used to ani	mate	any property of object.
a)	View	b)	Property
c)	Drawable	ď)	None
	method is used to instantiate S	Sqlite	OpenHelper class.
a)	getWritable()	b)	getReadable()
c)	both a and b	ď)	None
Geo	ocoding means		
a)	Converting latitude and longitude	to a	ddress
b)	Converting address to lattitude-lo	ongitu	ıde pair
c)	displaying address in map		
d)	None		
-	method is called whenever dat	a rec	eived by sensor is changed.
a)	onSensorChanged	b)	onSensorDataChanged
c)	onAccuracyChanged	d)	onDataChanged
	a) c) a) c) a) c) a) b) c) d) a)	result set. a) getColumnCount c) getRowCount animation can be used to animation can be use	a) getColumnCount b) c) getRowCount d)  animation can be used to animate a) View b) c) Drawable d)  method is used to instantiate Sqlited a) getWritable() b) c) both a and b d)  Geocoding means a) Converting latitude and longitude to ach b) Converting address to lattitude-longitude. c) displaying address in map d) None  method is called whenever data recalled and onSensorChanged b)

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## B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering MOBILE APPLICATION DEVELOPMENT	
			Max. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figure to the right indicates full marks.</li></ul>	
		Section – I	
Q.2	Atto a) b) c) d)	empt any three.  Define Intent Service and demonstrate its use with a simple pseud Define and elaborate the use of Broadcast receiver along with exa Define layouts with example.  Outline the various views of the DDMS perspective and its purpose.	mple.
Q.3	Atto a) b)	empt any one. Illustrate the three philosophies of hybrid app development. List do frameworks and tools used in these approaches. Describe Android platform architecture. Discuss the various layers components and functions.	
Q.4		at is service? Elaborate with a neat diagram states and Life cycle molain the steps to initiate the service.	nethods. <b>08</b>
		Section – II	
Q.5	a) b)	empt any Three. Write a note on Geocoder. explain types of sensors. Write a note on white box testing. Write a program to get list of sensors on device and display those message.	<b>12</b> on Toast
Q.6	Atto a) b)	empt any one.  Explain app uploading process on google play store.  Explain types of animation in android.	08
Q.7	Wri	plain SqliteOpenHelper and SqliteDatabase classes in detail with exite a program to insert student record (rollno,name,marks) in studen ated using Sqlite database.	

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# B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering MOBILE APPLICATION DEVELOPMENT

Day & Date: Tuesday, 17-12-2019	Max. Marks: 70
Time: 02:30 PM To 05:30 PM	

Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.								
	<ul><li>2) Figures to the right indicates full marks.</li></ul>							
			MCQ/Objective Ty	pe C	Questions			
Dura	ition: 3	30 M	inutes			Marks: 14		
Q.1	<b>Cho</b> 1)		the correct alternatives from th is methods in Media Player of	-	ions.	14		
	,	a) c)		b) d)	start() All			
	2)	lma fold	ge to be moved by in quick succe er.	ession	of time are saved in			
		a) c)	Drawable_hdpi Drawable_mdpi	b) d)	drawable_ldpi in either a or b or c			
	3)		method in Cursor returns numult set.	ber o	f columns in selection query			
		a) c)	getColumnCount getRowCount	b) d)	getCount None			
	4)	a) c)	animation can be used to an View Drawable	imate b) d)	any property of object. Property None			
	5)	a) c)	method is used to instantiate s getWritable() both a and b	Sqlite b) d)				
	6)	Geo a) b) c) d)	ocoding means  Converting latitude and longitude Converting address to lattitude-I displaying address in map None					
	7)	a) c)	method is called whenever da onSensorChanged onAccuracyChanged	ta red b) d)	ceived by sensor is changed onSensorDataChanged onDataChanged			
	8)	Wh a) c)	at are the indirect Direct subclass RecognitionService SpellCheckerService	es of b) d)	Services? RemoteViewsService InputMethodService			
	9)	Wh a) c)	at are the Direct subclasses of Ac AccountAuthenticatorActivity ExpandableListActivity	tivity( b) d)	? ActivityGroup All of the above			

Set Q

10)	Hov	v many ways to start services?		
	a)	Started	b)	Bound
	c)	a & b	d)	None of the above
11)	And	Iroid component that manages aped	peara	ance and format on screen is
	a)	layout	b)	Intent
	c)	view	ď)	Fragment
12)		at does the following line of code ont intent = new Intent(FirstActivity Creates an hidden Intent Create an explicit Intent	this,	
13)	Whi a) c)	ich is not included in the Android WindowManager DialerManager	applio b) d)	cation framework? NotificationManager PackageManager
14)		ich of these files contains text valulication?		nat you can use in your
	a)	AndroidManifest.xml	b)	res/Text.xml
	c)	res/lavout/Main.xml	d)	res/values/strings.xml

Seat	Set	Q
No.		

# B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering MOBILE APPLICATION DEVELOPMENT	
		ate: Tuesday, 17-12-2019 :30 PM To 05:30 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figure to the right indicates full marks.	
		Section – I	
Q.2	Atta a) b) c) d)	empt any three.  Define Intent Service and demonstrate its use with a simple pseud Define and elaborate the use of Broadcast receiver along with example layouts with example.  Outline the various views of the DDMS perspective and its purpose.	ample.
Q.3	Atta a) b)	empt any one.  Illustrate the three philosophies of hybrid app development. List deframeworks and tools used in these approaches.  Describe Android platform architecture. Discuss the various layers components and functions.	
Q.4		at is service? Elaborate with a neat diagram states and Life cycle notain the steps to initiate the service.	nethods. 08
		Section – II	
Q.5	a) b)	empt any Three. Write a note on Geocoder. explain types of sensors. Write a note on white box testing. Write a program to get list of sensors on device and display those message.	on Toast
Q.6	Atta a) b)	empt any one.  Explain app uploading process on google play store.  Explain types of animation in android.	08
Q.7	Wri	plain SqliteOpenHelper and SqliteDatabase classes in detail with exte a program to insert student record (rollno,name,marks) in studer ated using Sqlite database.	•

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# B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science MOBILE APPLICATIO		•	
•		e: Tuesday, 17-12-2019 30 PM To 05:30 PM		Max.	Marks: 70
Inst	ructio	<b>ns:</b> 1) Q. No. 1 is compulsory and sho book.	ould b	pe solved in first 30 minutes	in answer
		2) Figures to the right indicates full	marl	KS.	
		MCQ/Objective Ty	pe (	Questions	
Dura	ation: 3	30 Minutes			Marks: 14
Q.1	<b>Cho</b> 1)	ose the correct alternatives from the What does the following line of code a Intent intent = new Intent(FirstActivity a) Creates an hidden Intent c) Create an explicit Intent	achie	ve?	14
	2)	Which is not included in the Android a  a) WindowManager  c) DialerManager	applio b) d)	cation framework? NotificationManager PackageManager	
	3)	Which of these files contains text valuapplication?  a) AndroidManifest.xml  c) res/layout/Main.xml	ues th b) d)	res/Text.xml	
	4)	is methods in Media Player c a) seekTo() c) pause()	lass. b) d)	start() All	
	5)	Image to be moved by in quick succe folder.  a) Drawable_hdpi c) Drawable_mdpi	ession b) d)	drawable_ldpi in either a or b or c	
	6)	method in Cursor returns num result set. a) getColumnCount c) getRowCount	ber o b) d)	f columns in selection query getCount None	
	7)	animation can be used to ani a) View c) Drawable	mate b) d)	any property of object. Property None	
	8)	<ul><li>method is used to instantiate S</li><li>a) getWritable()</li><li>c) both a and b</li></ul>	Sqlite b) d)	OpenHelper class. getReadable() None	

Set R

9)	Geocoding means						
,	a)	a) Converting latitude and longitude to address					
	b)	Converting address to lattitude-I	ongit	ude pair			
	c)	displaying address in map					
	d)	None					
10)		method is called whenever da	ta red	ceived by sensor is changed.			
,	a)		b)	,			
	c)	onAccuracyChanged	ď)	onDataChanged			
11)	Wha	What are the indirect Direct subclasses of Services?					
	a)	RecognitionService	b)	RemoteViewsService			
	c)	SpellCheckerService	d)	InputMethodService			
12)	What are the Direct subclasses of Activity?						
	a)	AccountAuthenticatorActivity	b)	ActivityGroup			
	c)	ExpandableListActivity	d)	All of the above			
13)	Hov	w many ways to start services?					
	a)	Started	b)	Bound			
	c)	a & b	d)	None of the above			
14)	Android component that manages appearance and format on screen is						
	call	ed					
	a)	layout	b)	Intent			
	c)	view	d)	Fragment			

# B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Diei (i art 1) (ola) (ooi 1) examination noviboo et	,,,
		Computer Science & Engineering	
		MOBILE APPLICATION DEVELOPMENT	
,			Max. Marks: 56
_	_	30 PM To 05:30 PM	
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figure to the right indicates full marks.</li></ul>	
		Section – I	
Q.2	Atte a) b) c) d)	empt any three.  Define Intent Service and demonstrate its use with a simple pseud Define and elaborate the use of Broadcast receiver along with example layouts with example.  Outline the various views of the DDMS perspective and its purpose.	ample.
Q.3	Atte a) b)	empt any one. Illustrate the three philosophies of hybrid app development. List do frameworks and tools used in these approaches. Describe Android platform architecture. Discuss the various layers components and functions.	
Q.4		at is service? Elaborate with a neat diagram states and Life cycle notain the steps to initiate the service.	nethods. <b>08</b>
		Section - II	
Q.5	a) b)	empt any Three. Write a note on Geocoder. explain types of sensors. Write a note on white box testing. Write a program to get list of sensors on device and display those message.	<b>12</b> on Toast
Q.6	Atte a) b)	empt any one.  Explain app uploading process on google play store.  Explain types of animation in android.	08
Q.7	Wri	plain SqliteOpenHelper and SqliteDatabase classes in detail with extending to insert student record (rollno,name,marks) in studer ated using Sqlite database.	

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## B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering MOBILE APPLICATION DEVELOPMENT

Day & Date: Tuesday, 17-12-2019	Max. Marks: 70

Time: 02:30 PM To 05:30 PM

ınstı	ructio	book.	noula i	be solved in first 30 minutes in answe	Γ
		<ol><li>Figures to the right indicates f</li></ol>	ull mar	ks.	
		MCQ/Objective 7	Гуре (	Questions	
Dura	ation:	30 Minutes		Marks: 14	1
Q.1	<b>Cho</b> 1)	pose the correct alternatives from to method in Cursor returns nu result set.	•	tions.  14  15  16  17  17  18  19  19  19  19  19  19  19  19  19	ŀ
		a) getColumnCount c) getRowCount	b) d)	getCount None	
	2)	animation can be used to a a) View c) Drawable	nimate b) d)	any property of object. Property None	
	3)	<ul><li>method is used to instantiate</li><li>a) getWritable()</li><li>c) both a and b</li></ul>	e Sqlite b) d)		
	4)	Geocoding means  a) Converting latitude and longitu b) Converting address to lattitude c) displaying address in map d) None			
	5)	method is called whenever of a) onSensorChanged c) onAccuracyChanged	data red b) d)	ceived by sensor is changed. onSensorDataChanged onDataChanged	
	6)	What are the indirect Direct subclass a) RecognitionService c) SpellCheckerService	sses of b) d)		
	7)	What are the Direct subclasses of A a) AccountAuthenticatorActivity c) ExpandableListActivity	Activity b) d)	_	
	8)	How many ways to start services? a) Started c) a & b	b) d)	Bound None of the above	
	9)	Android component that manages a called			
		a) layout c) view	b) d)	Intent Fragment	

Set S

10)	What does the following line of code achieve?  Intent intent = new Intent(FirstActivity.this, SecondActivity-Class);				
	a) c)	Creates an hidden Intent Create an explicit Intent	b) d)	Creates an implicit Intent Starts an activity	
11)	Whi a) c)	ch is not included in the Android a WindowManager DialerManager		ation framework? NotificationManager PackageManager	
12)		ch of these files contains text valu lication? AndroidManifest.xml res/layout/Main.xml	ues th b) d)	res/Text.xml res/values/strings.xml	
13)	a) c)	is methods in Media Player c	,	start() All	
14)		ge to be moved by in quick succe	ssion	of time are saved in	
	fold		<b>b</b> )	drowable Idei	
	a)	Drawable_hdpi	p)	drawable_ldpi	
	c)	Drawable_mdpi	d)	in either a or b or c	

Seat	Set	9
No.	Set	3

# B.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering MOBILE APPLICATION DEVELOPMENT	
Time	02:	30 PM To 05:30 PM	Max. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figure to the right indicates full marks.</li></ul>	
		Section – I	
Q.2	Atte a) b) c) d)	empt any three.  Define Intent Service and demonstrate its use with a simple pseud Define and elaborate the use of Broadcast receiver along with example layouts with example.  Outline the various views of the DDMS perspective and its purpos	ample.
Q.3	Atte a) b)	empt any one.  Illustrate the three philosophies of hybrid app development. List do frameworks and tools used in these approaches.  Describe Android platform architecture. Discuss the various layers components and functions.	
Q.4		at is service? Elaborate with a neat diagram states and Life cycle nolain the steps to initiate the service.	nethods. <b>08</b>
		Section - II	
Q.5	a) b)	empt any Three. Write a note on Geocoder. explain types of sensors. Write a note on white box testing. Write a program to get list of sensors on device and display those message.	12 on Toast
Q.6	Atta a) b)	empt any one.  Explain app uploading process on google play store.  Explain types of animation in android.	08
Q.7	Wri	plain SqliteOpenHelper and SqliteDatabase classes in detail with external terms to insert student record (rollno,name,marks) in studer ated using Sqlite database.	•

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Seat	Set	D
No.	Set	1

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering MANAGEMENT INFORMATION SYSTEM

			MANAGEMENT INFOR	MA	TION SYSTEM
-			day,22-11-2019 1 To 05:30 PM		Max. Marks: 70
Instr	uction	าร: 1	) Q. No. 1 is compulsory and sho book.	uld b	e solved in first 30 minutes in answer
			<ul><li>P) Figures to the right indicates full</li><li>P) Support your answers with near</li></ul>		
			MCQ/Objective Ty	pe C	Questions
Dura	tion: 3	0 Mi	nutes		Marks: 14
Q.1	Choo		the correct alternatives from the	e opt	ions and rewrite the 14
	1)	The	e role of MIS in an organization cane body.	an be	compared to the role of
		,	Brain Lever	b) d)	Heart Stomach
	2)	,	e objective of the MIS is to provide	,	
	۷)		process of management.	5 11 11 0	mation to a support in
		a)	Tool	b)	Goal
		c)	decision	d)	Analysis
	3)	a)	S stands for  Direct Support System  Decade Support System	b) d)	Decision Support System All
	4)		System provides information	n abo	out the performance of the
		_	anization. Financial Management Management Information	b) d)	Decision Support none of the above
	5)		e information generally r		s to the top management
			ctions in a business organization. Tactical Operational	b) d)	Strategic Financial
	6)	a) c)	is one of the types of secur Resource Security Systems Domain Security Systems	ity. b) d)	Computer Security Systems All
	7)	Sta a) c)	ffing is behaviorally related to Organizing Managing	b) d)	Controlling Proceedings
	8)	Info a) c)	ormation refers to Process Task	b) d)	Event Data
	9)	Sys a) c)	stem is a group of elements organ Purpose Instruction	nized b) d)	with a Data Procedure

Set P

10)	Information systems that allow data to be shared throughout the organiza are called systems.					
	a) Unintegrated	b)	Integrated			
	c) Unrestricted	ď)	Bounded			
11)	Assembling a product, identifying c a .	ustom	ers and hiring employees is			
	a) Transaction	b)	Phases			
	c) Business Process	ď)	Business Function			
12)	EDP means					
	a) Electronic Data Predict	b)	Electronic Data Processing			
	c) Electronic Data Projection	d)	Electronic Data Process			
13)	If a university sets up a web-based access to record student grades ar example of a/an		•			
	a) CRM	b)	Intranet			
	c) ERP	d)	Extranet			
	,	,				
14)	Which one of the following is <b>not</b> o					
	a) C2B	b)	B2C			
	c) B2B	d)	C2C			

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Seat	Set	D
No.	Set	

		Computer Science and Engineering	
Day (	& Dat	MANAGEMENT INFORMATION SYSTEM te: Friday,22-11-2019 Max. Mark	s: 56
		30 PM To 05:30 PM	
Instr	uctio	<ul><li>2) All questions are compulsory.</li><li>2) Figures to the right indicates full marks.</li><li>3) Support your answers with neat block diagrams wherever required.</li></ul>	
		Section - I	
Q.2	Ans a)	ower any FOUR from the following questions.  Describe the impact of the Management Information System on the organization.	16
	b) c) d) e)	Explain Group Decision Support Systems (GDSS) in detail. Explain the concepts of strategic information system. Explain role of data in Information System. Clearly explain the overview of System Development Life Cycle.	
Q.3	a)	wer any TWO from the following questions.  How Decision Support System (DSS) helps in taking right decision? Write down the characteristics and benefits of DSS.	12
	b)	Explain the role of ESS (Executive Support System) in Organization. And write down the benefits of ESS.  What are the principle causes of Information System failure?	
		Section – II	
Q.4	a)	Explain Computer System Management in information systems resource management.	16
	b) c) d) e) f)	Define Security and Explain security concepts: Confidentiality, Integrity, and Availability.  Explain clearly what do you mean by Security Audit?  Explain about E-market in business organization.  Explain M-commerce.  What is ERP? Explain clearly by taking an example.	
Q.5	Ans a) b) c)	Explain E-commerce Business models.  Explain Business Process Re-engineering (BPR) in detail.  Write note on any two of the following.  i) Common ERP myths  ii) Supply Chain Management (SCM)  iii) Customer Relationship Management (CRM)	12

Seat	Sat	
No.	Set	Q

		Computer Science  MANAGEMENT INFO	e and	Engineering
•		e: Friday,22-11-2019 80 PM To 05:30 PM		Max. Marks: 70
Insti	uctio	<ul><li>ns: 1) Q. No. 1 is compulsory and s book.</li><li>2) Figures to the right indicates</li><li>3) Support your answers with n</li></ul>	full ma	
_		MCQ/Objective	Туре	
		30 Minutes		Marks: 14
Q.1		ose the correct alternatives from tence.	tne op	tions and rewrite the 14
	1)	Information refers to a) Process c) Task	b) d)	Event Data
	2)	System is a group of elements orgal Purpose c) Instruction	ganized b) d)	with a Data Procedure
	3)	Information systems that allow da are called systems. a) Unintegrated c) Unrestricted	ta to be b) d)	shared throughout the organization Integrated Bounded
	4)	Assembling a product, identifying a a) Transaction c) Business Process	custom b) d)	ers and hiring employees is  Phases  Business Function
	5)	EDP means a) Electronic Data Predict c) Electronic Data Projection	b) d)	Electronic Data Processing Electronic Data Process
	6)	If a university sets up a web-base access to record student grades a example of a/an  a) CRM c) ERP		
	7)	Which one of the following is <b>not</b> (a) C2B c) B2B	one of t b) d)	he major types of e-commerce? B2C C2C
	8)	The role of MIS in an organization in the body.  a) Brain c) Lever	can be b) d)	e compared to the role of Heart Stomach

Set Q

9)	The objective of the MIS is to provide the process of management.  a) Tool	b)	Goal
	c) decision	d)	Analysis
10)	DSS stands for a) Direct Support System c) Decade Support System	b) d)	Decision Support System All
11)	System provides information	on abo	out the performance of the
	organization. a) Financial Management c) Management Information	•	
12)	The information generally functions in a business organization		s to the top management
	<ul><li>a) Tactical</li><li>c) Operational</li></ul>	b) d)	Strategic Financial
13)	is one of the types of secu	rity.	
,	<ul><li>a) Resource Security Systems</li><li>c) Domain Security Systems</li></ul>	b)	Computer Security Systems All
14)	Staffing is behaviorally related to		_•
	a) Organizing	b)	Controlling
	c) Managing	d)	Proceedings

Seat	Set	
No.	Set	Q

### B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 **Computer Science and Engineering**

**MANAGEMENT INFORMATION SYSTEM** Day & Date: Friday, 22-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. 3) Support your answers with neat block diagrams wherever required. Section - I Answer any FOUR from the following questions. 16 Describe the impact of the Management Information System on the organization. Explain Group Decision Support Systems (GDSS) in detail. b) Explain the concepts of strategic information system. c) Explain role of data in Information System. d) Clearly explain the overview of System Development Life Cycle. e) Answer any TWO from the following questions. 12 Q.3 How Decision Support System (DSS) helps in taking right decision? Write down the characteristics and benefits of DSS. Explain the role of ESS (Executive Support System) in Organization. And b) write down the benefits of ESS. What are the principle causes of Information System failure? c) Section - II Answer any FOUR from the following questions. 16 Explain Computer System Management in information systems resource management. Define Security and Explain security concepts: Confidentiality, Integrity, b) and Availability. Explain clearly what do you mean by Security Audit? c) Explain about E-market in business organization. d) Explain M-commerce. e) What is ERP? Explain clearly by taking an example. Q.5 Answer any TWO from the following questions. 12 Explain E-commerce Business models. Explain Business Process Re-engineering (BPR) in detail. b) Write note on any two of the following. c) Common ERP myths i)

Supply Chain Management (SCM)

iii) Customer Relationship Management (CRM)

ii)

Seat	Set	D
No.	Set	K

		B.E. (Part - II) (CGPA) Exa		
		Computer Science		
_		MANAGEMENT INFOR	KIVIA	
		e: Friday,22-11-2019 DPM To 05:30 PM		Max. Marks: 70
Instr	uction	ns: 1) Q. No. 1 is compulsory and sho	ould b	e solved in first 30 minutes in answer
		<ul><li>2) Figures to the right indicates fu</li><li>3) Support your answers with near</li></ul>		
		MCQ/Objective Ty	vpe (	Questions
Dura	tion: 3	0 Minutes	, , ,	Marks: 14
Q.1		ose the correct alternatives from the	ne opt	tions and rewrite the 14
	1)	The information generally functions in a business organization		s to the top management
		<ul><li>a) Tactical</li><li>c) Operational</li></ul>	b) d)	Strategic Financial
	2)	<ul><li>is one of the types of secu</li><li>a) Resource Security Systems</li><li>bomain Security Systems</li></ul>	rity. b) d)	Computer Security Systems All
	3)	Staffing is behaviorally related to a) Organizing c) Managing	b) d)	 Controlling Proceedings
	4)	Information refers to a) Process c) Task	b) d)	Event Data
	5)	System is a group of elements orga a) Purpose c) Instruction	nized b) d)	with a Data Procedure
	6)	Information systems that allow data are called systems.  a) Unintegrated c) Unrestricted	to be b) d)	shared throughout the organization Integrated Bounded
	7)	Assembling a product, identifying cua  a) Transaction c) Business Process	b) d)	ers and hiring employees is  Phases  Business Function
	8)	EDP means  a) Electronic Data Predict c) Electronic Data Projection	b) d)	Electronic Data Processing Electronic Data Process

Set R

·			•
a) c)	CRM ERP	b) d)	Intranet Extranet
Wh a) c)	ich one of the following is <b>not</b> one C2B B2B	e of th b) d)	ne major types of e-commerce? B2C C2C
	he body.	an be	compared to the role of
a) c)	Brain Lever	b) d)	Heart Stomach
		e info	rmation for a support in
a)	Tool	b)	Goal
c)	decision	ď)	Analysis
DS	S stands for		
,	• • • • • • • • • • • • • • • • • • • •	b) d)	Decision Support System All
		n abo	out the performance of the
_		b)	Decision Support
c)	Management Information	ď)	none of the above
	accexa a) c) Wh a) c) The in the a) c) DS a) c) org a)	access to record student grades and example of a/an  a) CRM c) ERP  Which one of the following is <b>not</b> one a) C2B c) B2B  The role of MIS in an organization cain the body. a) Brain c) Lever  The objective of the MIS is to provide the process of management. a) Tool c) decision  DSS stands for a) Direct Support System c) Decade Support System c) System provides information organization. a) Financial Management	a) CRM c) ERP d)  Which one of the following is <b>not</b> one of that a) C2B c) B2B d)  The role of MIS in an organization can be in the body. a) Brain c) Lever d)  The objective of the MIS is to provide inforthe process of management. a) Tool c) decision b) c) decision d)  DSS stands for a) Direct Support System c) Decade Support System c) Decade Support System organization. a) Financial Management b)

Seat	Sat	D
No.	Set	K

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science and Engineering	
		MANAGEMENT INFORMATION SYSTEM	
•		re: Friday,22-11-2019 Max. Mark 30 PM To 05:30 PM	s: 56
Instr	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicates full marks.</li><li>3) Support your answers with neat block diagrams wherever required.</li></ul>	
		Section – I	
Q.2	Ans a)	wer any FOUR from the following questions.  Describe the impact of the Management Information System on the organization.	16
	b) c) d) e)	Explain Group Decision Support Systems (GDSS) in detail.  Explain the concepts of strategic information system.  Explain role of data in Information System.  Clearly explain the overview of System Development Life Cycle.	
Q.3	Ans a) b)	wer any TWO from the following questions.  How Decision Support System (DSS) helps in taking right decision? Write down the characteristics and benefits of DSS.  Explain the role of ESS (Executive Support System) in Organization. And	12
	c)	write down the benefits of ESS. What are the principle causes of Information System failure?	
		Section – II	
Q.4	a)	ewer any FOUR from the following questions.  Explain Computer System Management in information systems resource management.	16
	b) c) d) e) f)	Define Security and Explain security concepts: Confidentiality, Integrity, and Availability.  Explain clearly what do you mean by Security Audit?  Explain about E-market in business organization.  Explain M-commerce.  What is ERP? Explain clearly by taking an example.	
Q.5	Ans a) b) c)	wer any TWO from the following questions.  Explain E-commerce Business models.  Explain Business Process Re-engineering (BPR) in detail.  Write note on any two of the following.  i) Common ERP myths  ii) Supply Chain Management (SCM)  iii) Customer Relationship Management (CRM)	12

Seat	Sat	9
No.	Set	7

## B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science		
		e: Friday,22-11-2019 30 PM To 05:30 PM		Max. Marks: 70
Instr	uctio	<b>ns:</b> 1) Q. No. 1 is compulsory and s book.	hould b	be solved in first 30 minutes in answer
		<ul><li>2) Figures to the right indicates</li><li>3) Support your answers with no</li></ul>		
		MCQ/Objective	Туре	
Dura	ition: 3	30 Minutes		Marks: 14
Q.1		ose the correct alternatives from ence.	the op	tions and rewrite the 14
	1)		ta to be	shared throughout the organization
		<ul><li>a) Unintegrated</li><li>c) Unrestricted</li></ul>	b) d)	Integrated Bounded
	2)	Assembling a product, identifying a  a) Transaction	b)	Phases
	3)	c) Business Process EDP means	d)	Business Function
	3)	a) Electronic Data Predict     c) Electronic Data Projection	b) d)	Electronic Data Processing Electronic Data Process
	4)	If a university sets up a web-based access to record student grades a example of a/an  a) CRM c) ERP		
	5)	Which one of the following is <b>not</b> of	,	
	-,	a) C2B c) B2B	b) d)	B2C C2C
	6)	The role of MIS in an organization in the body.  a) Brain c) Lever	can be	heart stomach
	7)	The objective of the MIS is to prove the process of management.  a) Tool c) decision	ride info b) d)	ormation for a support in goal analysis
	8)	DSS stands for a) Direct Support System c) Decade Support System	b) d)	Decision Support System All

Set S

9)	out the performance of the			
	org	anization.		
	a)	Financial Management	b)	Decision Support
	c)	Management Information	d)	none of the above
10)	The	e information generally r	elates	s to the top management
	fun	ctions in a business organization.		
	a)	Tactical	b)	Strategic
	c)	Operational	d)	Financial
11)		is one of the types of secur	ity.	
,		Resource Security Systems	•	Computer Security Systems
	c)	Domain Security Systems	d)	All
12)	Sta	ffing is behaviorally related to		_•
,	a)	Organizing	b)	Controlling
	c)	Managing	d)	Proceedings
13)	Info	ormation refers to		
,	a)	Process	b)	Event
	c)	Task	d)	Data
14)	Sys	stem is a group of elements orgar	nized	with a
•	a)	Purpose	b)	Data
	c)	Instruction	d)	Procedure

Seat	
No.	

b)

c)

i)

ii)

### B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 **Computer Science and Engineering**

**MANAGEMENT INFORMATION SYSTEM** Day & Date: Friday, 22-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. 3) Support your answers with neat block diagrams wherever required. Section - I Answer any FOUR from the following questions. 16 Q.2 Describe the impact of the Management Information System on the organization. Explain Group Decision Support Systems (GDSS) in detail. b) Explain the concepts of strategic information system. c) Explain role of data in Information System. d) Clearly explain the overview of System Development Life Cycle. e) Answer any TWO from the following questions. 12 Q.3 How Decision Support System (DSS) helps in taking right decision? Write down the characteristics and benefits of DSS. Explain the role of ESS (Executive Support System) in Organization. And b) write down the benefits of ESS. What are the principle causes of Information System failure? c) Section - II Answer any FOUR from the following questions. 16 Explain Computer System Management in information systems resource management. Define Security and Explain security concepts: Confidentiality, Integrity, b) and Availability. Explain clearly what do you mean by Security Audit? c) Explain about E-market in business organization. d) Explain M-commerce. e) What is ERP? Explain clearly by taking an example. Q.5 Answer any TWO from the following questions. 12 Explain E-commerce Business models.

iii) Customer Relationship Management (CRM)

Supply Chain Management (SCM)

Write note on any two of the following.

Common ERP myths

Explain Business Process Re-engineering (BPR) in detail.

	_	
Seat	Set	D
No.	Sei	

		ı	Compute	GPA) Exami er Science & TION & CYB	k Er		
_			turday, 23-11-2019 I To 05:30 PM			Max. Marks	: 70
		ns: 1		•		be solved in first 30 minutes in	
			MCQ/	Objective Type	e Qu	estions	
Dura	tion: 3	30 Mii	nutes			Marks	: 14
Q.1	<b>Cho</b> 1)			ut production by	•	ons and rewrite the sentence. ch s -box in DES algorithm? 10 8	14
	2)	Wha a) c)	at is the ciphertext o zhzlppphhp zhzloophhw		' usii b) d)	ng Caesercipher assume k=3. zlzhoophhw zgzloopggu	
	3)	A a) c)	is a trusted thin KDC KDD		sign: b) d)	s a symmetric key to two parties.  CA  None of above	
	4)		ubstitution technique ne same length as th Hill Cipher One time pad	ne new messag		v message requires a new key known as Playfair Cipher Caesar Cipher	
	5)			eyond that norr		ver is assured that the message vexpected for network transit. Timestamp Sequence number	
	6)	In as a) b) c) d)	symmetric key crypt Sender Receiver Sender & Receive All the connected	r		e key is kept by	
	7)	Has a) c)	h function is Many to one Many to Many		b) d)	One to many One to one	
	8)		ne mode, IPS inal IP header. Transport AH	·	b)	ole IP packet, including the Tunnel ESP	
	9)		the cryptograp sage. IPSec TLS	-	and b) d)	secrets are sent with the  SSL PGP	

Set P

10)	In P a) c)	GP services, SHA-1 is used to ge 56 160	enera b) d)	te 64 256
11)	,	ancial motivation hacking coming Hungry for Recognition The insider	unde	
12)	ever a)	owing is the event dependent pro nt occur Logic Bomb Email Bombing	gram b) d)	executed only when certain Salami Trojan Horse
13)	Phis a) b) c) d)	shing execute following sequentia Planning, Collection, Setup, Atta Planning, Setup, Collection, Atta Planning, Setup, Attack, Collect Collection, Planning, Setup, Atta	ack ack ion	os
14)	coni a) c)	is a computer on a network whections with other computers on Proxy Server Both a & b		

	_	
Seat	Set	D
No.	Sei	

# B.E (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering INFORMATION & CYBER SECURITY	
		e: Saturday, 23-11-2019 Max. Marks 30 PM To 05:30 PM	: 56
Instru	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to right indicate full marks.</li></ul>	
		Section I	
Q.2	Atte a)	empt any three of the following questions.  What is difference between monoalphabetic cipher and polyalphabetic cipher?	12
	b) c) d) e)	Describe the cipher block chaining mode of block cipher.  Explain the public key distribution using public key authority.  Explain Caesar cipher with example.  Explain the model of network security with diagram.	
Q.3	Atternal	empt any two of the following questions.  Consider the Diffie- Hellman key exchange technique with a common prime $q=11$ and primitive root $\alpha=2$ .  1) Show that 2 is a primitive root of 11  2) If A has public key $Y_A=9$ , what is $X_A$ ?  3) If B has public key $Y_B=3$ , what is shared secret key? Explain the working of DES with diagram.  What is MAC? Explain three basic uses of Message authentication code.	16
	,	Section – II	
Q.4	Atte a) b) c)	empt any three of the following questions.  Explain SSL Record protocol with its operation.  Write note on S/MIME.  Define the term  1) E – mail bombing  2) Salami attack  3) Logic bomb  4) Data didding	12
	d) e)	What is phishing? Explain how it work. What is Buffer overflow and how to minimize it?	
Q.5	Atte a) b) c)	empt any two of the following questions.  What is SET? Explain SET Participant with diagram in detail.  What is DoS Attack? Explain the levels of DoS Attack.  What is ESP? Give the format of ESP packet and explain Transport and Tunnel mode of ESP.	16

	_	
Seat	Cat	
No.	Set	Q

		ŧ	B.E  (Part - II) (CGPA) Exa Computer Scienc		
			INFORMATION & C	YBER	SECURITY
-			turday, 23-11-2019 To 05:30 PM		Max. Marks: 70
Instr	uctio	ns: 1)		should	be solved in first 30 minutes in
		2	answer book.  Figures to right indicate full m	arke	
		۷,	MCQ/Objective 1		lestions
Dura	tion: 3	30 Mir		ype Qu	Marks: 14
Q.1	Cho	ose t	he correct alternatives from	the opti	ions and rewrite the sentence. 14
	1)	In th	e mode, IPSec protects nal IP header.	•	
		a) c)	Transport AH	b) d)	Tunnel ESP
	2)		the cryptographic algorith	ms and	secrets are sent with the
		mas a) c)	sage. IPSec TLS	b) d)	SSL PGP
	3)	In Po a) c)	GP services, SHA-1 is used to 56 160	generat b) d)	te <u>.</u> 64 256
	4)	Fina a) c)	ncial motivation hacking comin Hungry for Recognition The insider	ig undei b) d)	
	5)	Follo	owing is the event dependent p	rogram	executed only when certain
	ŕ	ever a) c)	nt occur Logic Bomb Email Bombing	b) d)	Salami Trojan Horse
	6)	Phis a) b) c) d)	hing execute following sequen Planning, Collection, Setup, A Planning, Setup, Collection, A Planning, Setup, Attack, Colle Collection, Planning, Setup, A	Attack Attack ection	S
	7)	conr a) c)	is a computer on a network nections with other computers or Proxy Server Both a & b		•
	8)	Wha a) c)	t is the size of output production  6  4	on by ea b) d)	nch s -box in DES algorithm? 10 8
	9)	Wha a) c)	t is the ciphertext of "we will m zhzlppphhp zhzloophhw	eet" usi b) d)	ng Caesercipher assume k=3. zlzhoophhw zgzloopggu

Set Q

10)	A a) c)	is a trusted third party that as KDC KDD	ssigns b) d)	a symmetric key to two parties. CA None of above
11)	of th a)	bstitution technique in which ever e same length as the new messa Hill Cipher One time pad	ge is k b)	9 .
12)	has a)	e message includes a the not been delayed beyond that not Shared Key  Error detection code	mally	
13)	a) b)	symmetric key cryptography, the p Sender Receiver Sender & Receiver All the connected device to netw		key is kept by
14)	Hasl a) c)	h function is Many to one Many to Many	b)	One to many One to one

Seat	Set	
No.	Set	Q

# B.E (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering INFORMATION & CYBER SECURITY	
•		e: Saturday, 23-11-2019 Max. Marks 0 PM To 05:30 PM	:: 56
Instru	ictio	ns: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section I	
Q.2	Atte a)	empt any three of the following questions.  What is difference between monoalphabetic cipher and polyalphabetic cipher?	12
	b) c) d) e)	Describe the cipher block chaining mode of block cipher.  Explain the public key distribution using public key authority.  Explain Caesar cipher with example.  Explain the model of network security with diagram.	
Q.3	Attea) b) c)	Empt any two of the following questions.  Consider the Diffie- Hellman key exchange technique with a common prime $q=11$ and primitive root $\alpha=2$ .  1) Show that 2 is a primitive root of 11  2) If A has public key $Y_A=9$ , what is $X_A$ ?  3) If B has public key $Y_B=3$ , what is shared secret key? Explain the working of DES with diagram.  What is MAC? Explain three basic uses of Message authentication code.	16
	C)	Section – II	
Q.4	Attera) b) c)	empt any three of the following questions.  Explain SSL Record protocol with its operation.  Write note on S/MIME.  Define the term  1) E – mail bombing  2) Salami attack  3) Logic bomb  4) Data didding  What is phishing? Explain how it work.	12
	e)	What is Buffer overflow and how to minimize it?	
Q.5	Atte a) b) c)	what is SET? Explain SET Participant with diagram in detail.  What is DoS Attack? Explain the levels of DoS Attack.  What is ESP? Give the format of ESP packet and explain Transport and Tunnel mode of ESP.	16

Seat	Set	Ь
No.	Set	K

			B.E(Part - II) (CGF Computer : INFORMATIO	Science &	En	ngineering	
			turday, 23-11-2019 I To 05:30 PM			Max. Marks	: 70
Insti	ructio		<ul><li>Q. No. 1 is compulso answer book.</li><li>Figures to right indica</li></ul>			be solved in first 30 minutes in	
				ective Type	Qu	iestions	
Dura	tion: (	30 Mii	nutes			Marks	: 14
Q.1	<b>Cho</b> 1)	If the	e message includes a	the rendered that norm b	cei	ons and rewrite the sentence. ver is assured that the message ver expected for network transit. Timestamp Sequence number	14
	2)	In as a) b) c) d)	symmetric key cryptogr Sender Receiver Sender & Receiver All the connected dev			e key is kept by	
	3)	Has a) c)	h function is Many to one Many to Many		o) d)	One to many One to one	
	4)		ne mode, IPSec inal IP header. Transport AH	b	)	ole IP packet, including the Tunnel ESP	
	5)	mas	the cryptographic sage. IPSec TLS	-	)	secrets are sent with the  SSL PGP	
	6)	In P a) c)	GP services, SHA-1 is 56 160	used to gene b	)	e 64 256	
	7)	Fina a) c)	ancial motivation hackir Hungry for Recognitio The insider	on b	der o) d)	• •	
	8)	evei a)	owing is the event depent occur  Logic Bomb  Email Bombing	b	am o)	executed only when certain  Salami  Troian Horse	

Set R

9)	Phis a) b) c) d)	hing execute following sequential Planning, Collection, Setup, Atta Planning, Setup, Collection, Atta Planning, Setup, Attack, Collecti Collection, Planning, Setup, Atta	ick ick on	S
10)	conr a) c)	is a computer on a network wh nections with other computers on Proxy Server Both a & b		
11)	Wha a) c)	at is the size of output production I 6 4	oy ea b) d)	ch s -box in DES algorithm? 10 8
12)	Wha a) c)	at is the ciphertext of "we will mee zhzlppphhp zhzloophhw	t" usir b) d)	ng Caesercipher assume k=3. zlzhoophhw zgzloopggu
13)	A a) c)	is a trusted third party that as KDC KDD	ssigns b) d)	s a symmetric key to two parties. CA None of above
14)		bstitution technique in which ever e same length as the new messa Hill Cipher One time pad	•	• .

Seat	Set	Р
No.	Set	K

# B.E (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering INFORMATION & CYBER SECURITY	
		e: Saturday, 23-11-2019 Max. Marks: 0 PM To 05:30 PM	: 56
Instru	ictio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to right indicate full marks.</li></ul>	
		Section I	
Q.2	Atte a)	empt any three of the following questions.  What is difference between monoalphabetic cipher and polyalphabetic cipher?	12
	b) c) d) e)	Describe the cipher block chaining mode of block cipher.  Explain the public key distribution using public key authority.  Explain Caesar cipher with example.  Explain the model of network security with diagram.	
Q.3	Attera) b) c)	Empt any two of the following questions.  Consider the Diffie- Hellman key exchange technique with a common prime $q=11$ and primitive root $\alpha=2$ .  1) Show that 2 is a primitive root of 11  2) If A has public key $Y_A=9$ , what is $X_A$ ?  3) If B has public key $Y_B=3$ , what is shared secret key? Explain the working of DES with diagram.  What is MAC? Explain three basic uses of Message authentication code.	16
	•,	Section – II	
Q.4	a) b) c)	empt any three of the following questions.  Explain SSL Record protocol with its operation.  Write note on S/MIME.  Define the term  1) E – mail bombing  2) Salami attack  3) Logic bomb  4) Data didding	12
	d) e)	What is phishing? Explain how it work. What is Buffer overflow and how to minimize it?	
Q.5	•	empt any two of the following questions.  What is SET? Explain SET Participant with diagram in detail.  What is DoS Attack? Explain the levels of DoS Attack.  What is ESP? Give the format of ESP packet and explain Transport and Tunnel mode of ESP.	16

	<u></u>	
Seat	Set	C
No.	Set	3

		ı	3.E  (Part - II) (CGPA) Exar Computer Science	& Er	ngineering
			INFORMATION & CY	BER	RSECURITY
			turday, 23-11-2019 To 05:30 PM		Max. Marks: 70
Instr	uctio	ns: 1)	Q. No. 1 is compulsory and it s	hould	be solved in first 30 minutes in
		0	answer book.		
		2	) Figures to right indicate full ma		
Dura	tion: (	30 Mir	MCQ/Objective Ty nutes	pe Qı	uestions Marks: 14
Q.1				e opt	ions and rewrite the sentence. 14
	1)		GP services, SHA-1 is used to g	_	
		a)	56	p)	64
	٥)	c)	160	d)	256
	2)	rina a)	ncial motivation hacking coming Hungry for Recognition	unae b)	• •
		c)	The insider	d)	The Outsider
	3)	Follo	owing is the event dependent pro	gram	executed only when certain
			nt occur	b)	Salami
		a) c)	Logic Bomb Email Bombing	d)	Trojan Horse
	4)	,	hing execute following sequentia	al step	•
	,	a)	Planning, Collection, Setup, Att	ack	
		b) c)	Planning, Setup, Collection, Att Planning, Setup, Attack, Collection		
		d)	Collection, Planning, Setup, Att		
	5)		is a computer on a network w	hich a	ct as an intermediary for
			nections with other computers or		
		a) c)	Proxy Server Both a & b	b) d)	Anonymizer Neither a nor b
	6)	•	at is the size of output production	,	
	,	a)	6	b)	10
		c)	4	d)	8
	7)	Wha a)	at is the ciphertext of "we will mee zhzlppphhp	et" usi b)	•
		c)	zhzloophhw	d)	zgzloopggu
	8)	Α	is a trusted third party that a	assign	is a symmetric key to two parties.
	-	a)	KDC	b)	CA
	- \	c)	KDD	d)	None of above
	9)		bstitution technique in which even e same length as the new mess	•	• •
		a)	Hill Cipher	b)	Playfair Cipher
		c)	One time pad	d)	Caesar Cipher

Set S

10)		the receiver is assured that the message normally expected for network transit. b) Timestamp d) Sequence number
11)	In asymmetric key cryptography, t a) Sender b) Receiver c) Sender & Receiver d) All the connected device to r	
12)	Hash function is a) Many to one c) Many to Many	b) One to many d) One to one
13)	In the mode, IPSec protect original IP header. a) Transport c) AH	s the whole IP packet, including the b) Tunnel d) ESP
14)	In the cryptographic algorit massage. a) IPSec c) TLS	hms and secrets are sent with the  b) SSL d) PGP

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# B.E (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering INFORMATION & CYBER SECURITY	
		e: Saturday, 23-11-2019 Max. Marks 0 PM To 05:30 PM	s: 56
Instru	ıctio	ns: 1) All questions are compulsory.  2) Figures to right indicate full marks.	
		Section I	
Q.2	Atte a)	empt any three of the following questions.  What is difference between monoalphabetic cipher and polyalphabetic cipher?	12
	b) c) d) e)	Describe the cipher block chaining mode of block cipher.  Explain the public key distribution using public key authority.  Explain Caesar cipher with example.  Explain the model of network security with diagram.	
Q.3	Attea)	Empt any two of the following questions.  Consider the Diffie- Hellman key exchange technique with a common prime $q = 11$ and primitive root $\alpha = 2$ .  1) Show that 2 is a primitive root of 11  2) If A has public key $Y_A = 9$ , what is $X_A$ ?  3) If B has public key $Y_B = 3$ , what is shared secret key? Explain the working of DES with diagram.	16
	c)	What is MAC? Explain three basic uses of Message authentication code.	
		Section – II	
Q.4	a) b) c)	Empt any three of the following questions.  Explain SSL Record protocol with its operation.  Write note on S/MIME.  Define the term  1) E – mail bombing  2) Salami attack  3) Logic bomb  4) Data didding	12
	d) e)	What is phishing? Explain how it work. What is Buffer overflow and how to minimize it?	
Q.5	•	empt any two of the following questions.  What is SET? Explain SET Participant with diagram in detail.  What is DoS Attack? Explain the levels of DoS Attack.  What is ESP? Give the format of ESP packet and explain Transport and Tunnel mode of ESP.	16

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Seat	Sat	D
No.	Set	

			B.E. (Part - II) (CGPA) Exam Computer Science & DATA WAREHOUSI	k En	gineering	
-			onday, 25-11-2019 /I To 05:30 PM		Ma	x. Marks: 70
Instr	uctior		) Q. No. 1 is compulsory and shou answer book. 2) Figures to the right indicate full m			s in
			MCQ/Objective Typ	e Q	uestions	
	tion: 3					Marks: 14
Q.1	Choo		the correct alternatives from the	opti	ons and rewrite the	14
	1)		nich of the following is not data mini Classification Clustering	ng ta b) d)		J
	2)		data mining output is precise. True	b)	False	
	3)	In _ a) c)	groups are not predefined. Classification Association	b) d)	Clustering None of the above	
	4)	"Fir a) c)	nd the hotels near CST Railway Sta Spatial Data Stream Query	b)	' is a type of query Temporal Graph Query	/.
	5)	Bin a) c)	ning is the method for handling Missing data Data reduction	b) d)	Noisy data Outliers	
	6)	a) b) c) d)	is an approach to handle missing lignore the missing value Assume a value for missing data Fill missing value manually All the above	ng da	ata.	
	7)		e "IF" - part of a rule is known as Rule Antecedent Action		Rule Consequent None of these	
	8)		kt data is unstructured data. True	b)	False	
	9)	Ful a) b) c) d)	I form of SPADE is  Sequential Pattern Discovery using Serial Pattern Discovery using Eq Sequence Pattern Disclosure using None	ual (	Closure	
	10)	Sea a) c)	asonal Movements can he found ou Spatial Temporal	ut fro b) d)	m data. Transaction data None	

Set P

11)	is a spatial database primitive.				
,	a)	South	b)	Near	
	c)	North	ď)	All of the above	
12)	Wir	eless Sensor Data is a type	of d	ata.	
	a)	Temporal	b)	Stream	
	c)	Time series	d)	Web data	
13)	KN	N algorithm is also called as			
,		Fast learning algorithm	b)	Slow learning algorithm	
	,	Lazy Learner algorithm	ď)	None of the above	
14)	Frequent item sets means the item sets whose number of occurrences				
	are				
	a)	Equal or Above a threshold	b)	Below threshold	
	c)	Exactly threshold	ď)	None of the above	

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### B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DATA WAREHOUSING & MINING** Day & Date: Monday, 25-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Q.2 Answer any three of the following. 12 a) Explain difference OLTP and OLAP. **b)** What are different issues in KDD? c) What is difference between Classification and Clustering? d) What are different OLAP operations? Explain. Solve any one of the following. 80 a) Explain classification by decision tree induction b) Explain data warehouse as a multi-tiered architecture with diagram. **Q.4** Explain Naive Bays Classification method with example. 80 Section - II Q.5 Answer any three of the following. 12 a) Explain MST partitional clustering algorithm. b) Write a note on Spatial data mining and its primitives. c) Write a note on stream data mining. d) Write a note on Text Mining and its applications. solve any one of the Following 80 a) Explain web content mining and web usage mining. b) What do you mean by time series database and explain applications of time series mining. Explain dendrogram data structure and what is the use of dendrogram in Q.7 80 agglomerative algorithms?

Seat No.	Set	Q

B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering DATA WAREHOUSING & MINING** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book. 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Q.1 Choose the correct alternatives from the options and rewrite the 14 1) Text data is unstructured data. a) True b) False Full form of SPADE is \_\_\_\_ 2) a) Sequential Pattern Discovery using Equivalence Classes b) Serial Pattern Discovery using Equal Closure c) Sequence Pattern Disclosure using Equal Classes d) None Seasonal Movements can be found out from data. 3) a) Spatial b) Transaction data c) Temporal d) None is a spatial database primitive. 4) a) South b) Near c) North d) All of the above Wireless Sensor Data is a \_\_\_\_\_ type of data. 5) a) Temporal b) Stream c) Time series d) Web data KNN algorithm is also called as \_\_\_\_\_. 6) a) Fast learning algorithm b) Slow learning algorithm c) Lazy Learner algorithm d) None of the above 7) Frequent item sets means the item sets whose number of occurrences a) Equal or Above a threshold b) Below threshold c) Exactly threshold d) None of the above 8) Which of the following is not data mining task? a) Classification b) SQL query c) Clustering d) Association Rule Mining In data mining output is precise. 9) a) True b) False 10) In \_\_\_\_\_ groups are not predefined. a) Classification b) Clustering c) Association d) None of the above

## Set Q

11)	"Find the hotels near CST Railway Sta	ition'	' is a type of query.
	a) Spatial	b)	Temporal
	c) Data Stream Query	d)	Graph Query
12)	Binning is the method for handling a) Missing data c) Data reduction	b) d)	Noisy data Outliers
13)	is an approach to handle missing a) Ignore the missing value b) Assume a value for missing data c) Fill missing value manually d) All the above	ng da	ata.
14)	The "IF" - part of a rule is known as a) Rule Antecedent c) Action	b)	Rule Consequent  None of these

Seat	Set	$\mathbf{\cap}$
No.	Set	Q

### B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DATA WAREHOUSING & MINING** Day & Date: Monday, 25-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Q.2 Answer any three of the following. 12 a) Explain difference OLTP and OLAP. **b)** What are different issues in KDD? c) What is difference between Classification and Clustering? d) What are different OLAP operations? Explain. Solve any one of the following. 80 a) Explain classification by decision tree induction b) Explain data warehouse as a multi-tiered architecture with diagram. **Q.4** Explain Naive Bays Classification method with example. 80 Section - II Q.5 Answer any three of the following. 12 a) Explain MST partitional clustering algorithm. b) Write a note on Spatial data mining and its primitives. c) Write a note on stream data mining. d) Write a note on Text Mining and its applications. solve any one of the Following 80 a) Explain web content mining and web usage mining. b) What do you mean by time series database and explain applications of time series mining. Q.7 Explain dendrogram data structure and what is the use of dendrogram in 80 agglomerative algorithms?

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### B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DATA WAREHOUSING & MINING** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book. 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Q.1 Choose the correct alternatives from the options and rewrite the 14 1) Binning is the method for handling \_\_\_ a) Missing data b) Noisy data c) Data reduction d) Outliers 2) \_\_\_\_\_ is an approach to handle missing data. a) Ignore the missing value b) Assume a value for missing data c) Fill missing value manually d) All the above The "IF" - part of a rule is known as \_ 3) a) Rule Antecedent b) Rule Consequent c) Action d) None of these 4) Text data is unstructured data. a) True b) False 5) Full form of SPADE is \_\_\_\_\_. a) Sequential Pattern Discovery using Equivalence Classes b) Serial Pattern Discovery using Equal Closure c) Sequence Pattern Disclosure using Equal Classes d) None 6) Seasonal Movements can he found out from \_\_\_\_\_ data. a) Spatial b) Transaction data c) Temporal d) None 7) \_\_\_ is a spatial database primitive. a) South b) Near c) North d) All of the above Wireless Sensor Data is a \_\_\_\_\_ type of data. 8) a) Temporal b) Stream c) Time series d) Web data KNN algorithm is also called as \_\_\_\_\_. 9) b) Slow learning algorithm a) Fast learning algorithm d) None of the above c) Lazy Learner algorithm

Set R

10)	Frequent item sets means the item sets whose number of occurrences are .			
	a) Equal or Above a threshold c) Exactly threshold	b) d)	Below threshold None of the above	
11)	Which of the following is not data minima) Classification	ng ta b)	isk? SQL query	
	c) Clustering	d)	Association Rule Mining	
12)	In data mining output is precise. a) True	b)	False	
13)	In groups are not predefined.			
	a) Classification	b)	Clustering	
	c) Association	d)	None of the above	
14)	"Find the hotels near CST Railway Station" is a type of query.			
	a) Spatial	b)	Temporal	
	c) Data Stream Query	d)	Graph Query	

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## B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DATA WAREHOUSING & MINING** Day & Date: Monday, 25-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Q.2 Answer any three of the following. 12 a) Explain difference OLTP and OLAP. **b)** What are different issues in KDD? c) What is difference between Classification and Clustering? d) What are different OLAP operations? Explain. Solve any one of the following. 80 a) Explain classification by decision tree induction b) Explain data warehouse as a multi-tiered architecture with diagram. **Q.4** Explain Naive Bays Classification method with example. 80 Section - II Q.5 Answer any three of the following. 12 a) Explain MST partitional clustering algorithm. b) Write a note on Spatial data mining and its primitives. c) Write a note on stream data mining. d) Write a note on Text Mining and its applications. solve any one of the Following 80 a) Explain web content mining and web usage mining. b) What do you mean by time series database and explain applications of time series mining. Explain dendrogram data structure and what is the use of dendrogram in Q.7 80 agglomerative algorithms?

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## B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DATA WAREHOUSING & MINING** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book. 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the Q.1 14 1) Seasonal Movements can he found out from \_\_\_\_\_ data. a) Spatial b) Transaction data c) Temporal None \_\_\_\_\_ is a spatial database primitive. 2) a) South b) Near c) North d) All of the above Wireless Sensor Data is a \_\_\_\_\_ type of data. 3) a) Temporal b) Stream c) Time series d) Web data KNN algorithm is also called as \_\_\_ 4) a) Fast learning algorithm b) Slow learning algorithm c) Lazy Learner algorithm d) None of the above 5) Frequent item sets means the item sets whose number of occurrences a) Equal or Above a threshold b) Below threshold c) Exactly threshold d) None of the above Which of the following is not data mining task? 6) a) Classification b) SQL query c) Clustering d) Association Rule Mining In data mining output is precise. 7) a) True b) False 8) In \_\_\_\_\_ groups are not predefined. a) Classification b) Clustering c) Association d) None of the above "Find the hotels near CST Railway Station" is a \_\_\_\_\_ type of query. 9) a) Spatial b) Temporal c) Data Stream Query d) Graph Query 10) Binning is the method for handling \_\_\_ a) Missing data b) Noisy data c) Data reduction d) Outliers

Set S

11)	a) b) c) d)	is an approach to handle missing lgnore the missing value Assume a value for missing data Fill missing value manually All the above	ng da	ata.
12)	The a) c)	e "IF" - part of a rule is known as _ Rule Antecedent Action	b) d)	Rule Consequent None of these
13)	Tex a)	kt data is unstructured data. True	b)	False
14)	Ful a) b) c) d)	I form of SPADE is Sequential Pattern Discovery using Serial Pattern Discovery using Eq Sequence Pattern Disclosure using None	ual (	Closure

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## B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DATA WAREHOUSING & MINING** Day & Date: Monday, 25-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Q.2 Answer any three of the following. 12 a) Explain difference OLTP and OLAP. **b)** What are different issues in KDD? c) What is difference between Classification and Clustering? d) What are different OLAP operations? Explain. Solve any one of the following. 80 a) Explain classification by decision tree induction b) Explain data warehouse as a multi-tiered architecture with diagram. **Q.4** Explain Naive Bays Classification method with example. 80 Section - II Q.5 Answer any three of the following. 12 a) Explain MST partitional clustering algorithm. b) Write a note on Spatial data mining and its primitives. c) Write a note on stream data mining. d) Write a note on Text Mining and its applications. solve any one of the Following 80 a) Explain web content mining and web usage mining. b) What do you mean by time series database and explain applications of time series mining. **Q.7** Explain dendrogram data structure and what is the use of dendrogram in 80 agglomerative algorithms?

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## B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**IMAGE PROCESSING** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the sentence. Q.1 14 The transition between continuous values of the image function and its digital equivalent is called \_\_\_\_\_. quantization b) enhancement a) coloring d) none of above c) 2) An edge is a local property of a pixel and it tells us how fast the image intensity varies in a small neighborhood of a pixel. False a) b) True d) None of above Can't Say c) The provides a natural bridge between images and a probabilistic 3) description. It also has many local minima and maxima, which may complicate its further processing. Histogram b) Fractals a) Color d) Border c) 4) Gray scale transformation do not depend on the \_\_\_\_\_ of the pixel in the image. a) Color b) Position c) Threshold d) None of above 5) \_\_\_\_ transformation maps the coordinates of the input image pixel to the point in the output image. b) Pixel coordinate **Brightness** a) Interpolation d) all One of the pre-processing method which is based on local derivatives of 6) the image function is gradient operators smoothing a) b) interpolation c) d) all 7) Edge \_\_\_\_\_ is an interactive method, with edge confidences converging either zero (edge termination) or one (the edge forms a border). relaxation b) sectioning d) c) trapping all The DFT and unitary DFT of dimension N can be implemented by a fast 8) algorithm in \_\_\_\_\_ operations. a) O (N) b)  $O(N \log_2 N)$ 

d) None of above

 $O(log_2 N)$ 

c)

Set P

9)	high	Hadamard transform has good to valy correlated images.  True  Can't Say	b) d)	good energy compaction for  False  None of the above
10)	Fide	elity Criteria having two types, object lity criteria.	,	
	a) c)	image subjective	b) d)	color adjective
11)	deco	ge compression defines pro- compressing images that is for reduc- esent image.		
	a) c)	Model Containers	b) d)	Standard None of above
12)		egion based representation, ing, translation, rotation and even of Convex hull Chain codes		
13)	the	gion R is if and only if for an whole line segment x1x2 defined by on R.	-	•
	a) c)	convex plain codes	b) d)	moments compression
14)	Whie	ch of the following method is used chain codes Fragmentation	in co b) d)	•

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Seat	Set	D
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	Computer Science & Engineering	
	IMAGE PROCESSING	
-	& Date: Monday, 25-11-2019 Max. Marl e: 02:30 PM To 05:30 PM	ks: 56
Instr	ructions: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
	Section – I	
Q.2	<ul> <li>Attempt any three:</li> <li>a) What is Edge Relaxation? Explain with diagram and example.</li> <li>b) Describe the use of Edge detectors.</li> <li>c) What is image? Give mathematical representation of image.</li> <li>d) Write a note on: brightness correction</li> </ul>	12
Q.3	<ul> <li>Attempt any two:</li> <li>a) What is Image Splitting and Merging? Write and explain split and merge algorithm. Explain it with example.</li> <li>b) What is image restoration? Explain Inverse and Wiener filtration.</li> <li>c) Describe the following Digital image properties: <ol> <li>brightness</li> <li>segmentation</li> <li>region</li> <li>border</li> </ol> </li> </ul>	16
	Section – II	
Q.4	<ul> <li>Attempt any three:</li> <li>a) Describe properties of 2D DFT</li> <li>b) Write a note on: Region Identification</li> <li>c) Describe chain codes used in contour based representation.</li> <li>d) Describe error free compression.</li> </ul>	12
Q.5	<ul> <li>Attempt any two</li> <li>a) Explain following methods of Region based representation <ol> <li>moments</li> <li>convex hull</li> </ol> </li> <li>b) Describe Discrete Cosine Transform (DST) in detail.</li> <li>c) What is image compression? Explain any two methods of image compression with the help of its algorithm and example.</li> </ul>	16

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Seat	Set	O
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# B F (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science	ce & En	gineering
Dov	9 Doto	IMAGE PR	OCESSI	Max. Marks: 70
•		e: Monday, 25-11-2019 0 PM To 05:30 PM		Max. Marks. 70
Instr	uction	ns: 1) Q. No. 1 is compulsory and s	should be	solved in first 30 minutes in answer
		2) Figures to the right indicate f	ull marks.	
		MCQ/Objective	Type Qı	uestions
Dura	tion: 3	0 Minutes	•	Marks: 14
Q.1	<b>Choo</b> 1)	The DFT and unitary DFT of dime algorithm in operations.  a) O(N)	•	an be implemented by a fast
		c) O (log <sub>2</sub> N)	d)	None of above
	2)	The Hadamard transform has goo highly correlated images.	d to very	good energy compaction for
		a) True	b)	False
		c) Can't Say	d)	None of the above
	3)	Fidelity Criteria having two types, fidelity criteria.	objective b)	fidelity criteria and color
		<ul><li>a) image</li><li>c) subjective</li></ul>	d)	adjective
	4)	Image compression define decompressing images that is for represent image.  a) Model c) Containers		
	5)	In region based representation, _ scaling, translation, rotation and e a) Convex hull c) Chain codes		\' '' '' '
	6)	A region R is if and only if the whole line segment x1x2 defining region R.  a) convex c) plain codes	•	
	7)	Which of the following method is a chain codes c) Fragmentation	,	•
	8)	The transition between continuous digital equivalent is called  a) quantization c) coloring	s values o b) d)	of the image function and its enhancement none of above

## Set Q

9)		edge is a local property of a pixel an nsity varies in a small neighborhood False Can't Say	d of a	•
10)	desc	provides a natural bridge be cription. It also has many local mini plicate its further processing.		
	a) c)	Histogram Color	b) d)	Fractals Border
11)	Gray imag	y scale transformation do not depe ge.	nd o	n the of the pixel in the
	a) c)	Color Threshold	b) d)	
12)		transformation maps the coordir coint in the output image.	ates	s of the input image pixel to
	,	Brightness Interpolation	b) d)	Pixel coordinate all
13)		of the pre-processing method whice mage function is	ch is	based on local derivatives of
	,	gradient operators interpolation	b) d)	smoothing all
14)	_	e is an interactive method, ver zero (edge termination) or one (to relaxation trapping		dge forms a border).

Seat	Set	
No.	Set	Q

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

	Computer Colones 9 Engineering	
	Computer Science & Engineering IMAGE PROCESSING	
•	& Date: Monday, 25-11-2019 Max. Mark e: 02:30 PM To 05:30 PM	s: 56
Instr	ructions: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
	Section – I	
Q.2	<ul> <li>Attempt any three:</li> <li>a) What is Edge Relaxation? Explain with diagram and example.</li> <li>b) Describe the use of Edge detectors.</li> <li>c) What is image? Give mathematical representation of image.</li> <li>d) Write a note on: brightness correction</li> </ul>	12
Q.3	<ul> <li>Attempt any two:</li> <li>a) What is Image Splitting and Merging? Write and explain split and merge algorithm. Explain it with example.</li> <li>b) What is image restoration? Explain Inverse and Wiener filtration.</li> <li>c) Describe the following Digital image properties: <ol> <li>brightness</li> <li>segmentation</li> <li>region</li> <li>border</li> </ol> </li> </ul>	16
	Section – II	
Q.4	<ul> <li>Attempt any three:</li> <li>a) Describe properties of 2D DFT</li> <li>b) Write a note on: Region Identification</li> <li>c) Describe chain codes used in contour based representation.</li> <li>d) Describe error free compression.</li> </ul>	12
Q.5	<ul> <li>Attempt any two</li> <li>a) Explain following methods of Region based representation <ol> <li>moments</li> <li>convex hull</li> </ol> </li> <li>b) Describe Discrete Cosine Transform (DST) in detail.</li> <li>c) What is image compression? Explain any two methods of image</li> </ul>	16
	compression with the help of its algorithm and example.	

## B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**IMAGE PROCESSING** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Choose the correct alternatives from the options and rewrite the sentence. **Q.1** 14 transformation maps the coordinates of the input image pixel to the point in the output image. **Brightness** b) Pixel coordinate a) Interpolation d) all c) One of the pre-processing method which is based on local derivatives of 2) the image function is gradient operators b) smoothing interpolation d) all c) Edge is an interactive method, with edge confidences converging 3) either zero (edge termination) or one (the edge forms a border). relaxation b) sectioning a) d) c) trapping all 4) The DFT and unitary DFT of dimension N can be implemented by a fast algorithm in operations. b) O (N log<sub>2</sub> N) a) O (N) d) None of above c)  $O(log_2 N)$ 5) The Hadamard transform has good to very good energy compaction for highly correlated images. True a) b) False d) None of the above c) Can't Say 6) Fidelity Criteria having two types, objective fidelity criteria and \_\_\_\_\_ fidelity criteria. a) image b) color subjective d) adjective c) Image compression defines procedures for compressing and 7) decompressing images that is for reducing the amount of data needed to represent image. a) Model b) Standard c) Containers d) None of above In region based representation, \_\_\_\_\_ of order(p + q) is dependent on 8) scaling, translation, rotation and even on gray-level transformations.

b) Moments

d) Compression

a) Convex hull

Chain codes

c)

Set R

<ol> <li>A region R is if and only if for any two points x' the whole line segment x1x2 defined by its end points region R.</li> </ol>				
	a) c)	convex plain codes	b) d)	moments compression
10)	Whice a) c)	ch of the following method is used i chain codes Fragmentation	n co b) d)	B-spline orientation
11)		transition between continuous valual equivalent is called quantization	ies c	_
	c)	coloring	ď)	none of above
12)		edge is a local property of a pixel arnsity varies in a small neighborhood False Can't Say	d of a	a pixel. True
13)	desc	provides a natural bridge be cription. It also has many local mini plicate its further processing. Histogram	ma a b)	and maxima, which may Fractals
	c)	Color	d)	Border
14)	Gray imag	/ scale transformation do not depei ge.	nd o	n the of the pixel in the
	a)	Color	b)	Position
	c)	Threshold	d)	None of above

Seat No.		Set	R
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# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

		B.E. (Fait II) (OCI A) Examination NOVIDEC 2013	,
		Computer Science & Engineering	
		IMAGE PROCESSING	
•		ate: Monday, 25-11-2019 :30 PM To 05:30 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	a) b)	empt any three: What is Edge Relaxation? Explain with diagram and example. Describe the use of Edge detectors. What is image? Give mathematical representation of image. Write a note on: brightness correction	12
Q.3	Att a)	<ul> <li>empt any two:</li> <li>What is Image Splitting and Merging? Write and explain split and algorithm. Explain it with example.</li> <li>What is image restoration? Explain Inverse and Wiener filtration.</li> <li>Describe the following Digital image properties:</li> <li>1) brightness</li> <li>2) segmentation</li> </ul>	16 merge
		3) region 4) border  Section – II	
<b>.</b> .	<b>A</b> 44		40
Q.4	a) b) c) d)	empt any three: Describe properties of 2D DFT Write a note on: Region Identification Describe chain codes used in contour based representation. Describe error free compression.	12
Q.5		empt any two Explain following methods of Region based representation 1) moments 2) convex hull	16
	b) c)	Describe Discrete Cosine Transform (DST) in detail. What is image compression? Explain any two methods of image compression with the help of its algorithm and example.	

Seat		
No.	Set	S

## B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**IMAGE PROCESSING** Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 **Q.1** Choose the correct alternatives from the options and rewrite the sentence. 14 Fidelity Criteria having two types, objective fidelity criteria and \_\_\_\_\_ fidelity criteria. a) image b) color d) adjective subjective c) 2) Image compression \_\_\_\_\_ defines procedures for compressing and decompressing images that is for reducing the amount of data needed to represent image. a) Model b) Standard c) Containers d) None of above In region based representation, \_\_\_\_\_ of order(p + q) is dependent on 3) scaling, translation, rotation and even on gray-level transformations. Convex hull b) Moments a) c) Chain codes d) Compression A region R is \_\_\_\_\_ if and only if for any two points x1, x2 belongs to R, 4) the whole line segment x1x2 defined by its end points x1, x2 is inside the region R. a) convex b) moments plain codes d) compression c) 5) Which of the following method is used in contour representation? chain codes b) B-spline orientation a) Fragmentation d) Both a and b 6) The transition between continuous values of the image function and its digital equivalent is called \_\_\_\_\_. quantization a) b) enhancement coloring d) none of above c) An edge is a local property of a pixel and it tells us how fast the image 7) intensity varies in a small neighborhood of a pixel. b) True a) **False** d) None of above Can't Say c) The \_\_\_\_\_ provides a natural bridge between images and a probabilistic 8) description. It also has many local minima and maxima, which may

b) Fractals

d) Border

complicate its further processing.

Histogram

Color

a)

c)

Set S

image.	ena o	n the of the pixel in the
	b)	Position
c) Threshold	ď)	
transformation maps the coord the point in the output image.	inates	s of the input image pixel to
a) Brightness	b)	Pixel coordinate
c) Interpolation	ď)	all
One of the pre-processing method whethe image function is	ich is	based on local derivatives of
<ul><li>a) gradient operators</li></ul>	b)	smoothing
c) interpolation	d)	all
Edge is an interactive method	with a	edae confidences convergina
either zero (edge termination) or one a) relaxation c) trapping	(the e	
either zero (edge termination) or one a) relaxation	(the e b) d)	dge forms a border). sectioning all
either zero (edge termination) or one a) relaxation c) trapping The DFT and unitary DFT of dimension	(the e b) d) on N c	dge forms a border). sectioning all
either zero (edge termination) or one a) relaxation c) trapping The DFT and unitary DFT of dimensional algorithm in operations.	(the e b) d) on N c b)	edge forms a border). sectioning all can be implemented by a fast
either zero (edge termination) or one a) relaxation c) trapping The DFT and unitary DFT of dimensional algorithm in operations. a) O(N)	(the eb) d) on N co b) d)	odge forms a border). sectioning all can be implemented by a fast O (N log <sub>2</sub> N) None of above
either zero (edge termination) or one a) relaxation c) trapping The DFT and unitary DFT of dimensional distributions algorithm in operations. a) O (N) c) O (log <sub>2</sub> N) The Hadamard transform has good to	(the eb) d) on N co b) d)	odge forms a border). sectioning all can be implemented by a fast O (N log <sub>2</sub> N) None of above
	a) Color c) Threshold transformation maps the coord the point in the output image. a) Brightness c) Interpolation One of the pre-processing method where the image function is a) gradient operators c) interpolation	a) Color b) c) Threshold d)  transformation maps the coordinates the point in the output image. a) Brightness b) c) Interpolation d)  One of the pre-processing method which is the image function is a) gradient operators b)

Seat	Set	9
No.	Set	3

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

Computer Science & Engineering IMAGE PROCESSING  & Date: Monday, 25-11-2019  Exercise 20:30 PM To 05:30 PM  Exercise 31) All questions are compulsory.  2) Figures to right indicate full marks.	. Marks: 56
e: 02:30 PM To 05:30 PM ructions: 1) All questions are compulsory.	. Marks: 56
, , ,	
Section – I	
<ul> <li>Attempt any three:</li> <li>a) What is Edge Relaxation? Explain with diagram and example.</li> <li>b) Describe the use of Edge detectors.</li> <li>c) What is image? Give mathematical representation of image.</li> <li>d) Write a note on: brightness correction</li> </ul>	12
<ul> <li>Attempt any two:</li> <li>a) What is Image Splitting and Merging? Write and explain split and merging algorithm. Explain it with example.</li> <li>b) What is image restoration? Explain Inverse and Wiener filtration.</li> <li>c) Describe the following Digital image properties: <ol> <li>brightness</li> <li>segmentation</li> <li>region</li> <li>border</li> </ol> </li> </ul>	<b>16</b> je
Section – II	
<ul> <li>Attempt any three:</li> <li>a) Describe properties of 2D DFT</li> <li>b) Write a note on: Region Identification</li> <li>c) Describe chain codes used in contour based representation.</li> <li>d) Describe error free compression.</li> </ul>	12
<ul> <li>Attempt any two</li> <li>a) Explain following methods of Region based representation <ol> <li>moments</li> <li>convex hull</li> </ol> </li> <li>b) Describe Discrete Cosine Transform (DST) in detail.</li> <li>c) What is image compression? Explain any two methods of image</li> </ul>	16
	2) Figures to right indicate full marks.  Section – I  Attempt any three:  a) What is Edge Relaxation? Explain with diagram and example. b) Describe the use of Edge detectors. c) What is image? Give mathematical representation of image. d) Write a note on: brightness correction  Attempt any two: a) What is Image Splitting and Merging? Write and explain split and merging algorithm. Explain it with example. b) What is image restoration? Explain Inverse and Wiener filtration. c) Describe the following Digital image properties: 1) brightness 2) segmentation 3) region 4) border  Section – II  Attempt any three: a) Describe properties of 2D DFT b) Write a note on: Region Identification c) Describe chain codes used in contour based representation. d) Describe error free compression.  Attempt any two a) Explain following methods of Region based representation 1) moments 2) convex hull b) Describe Discrete Cosine Transform (DST) in detail.

Seat	Set	D
No.	Set	

### B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering INFORMATION RETRIEVAL**

Day & Date: Monday, 25-11-2019 Time: 02:30 PM To 05:30 PM Max. Marks: 70

Instr	uction	ns: 1)	Q. No. 1 is compulsory and shoul book	d be	solved in first 30 minutes in answer
		2)	Figures to the right indicate full m	arks	
			MCQ/Objective Typ	e Qı	uestions
Dura	tion: 3	0 Mir		<u> </u>	Marks: 14
Q.1	Choc	se tl	he correct alternatives from the	optio	ons and rewrite the sentence. 14
	1)		all is fraction of relevant and	-	
		a)	modified	,	deleted
		c)	retrieved	d)	whole text collection
	2)	Phra	ase query is sequence of qu	ueries	S.
		a)	boolean	b)	•
		c)	proximity	d)	context
	3)	An i	nverted file is oriented mec	hanis	sm.
		a)	sentences	b)	data
		c)	word	d)	letter
	4)	Use	of IR is more concerned with retrie	eving	J
		a)	information	b)	data
		c)	words	d)	sentences
	5)	Doc	uments have no match in vector m	odel	if cosine value is
	•	a)	zero	b)	one
		c)	ninety	d)	sixty
	6)	In B	oolean Model index term weights a	are _	values.
	•	a)	hexadecimal	b)	octal
		c)	binary	d)	decimal
	7)	Pred	cision is the ratio of retrieved and _		_ documents.
	,		relevant		non relevant
		c)	all doc. of database	d)	modified
	8)	Obje	ect index is pair of		
	,	a) Î	(BI, IMH)	b)	(MF, IMH)
		c)	(BI, MF)	d)	None of these
	9)	MUL	_TOS stands for		
	,	a)	Multimedia Office Server	b)	Multimedia Offline Server
		c)	Multimedia Oriented Server	d)	Multimedia Online Server
	10)	Tryii	ng all possible pattern positions in	text i	is algorithm.
	,	a) Î	KMP	b)	Boyer-Moore Family
		c)	BF	d)	None of these

## Set P

11)	Digital Libraries are the part of a) whole c) domestic	information infrastructure. b) global d) national
12)	Crawler is the that sends real process c) data	quest to different remote web servers. b) program d) information
13)	MULTOS data model is based on _ a) client c) client-server	architecture. b) server d) two-tier
14)	Harvest uses architecture. a) client /server c) distributed	<ul><li>b) centralized</li><li>d) none of these</li></ul>

Seat	Set	D
No.	Set	Г

		Computer Science & Engineering INFORMATION RETRIEVAL	-2019
•		ate: Monday, 25-11-2019 :30 PM To 05:30 PM	Max. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figures to right indicate full marks.</li></ul>	
		Section – I	
Q.2	a) b) c)	ite notes on: (Any Three) Browsing Models Brute Force Algorithm Structural Queries Vector Model KMP	12
Q.3	Atta) b) c)	empt Any Two: Keyword Based Querying IR Process Inverted File Indexing	16
		Section – II	
Q.4	a)	ite notes on (Any Three)  Document Models of DL  Harvest Architecture  Architectural issues of Digital Library  Problems posed by web  Data Retrieval Steps	12
Q.5	Atta) b) c)	empt Any Two: Crawler-Indexer Architecture GEMINI Describe MULTOS Query Language Form	16

Seat No. Set	Q
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# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering INFORMATION RETRIEVAL

Day & Date: Monday, 25-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Figures to the right indicate full marks. MCQ/Objective Type Questions Marks: 14 **Duration: 30 Minutes** Choose the correct alternatives from the options and rewrite the sentence. 14 Q.1 Object index is pair of \_\_\_\_\_. a) (BI, IMH) b) (MF, IMH) c) (BI, MF) d) None of these MULTOS stands for \_\_\_\_\_ 2) a) Multimedia Office Serverc) Multimedia Oriented Server b) Multimedia Offline Server d) Multimedia Online Server Trying all possible pattern positions in text is \_\_\_\_\_ algorithm. 3) a) KMP b) Boyer-Moore Family BF d) None of these 4) Digital Libraries are the part of \_\_\_\_\_ information infrastructure. a) whole b) global d) national domestic Crawler is the that sends request to different remote web servers. 5) a) process b) program data d) information c) 6) MULTOS data model is based on \_\_\_\_\_ architecture. client b) server client-server d) two-tier c) Harvest uses \_\_\_\_\_ architecture. 7) client /server b) centralized d) none of these c) distributed 8) Recall is fraction of relevant and \_\_\_\_\_ documents. modified b) deleted a)

retrieved

boolean

proximity

a) sentences

a) information

words

word

Phrase query is sequence of \_\_\_\_ queries.

An inverted file is \_\_\_\_\_ oriented mechanism.

Use of IR is more concerned with retrieving

c)

a)

c)

9)

10)

11)

d) whole text collection

b) single word

d) context

b) data

d) letter

b) data

d) sentences

Set Q

12)	Documents have no match in vector model if cosine value is					
	a)	zero	b)	one		
	c)	ninety	ď)	sixty		
13)	In B a) c)	oolean Model index term weights a hexadecimal binary	are _ b) d)	values. octal decimal		
14)	Pred a) c)	cision is the ratio of retrieved and _ relevant all doc. of database	b) d)	_ documents. non relevant modified		

Seat	Sat	
No.	Set	Q

		Computer Science & Engineering INFORMATION RETRIEVAL	-2019
,		ate: Monday, 25-11-2019 :30 PM To 05:30 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	a) b) c)	ite notes on: (Any Three) Browsing Models Brute Force Algorithm Structural Queries Vector Model KMP	12
Q.3		empt Any Two: Keyword Based Querying IR Process Inverted File Indexing	16
		Section – II	
Q.4	a)	ite notes on (Any Three)  Document Models of DL  Harvest Architecture  Architectural issues of Digital Library  Problems posed by web  Data Retrieval Steps	12
Q.5	Att a) b) c)	empt Any Two: Crawler-Indexer Architecture GEMINI Describe MULTOS Query Language Form	16

Seat No.		Set	R
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# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering INFORMATION RETRIEVAL

Day & Date: Monday, 25-11-2019 Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book

			book		
		2)	) Figures to the right indicate full m	arks.	
Dura	tion: 30	0 Mir	MCQ/Objective Typenutes	e Qı	uestions Marks: 14
Q.1	Choo 1)		he correct alternatives from the uments have no match in vector matero ninety	-	one
	2)	In B a) c)	oolean Model index term weights a hexadecimal binary	are _ b) d)	octal
	3)	Pred a) c)	cision is the ratio of retrieved and _ relevant all doc. of database		non relevant
	4)	-	ect index is pair of (BI, IMH) (BI, MF)	,	(MF, IMH) None of these
	5)		_TOS stands for Multimedia Office Server Multimedia Oriented Server	,	Multimedia Offline Server Multimedia Online Server
	6)	Tryii a) c)	ng all possible pattern positions in KMP BF	b)	s algorithm. Boyer-Moore Family None of these
	7)	Digi a) c)	tal Libraries are the part of i whole domestic	nforr b) d)	global
	8)	a)	wler is the that sends reque process data	b)	
	9)	MUI a) c)	_TOS data model is based on client client-server	b)	
	10)	Harva) c)	vest uses architecture. client /server distributed	b) d)	
	11)	Rec a)	all is fraction of relevant and modified retrieved	b)	cuments.  deleted  whole text collection

Set R

12)	Phrase query is sequence of queries.				
	a) boolea	n	b)	single word	
	c) proxim	ity	d)	context	
13)	An inverted	file is oriente	ed mechanis	m.	
	a) senten	ces	b)	data	
	c) word		d)	letter	
14)	Use of IR is	more concerned wi	th retrieving		
	a) informa	ation	b)	data	
	c) words		ď)	sentences	

Seat	Set	D
No.	Set	K

	Computer Science & Engineering INFORMATION RETRIEVAL	2019
•	& Date: Monday, 25-11-2019 : 02:30 PM To 05:30 PM	Max. Marks: 56
Instr	uctions: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
	Section – I	
Q.2	<ul> <li>Write notes on: (Any Three)</li> <li>a) Browsing Models</li> <li>b) Brute Force Algorithm</li> <li>c) Structural Queries</li> <li>d) Vector Model</li> <li>e) KMP</li> </ul>	12
Q.3	Attempt Any Two:  a) Keyword Based Querying  b) IR Process c) Inverted File Indexing	16
Q.4	Write notes on (Any Three) a) Document Models of DL b) Harvest Architecture c) Architectural issues of Digital Library d) Problems posed by web e) Data Retrieval Steps	12
Q.5	<ul> <li>Attempt Any Two:</li> <li>a) Crawler-Indexer Architecture</li> <li>b) GEMINI</li> <li>c) Describe MULTOS Query Language Form</li> </ul>	16

Seat	Set	9
No.	Set	3

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering INFORMATION RETRIEVAL

Day & Date: Monday, 25-11-2019 Max. Marks: 70

Time:	Time: 02:30 PM To 05:30 PM					
Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer						
		2)	book	arko		
		۷)	Figures to the right indicate full ma			
Durat	ion: 20	n Min	MCQ/Objective Type	e Qı		
	ion: 30				Marks: 14	
Q.1			ne correct alternatives from the ong all possible pattern positions in t		ons and rewrite the sentence. 14	
	1)		KMP		Boyer-Moore Family	
		c)	BF	ď)	None of these	
	2)	_	al Libraries are the part of in	nforn	nation infrastructure.	
		,	whole	,	global	
		c)		,	national	
	3)		vler is the that sends reques			
		a) c)	process data	q) p)	program information	
	<b>4</b> )	•		,		
	4)	a)	.TOS data model is based on client	ai		
		c)	client-server	-	two-tier	
	5)	Harv	vest uses architecture.	,		
	• ,	a)	client /server	b)	centralized	
		c)	distributed	d)	none of these	
	6)	Reca	all is fraction of relevant and	doc	ruments.	
		a)	modified	,	deleted	
		c)	retrieved	,	whole text collection	
	7)		ase query is sequence of qu			
		a) c)	boolean proximity		single word context	
	0)	,	nverted file is oriented mech	,		
	8)	a)	sentences		m. data	
		c)	word	d)	letter	
	9)	Úse	of IR is more concerned with retrie	vina		
	σ,	a)	information	_	data	
		c)	words	d)	sentences	
	10)	Doc	uments have no match in vector m	odel	if cosine value is	
		a)	zero	b)	one	
		c)	ninety	d)	sixty	
	11)		polean Model index term weights a			
		a) c)	hexadecimal binary	b) d)	octal decimal	
		$\circ$	Diriary	u)	ucomai	

Set S

12)		cision is the ratio of retrieved and		_ documents.
	a) c)	relevant all doc. of database	q) p)	non relevant modified
	C)	all doc. of database	u)	modified
13)	Obje	ect index is pair of		
	a)	(BI, IMH)	b)	(MF, IMH)
	c)	(BI, MF)	ď)	None of these
14)	MUL	TOS stands for		
,	a)	Multimedia Office Server	b)	Multimedia Offline Server
	c)	Multimedia Oriented Server	ď)	Multimedia Online Server

Seat	Sat	9
No.	Set	3

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering INFORMATION RETRIEVAL	
•		ate: Monday, 25-11-2019 :30 PM To 05:30 PM	Max. Marks: 56
Instr	ucti	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figures to right indicate full marks.</li></ul>	
		Section - I	
Q.2	a) b) c)	ite notes on: (Any Three) Browsing Models Brute Force Algorithm Structural Queries Vector Model KMP	12
Q.3	a)	empt Any Two: Keyword Based Querying IR Process Inverted File Indexing	16
		Section – II	
Q.4	a) b)	ite notes on (Any Three) Document Models of DL Harvest Architecture Architectural issues of Digital Library Problems posed by web Data Retrieval Steps	12
Q.5	Atta) b) c)	empt Any Two: Crawler-Indexer Architecture GEMINI Describe MULTOS Query Language Form	16

	_	
Seat	Set	D
No.	Set	

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering CLOUD COMPUTING

Day & Date: Monday, 25-11-2019	Max. Marks: 70
T' 00 00 DMT 05 00 DM	

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

2) Figures to the right indicate full marks.

### **MCQ/Objective Type Questions**

Duration: 30 Minutes

Marks: 14

Q.1 Choose the correct alternatives from the options and rewrite the

## Q.1 Choose the correct alternatives from the options and rewrite the sentence.

- 1) Which of the following is essential concept related to Cloud?
  - a) Reliability

b) Productivity

c) Abstraction

- d) All of the mentioned
- 2) Point out the correct statement:
  - a) A client can request access to a cloud service from any location
  - b) A cloud has multiple application instances and directs requests to an instance based on conditions
  - c) Computers can be partitioned into a set of virtual machines with each machine being assigned a workload
  - d) All of the mentioned
- 3) Which of the following is not a type of cloud?
  - a) Private

b) Public

c) Protected

d) Hybrid

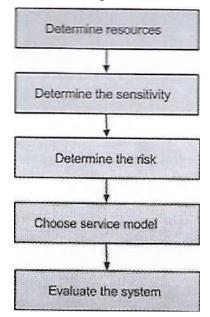
- 4) Saas stands for?
  - a) Software as a service
- b) System Software and services
- c) Software as a system
- d) System as a service
- 5) Which delivery model is an example of a cloud computing environment that provides users access to virtual machines?
  - a) Platform as a Service
- b) Software as a Service
- c) Application as a Service
- d) Infrastructure as a Service
- 6) Which of the following is key mechanism for protecting data?
  - a) Access control

b) Auditing

c) Authentication

d) All of the mentioned

7) The following flowchart is intended to evaluate \_\_\_\_\_ in any cloud.



- a) risk
- c) inconsistencies

- b) Errors
- d) none of the mentioned
- 8) Which of the following model type is not trusted in terms of security?
  - a) Public

b) Private

c) Hybrid

- d) None of the mentioned
- 9) Which of the following allows you to create instances of the MySQL database to support your Web sites?
  - a) Amazon Elastic Compute Cloud
  - b) Amazon Simple Queue Service
  - c) Amazon Relational Database Service
  - d) Amazon Simple Storage System
- 10) Point out the correct statement:
  - a) Except for tightly managed SaaS cloud providers, the burden of resource management is still in the hands of the user
  - b) Cloud computing vendors run very reliable networks
  - c) The low barrier to entry cannot be accompanied by a low barrier to provisioning
  - d) All of the mentioned
- 11) Point out the wrong statement
  - The total workload might be served by a single server instance in the cloud
  - b) Performance logs are the only source of performance measurements
  - c) The amount of resources to be deployed depends upon the characterization of the Web servers involved, their potential utilization rates, and other factors
  - d) All of the mentioned

Set P

12) Point out the wrong statement: Internet consumes roughly 1 percent of the world's total power The cost advantages of cloud computing have enabled new b) software vendors to create productivity applications A client can provision computer resources without the need for c) interaction with cloud service provider personnel None of the mentioned d) 13) Live Services can be used in applications that run in the Azure cloud. Windows a) Microsoft b) Yahoo Ruby d) c)

Calendar

c)

d) All of the mentioned

Seat No.		Set	Р
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# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering CLOUD COMPUTING	
,		te: Monday, 25-11-2019 Max. Marks 30 PM To 05:30 PM	s: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	a) b)	empt any three.  Explain cloud service models with suitable diagram Discuss various VM migration techniques Give PaaS and SaaS vendors along with offerings. Why server virtualization is needed? Which are the types to create virtual servers?	12
Q.3		empt any one. Give cloud security reference model and explain the same. Currently your company is running with private cloud, but now, your business is growing, then will you opt public cloud? If yes, then which parameters you will consider to opt it?	80
<b>Q.4</b>	Giv	e implementation steps for any one of the private cloud.	80
		Section – II	
Q.5	Atto a) b) c) d)	empt any three. Discuss about benefits and advantages of multi-cloud management system. Focus on business intelligence in cloud Brief about migration paths for cloud. Describe challenges in managing heterogeneous clouds.	12
Q.6	Atto a) b)	empt any one.  What are the benefits of cloud computing in business?  List and discuss various current issues of cloud computing leading to future research directions.	80
Q.7	Dis a) b) c) d)	cuss about future technology trends in cloud computing with focus on Cloud service models Cloud deployment models Cloud applications Cloud security	80

Seat No.	Set	Q

## B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering CLOUD COMPUTING

Day & Date: Monday, 25-11-2019 Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

2) Figures to the right indicate full marks.

### MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

## Q.1 Choose the correct alternatives from the options and rewrite the sentence.

14

- 1) Which of the following model type is not trusted in terms of security?
  - a) Public

b) Private

c) Hybrid

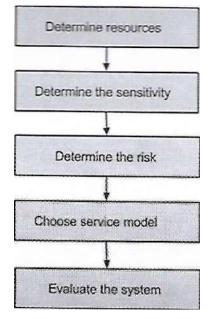
- d) None of the mentioned
- 2) Which of the following allows you to create instances of the MySQL database to support your Web sites?
  - a) Amazon Elastic Compute Cloud
  - b) Amazon Simple Queue Service
  - c) Amazon Relational Database Service
  - d) Amazon Simple Storage System
- 3) Point out the correct statement:
  - Except for tightly managed SaaS cloud providers, the burden of resource management is still in the hands of the user
  - b) Cloud computing vendors run very reliable networks
  - c) The low barrier to entry cannot be accompanied by a low barrier to provisioning
  - d) All of the mentioned
- 4) Point out the wrong statement
  - The total workload might be served by a single server instance in the cloud
  - b) Performance logs are the only source of performance measurements
  - The amount of resources to be deployed depends upon the characterization of the Web servers involved, their potential utilization rates, and other factors
  - d) All of the mentioned
- 5) Point out the wrong statement:
  - a) Internet consumes roughly 1 percent of the world's total power
  - b) The cost advantages of cloud computing have enabled new software vendors to create productivity applications
  - c) A client can provision computer resources without the need for interaction with cloud service provider personnel
  - d) None of the mentioned

Set Q

6)		Live Services can be used in applications that run in the Azure						
	clou a) c)	ud. Microsoft Yahoo	b) d)	Windows Ruby				
7)	Whi	ich of the following google produ ed on your search term?	,	, , , , , , , , , , , , , , , , , , ,				
	a) c)	Alerts Calendar	b) d)	Blogger All of the mentioned				
8)	Whi a) c)	ich of the following is essential co Reliability Abstraction		pt related to Cloud? Productivity All of the mentioned				
9)	Poir a) b) c)	nt out the correct statement:  A client can request access to A cloud has multiple application instance based on conditions Computers can be partitioned i each machine being assigned All of the mentioned	n ins nto a	tances and directs requests to ar				
10)	Whi a) c)	ich of the following is not a type o Private Protected	of clo b) d)					
11)	Saa a) c)	as stands for? Software as a service Software as a system	b) d)	System Software and services System as a service				
12)		ich delivery model is an example provides users access to virtual Platform as a Service Application as a Service		chines?				
13)	Whi a) c)	ich of the following is key mecha Access control Authentication	nism b) d)	for protecting data? Auditing All of the mentioned				

Set Q

14) The following flowchart is intended to evaluate \_\_\_\_\_ in any cloud.



- a) risk
- c) inconsistencies

- b) errors
- d) none of the mentioned

Seat No.		Set	Q
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# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering CLOUD COMPUTING

		CLOUD COMPUTING	
-		ate: Monday, 25-11-2019 :30 PM To 05:30 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	Atte a) b) c) d)	empt any three. Explain cloud service models with suitable diagram Discuss various VM migration techniques Give PaaS and SaaS vendors along with offerings. Why server virtualization is needed? Which are the types to create servers?	<b>12</b> e virtual
Q.3	Atto a) b)	empt any one. Give cloud security reference model and explain the same. Currently your company is running with private cloud, but now, you is growing, then will you opt public cloud? If yes, then which param will consider to opt it?	
Q.4	Giv	e implementation steps for any one of the private cloud.	08
		Section – II	
Q.5	Atta a)	empt any three. Discuss about benefits and advantages of multi-cloud manageme system.	<b>12</b> nt
	b) c) d)	Focus on business intelligence in cloud Brief about migration paths for cloud. Describe challenges in managing heterogeneous clouds.	
Q.6	Atte a) b)	empt any one. What are the benefits of cloud computing in business? List and discuss various current issues of cloud computing leading research directions.	<b>08</b> g to future
Q.7	Dis a) b) c)	cuss about future technology trends in cloud computing with focus Cloud service models Cloud deployment models Cloud applications Cloud security	on <b>08</b>

Seat		
No.	Set	R

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering CLOUD COMPUTING

Day & Date: Monday, 25-11-2019 Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

2) Figures to the right indicate full marks.

### MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

# Q.1 Choose the correct alternatives from the options and rewrite the sentence.

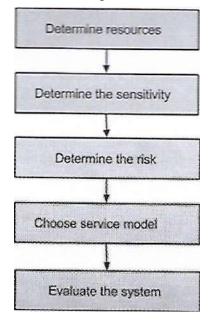
14

- 1) Which delivery model is an example of a cloud computing environment that provides users access to virtual machines?
  - a) Platform as a Service
- b) Software as a Service
- c) Application as a Service
- d) Infrastructure as a Service
- 2) Which of the following is key mechanism for protecting data?
  - a) Access control

b) Auditing

c) Authentication

- d) All of the mentioned
- 3) The following flowchart is intended to evaluate \_\_\_\_\_ in any cloud.



a) risk

b) errors

c) inconsistencies

- d) none of the mentioned
- 4) Which of the following model type is not trusted in terms of security?
  - a) Public

b) Private

c) Hybrid

d) None of the mentioned

Set R

- 5) Which of the following allows you to create instances of the MySQL database to support your Web sites?
  - a) Amazon Elastic Compute Cloud
  - b) Amazon Simple Queue Service
  - c) Amazon Relational Database Service
  - d) Amazon Simple Storage System
- 6) Point out the correct statement:
  - a) Except for tightly managed SaaS cloud providers, the burden of resource management is still in the hands of the user
  - b) Cloud computing vendors run very reliable networks
  - c) The low barrier to entry cannot be accompanied by a low barrier to provisioning
  - d) All of the mentioned
- 7) Point out the wrong statement
  - The total workload might be served by a single server instance in the cloud
  - b) Performance logs are the only source of performance measurements
  - The amount of resources to be deployed depends upon the characterization of the Web servers involved, their potential utilization rates, and other factors
  - d) All of the mentioned
- 8) Point out the wrong statement:
  - a) Internet consumes roughly 1 percent of the world's total power
  - b) The cost advantages of cloud computing have enabled new software vendors to create productivity applications
  - A client can provision computer resources without the need for interaction with cloud service provider personnel
  - d) None of the mentioned
- 9) \_\_\_\_ Live Services can be used in applications that run in the Azure cloud.
  - a) Microsoft

b) Windows

c) Yahoo

- d) Ruby
- 10) Which of the following google product sends you periodic email alerts based on your search term?
  - a) Alerts

b) Blogger

c) Calendar

- d) All of the mentioned
- 11) Which of the following is essential concept related to Cloud?
  - a) Reliability

b) Productivity

c) Abstraction

- d) All of the mentioned
- 12) Point out the correct statement:
  - a) A client can request access to a cloud service from any location
  - b) A cloud has multiple application instances and directs requests to an instance based on conditions
  - c) Computers can be partitioned into a set of virtual machines with each machine being assigned a workload
  - d) All of the mentioned

Set R

- Which of the following is not a type of cloud? 13)
  - Private

b) Public

c) Protected d) Hybrid

- Saas stands for? 14)
  - a) Software as a service
- b) System Software and servicesd) System as a service
- Software as a system c)

Seat	Set	D
No.	Sei	K

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering CLOUD COMPUTING

		CLOUD COMPUTING	
,		ate: Monday, 25-11-2019 :30 PM To 05:30 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	Atta) b) c) d)	empt any three. Explain cloud service models with suitable diagram Discuss various VM migration techniques Give PaaS and SaaS vendors along with offerings. Why server virtualization is needed? Which are the types to create servers?	<b>12</b> e virtual
Q.3	Atta) b)	empt any one. Give cloud security reference model and explain the same. Currently your company is running with private cloud, but now, you is growing, then will you opt public cloud? If yes, then which param will consider to opt it?	
<b>Q.4</b>	Giv	e implementation steps for any one of the private cloud.	08
		Section – II	
Q.5	Att a)	empt any three. Discuss about benefits and advantages of multi-cloud manageme system.	<b>12</b> nt
	b) c) d)	Focus on business intelligence in cloud Brief about migration paths for cloud. Describe challenges in managing heterogeneous clouds.	
Q.6	Atta a) b)	empt any one. What are the benefits of cloud computing in business? List and discuss various current issues of cloud computing leading research directions.	<b>08</b> g to future
Q.7	Dis a) b) c)	cuss about future technology trends in cloud computing with focus Cloud service models Cloud deployment models Cloud applications Cloud security	on <b>08</b>

14

Seat No.	Set	S
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# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering CLOUD COMPUTING

Day & Date: Monday, 25-11-2019 Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

2) Figures to the right indicate full marks.

### MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

# Q.1 Choose the correct alternatives from the options and rewrite the sentence.

1) Point out the correct statement:

- a) Except for tightly managed SaaS cloud providers, the burden of resource management is still in the hands of the user
- b) Cloud computing vendors run very reliable networks
- c) The low barrier to entry cannot be accompanied by a low barrier to provisioning
- d) All of the mentioned
- 2) Point out the wrong statement
  - The total workload might be served by a single server instance in the cloud
  - b) Performance logs are the only source of performance measurements
  - The amount of resources to be deployed depends upon the characterization of the Web servers involved, their potential utilization rates, and other factors
  - d) All of the mentioned
- 3) Point out the wrong statement:
  - a) Internet consumes roughly 1 percent of the world's total power
  - b) The cost advantages of cloud computing have enabled new software vendors to create productivity applications
  - c) A client can provision computer resources without the need for interaction with cloud service provider personnel
  - d) None of the mentioned
- 4) \_\_\_\_ Live Services can be used in applications that run in the Azure cloud.
  - a) Microsoft

b) Windows

c) Yahoo

- d) Ruby
- 5) Which of the following google product sends you periodic email alerts based on your search term?
  - a) Alerts

b) Blogger

c) Calendar

d) All of the mentioned

### Set S

- 6) Which of the following is essential concept related to Cloud?
  - a) Reliability

b) Productivity

c) Abstraction

- d) All of the mentioned
- 7) Point out the correct statement:
  - a) A client can request access to a cloud service from any location
  - b) A cloud has multiple application instances and directs requests to an instance based on conditions
  - c) Computers can be partitioned into a set of virtual machines with each machine being assigned a workload
  - d) All of the mentioned
- 8) Which of the following is not a type of cloud?
  - a) Private

b) Public

c) Protected

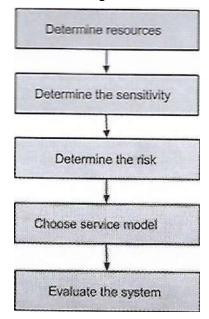
d) Hybrid

- 9) Saas stands for?
  - a) Software as a service
- b) System Software and services
- c) Software as a system
- d) System as a service
- 10) Which delivery model is an example of a cloud computing environment that provides users access to virtual machines?
  - a) Platform as a Service
- b) Software as a Service
- c) Application as a Service
- d) Infrastructure as a Service
- 11) Which of the following is key mechanism for protecting data?
  - a) Access control

b) Auditing

c) Authentication

- d) All of the mentioned
- 12) The following flowchart is intended to evaluate \_\_\_\_\_ in any cloud.



a) risk

b) errors

c) inconsistencies

- d) none of the mentioned
- 13) Which of the following model type is not trusted in terms of security?
  - a) Public

b) Private

c) Hybrid

d) None of the mentioned

Set S

- 14) Which of the following allows you to create instances of the MySQL database to support your Web sites?
  a) Amazon Elastic Compute Cloud
  b) Amazon Simple Queue Service

  - Amazon Relational Database Service c)
  - Amazon Simple Storage System d)

Seat	Set	9
No.	Set	3

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering

		CLOUD COMPUTING	
•		te: Monday, 25-11-2019 30 PM To 05:30 PM	Max. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to right indicate full marks.	
		Section – I	
Q.2	a) b)	Empt any three. Explain cloud service models with suitable diagram Discuss various VM migration techniques Give PaaS and SaaS vendors along with offerings. Why server virtualization is needed? Which are the types to create servers?	<b>12</b> e virtual
Q.3	Atte a) b)	empt any one. Give cloud security reference model and explain the same. Currently your company is running with private cloud, but now, you is growing, then will you opt public cloud? If yes, then which param will consider to opt it?	
Q.4	Giv	e implementation steps for any one of the private cloud.	80
		Section – II	
Q.5	Attera) b) c) d)	empt any three. Discuss about benefits and advantages of multi-cloud manageme system. Focus on business intelligence in cloud Brief about migration paths for cloud. Describe challenges in managing heterogeneous clouds.	<b>12</b> nt
Q.6	a)	empt any one. What are the benefits of cloud computing in business? List and discuss various current issues of cloud computing leading research directions.	<b>08</b> g to future
Q.7	Disc a) b) c) d)	cuss about future technology trends in cloud computing with focus Cloud service models Cloud deployment models Cloud applications Cloud security	on <b>08</b>

Seat	Set	D
No.	Set	L

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

		-	Computer Science STORAGE ARE	and	Engineering	
•			esday, 26-11-2019 I To 05:30 PM		Ma	ax. Marks: 70
Instr	uctio	ns: 1	) Q. No. 1 is compulsory and sh Book.	ould l	pe solved in first 30 minute	es in answer
		2	) Figures to the right indicates fu	ıll ma	rks.	
<b>D</b>		O N 4:	MCQ/Objective T	ype	Questions	NA - 1 - 44
	tion: 3	_			tions and require the	Marks: 14
Q.1	sent		he correct alternatives from tl	1е ор	tions and rewrite the	14
	1)		ch of the following offers very go RAID 0 RAID 5	ood re b) d)	ead performance? RAID 10 Both b and c	
	2)	Whi a) c)	ch of following is realised on HE End-to-end flow control Data access control	BA ca b) d)	rds of end device? Link flow control None of the above	
	3)		ch of the following component o dware? Volume Manager Journaling	of loca b) d)	If ile system is realised wi Snapshots None of the above	th any
	4)		which of the following type of removed nowledges write operation immed Synchronous type of remote many Asynchronous type of remote the The combination of both of the Plain remote mirroring	ediate nirrori mirro	ly after saving the block? ng ring	
	5)		ch of the following function of in ess to the hard disk? Instant copy LUN Masking	tellige b) d)	ent disk subsystem synch Remote mirroring None of the above	ronizes
	6)		the process of storage virtualisation on same path then it is called Asymmetric storage virtualisat Storage virtualisation at server Storage virtualisation at block Symmetric storage virtualization	as _ ion · level level	storage virtualization	
	7)	Whi a) b) c) d)	ch of the following is main object. To maintain the backup copy of the To make several copies of the To freeze the data for future us To generate the test data.	of the data		

Set P

8)	The a) b) c) d)	important function of multipathir To eliminate failure caused by To eliminate failure of database To eliminate redundant IO path To implement cluster for load d	the sees in st	erver orage environments
9)		which of following type of cluster and ancy?	serve	r is designed with built-in
	a) c)	_	b) d)	Shared-Nothing cluster Plain cluster
10)	Whi a) c)	ch of the following is NOT the co Job Scheduler Media manager	mpor b) d)	nent of Backup Servers? Error handler Volume manager
11)	netv a)	ch of following protocol defines a vork backup system? NDMP FTP	an into b) d)	erface between NAS server and SMTP SNMP
12)	subs	ch of the following is favourable system?  JBOD  Volume Manager Mirroring	alterr b) d)	native to cope with failure of disk Remote Mirroring LUN Masking
13)	data a)	ch of following approach leads s a set? Static load balancing Real Time data Sharing	evera b) d)	al application to work on same  Dynamic load balancing  All of the above
14)		rhich of the following type of syst space of other servers? Storage Centric IT System Dynamic tape library system	em, p b) d)	Server Centric IT System None of the above

Seat	Sat	D
No.	Set	

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering STORAGE AREA NETWORK

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.

2) Figures to the right indicates full marks.

#### Section - I

#### Q.2 Solve any four.

16

- a) Write a short note on JBOD.
- b) Explain Remote Mirroring in detail.
- c) Explain Shared disk file system
- **d)** Discuss all the advantage of Symmetric virtualization as well as disadvantages of asymmetric virtualization.
- e) Explain performance bottlenecks in file servers.

### Q.3 Solve any two.

12

- a) Write a short notes on
  - 1) Journaling
  - 2) Snapshots
  - 3) Volume Manager
- b) Explain Direct Access File System (DAFS).
- c) Explain NAS in detail.

#### Section - II

#### Q.4 Solve any four.

16

- a) Write a short note on Backup Clients.
- b) Discuss the components of Backup Server.
- c) Write a short note on next generation backup of databases.
- d) Explain static and dynamic load balancing data sharing strategies.
- e) Write a short note on standardized and Proprietary interfaces.

#### Q.5 Solve any two.

12

- Explain the application multipathing software to improve the availability of data.
- **b)** Explain in brief Network Data Management Protocol (NDMP).
- c) Explain Outband management in detail.

Seat No. Set G	Set Q
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# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

		•	Computer Science STORAGE ARE	and	Engineering	
			esday, 26-11-2019 To 05:30 PM		Max. Mar	ks: 70
nstr	uctior	ns: 1)	Q. No. 1 is compulsory and she Book.	ould b	e solved in first 30 minutes in ar	ıswer
		2	Figures to the right indicates fu	ıll ma	rks.	
			MCQ/Objective T	уре (		
	tion: 3					ks: 14
Q.1	Choo		he correct alternatives from the	ne op	tions and rewrite the	14
	1)		important function of multipathi To eliminate failure caused by To eliminate failure of databas To eliminate redundant IO path To implement cluster for load of	the se es n in st	erver orage environments	
	2)		hich of following type of cluster undancy? Shared -Null cluster	serve b)	-	
		c)	Shared everything cluster	d)	Plain cluster	
	3)	Whi a) c)	ch of the following is NOT the co Job Scheduler Media manager	ompo b) d)	nent of Backup Servers? Error handler Volume manager	
	4)		vork backup system?		erface between NAS server and	
		a) c)	NDMP FTP	b) d)	SMTP SNMP	
	5)			alterr	native to cope with failure of disk	
		a) c)	system? JBOD Volume Manager Mirroring	b) d)	Remote Mirroring LUN Masking	
	6)		ch of following approach leads s a set?	severa	al application to work on same	
		a) c)	Static load balancing Real Time data Sharing	b) d)	Dynamic load balancing All of the above	
	7)	free	hich of the following type of sys space of other servers?	·		
		a) c)	Storage Centric IT System  Dynamic tape library system	b) d)	Server Centric IT System None of the above	
	8)	Whi a) c)	ch of the following offers very go RAID 0 RAID 5	ood re b) d)	ead performance? RAID 10 Both b and c	

Set Q

9)	vvni a)	ch of following is realised on HB. End-to-end flow control		ds of end device?  Link flow control
	c)	Data access control	d)	None of the above
10)	hard	ch of the following component of dware?		
	a) c)	Volume Manager Journaling	b) d)	Snapshots None of the above
11)		, , , , , , , , , , , , , , , , , , , ,	diatel irrorin nirrori	y after saving the block? ng ing
12)		ch of the following function of int ess to the hard disk? Instant copy LUN Masking	ellige b) d)	nt disk subsystem synchronizes  Remote mirroring  None of the above
13)		the process of storage virtualisation on same path then it is called a Asymmetric storage virtualisation Storage virtualisation at server Storage virtualisation at block long Symmetric storage virtualization	as on level evel	
14)	Whi a) b) c) d)	ch of the following is main object To maintain the backup copy of To make several copies of the To freeze the data for future us To generate the test data	f the d data	

Seat	Set	O
No.		G

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering STORAGE AREA NETWORK

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56

Time	: 02:3	80 PM To 05:30 PM	
Instr	uctio	ns: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
		Section - I	
Q.2	Solv a) b) c) d)	Write a short note on JBOD. Explain Remote Mirroring in detail. Explain Shared disk file system Discuss all the advantage of Symmetric virtualization as well as disadvantage of asymmetric virtualization. Explain performance bottlenecks in file servers.	<b>16</b>
Q.3	Solva) b) c)	Explain NAS in detail.	12
Q.4	Solva) b) c) d) e)	Section – II  /e any four.  Write a short note on Backup Clients.  Discuss the components of Backup Server.  Write a short note on next generation backup of databases.  Explain static and dynamic load balancing data sharing strategies.  Write a short note on standardized and Proprietary interfaces.	16
Q.5	Solv a) b)	ve any two.  Explain the application multipathing software to improve the availability of data.  Explain in brief Network Data Management Protocol (NDMP).	12

- c) Explain Outband management in detail.

Seat	Sat	D
No.	Set	K

		t	S.E. (Part – II) (CGPA) Exa Computer Science : STORAGE ARE	and	Engineering	
-			esday, 26-11-2019 To 05:30 PM		Max	x. Marks: 70
		ns: 1)	) Q. No. 1 is compulsory and sho Book. ) Figures to the right indicates fu			s in answer
			MCQ/Objective Ty	ype (	Questions	
Dura	ition: 3	80 Mir	nutes	_		Marks: 14
Q.1		<b>ence</b> Whi	he correct alternatives from the correct alternatives from the chart of the following function of interest to the hard disk?	•		14 onizes
		a) c)	Instant copy LUN Masking	b) d)	Remote mirroring None of the above	
	2)		the process of storage virtualisaten on same path then it is called Asymmetric storage virtualisation Storage virtualisation at server Storage virtualisation at block I Symmetric storage virtualization	as on level evel		I
	3)	Whi a) b) c) d)	ch of the following is main object. To maintain the backup copy of the To make several copies of the To freeze the data for future us To generate the test data	f the data	•	
	4)	The a) b) c) d)	important function of multipathin To eliminate failure caused by To eliminate failure of database To eliminate redundant IO path To implement cluster for load of	the sees to in st	erver orage environments	
	5)		rhich of following type of cluster undancy? Shared -Null cluster Shared everything cluster	serve b) d)	r is designed with built-in Shared-Nothing cluster Plain cluster	
	6)	Whi a) c)	ch of the following is NOT the co Job Scheduler Media manager	ompo b) d)	nent of Backup Servers? Error handler Volume manager	
	7)	netv a)	ch of following protocol defines a vork backup system? NDMP FTP	an int b) d)	erface between NAS serve SMTP SNMP	er and

Set R

8)	sub	ch of the following is favourable system?  JBOD	alterr b)	native to cope with failure of disk  Remote Mirroring
	,	Volume Manager Mirroring	d)	LUN Masking
9)		ch of following approach leads s a set?	evera	al application to work on same
		Static load balancing Real Time data Sharing	b) d)	Dynamic load balancing All of the above
10)		hich of the following type of syst space of other servers?	em, p	particular server cannot use the
	a) c)	Storage Centric IT System Dynamic tape library system	b) d)	Server Centric IT System None of the above
11)	Whi a)	ch of the following offers very go RAID 0	od re b)	ead performance? RAID 10
	c)	RAID 5	d)	Both b and c
12)	Whi a)	ch of following is realised on HB End-to-end flow control	A car b)	ds of end device? Link flow control
	c)	Data access control	d)	None of the above
13)		ch of the following component of dware?	f loca	I file system is realised with any
	a) c)	Volume Manager Journaling	b) d)	Snapshots None of the above
14)	ackı a) b) c)	rhich of the following type of remnowledges write operation imme Synchronous type of remote many Asynchronous type of remote remote of the Combination of both of the	diatel irrorir nirror	y after saving the block?  ng  ing
	d)	Plain remote mirroring		

Seat	Set	D
No.	Set	K

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering STORAGE AREA NETWORK

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicates full marks.

#### Section - I

#### Q.2 Solve any four.

16

- a) Write a short note on JBOD.
- b) Explain Remote Mirroring in detail.
- c) Explain Shared disk file system
- **d)** Discuss all the advantage of Symmetric virtualization as well as disadvantages of asymmetric virtualization.
- e) Explain performance bottlenecks in file servers.

### Q.3 Solve any two.

12

- a) Write a short notes on
  - 1) Journaling
  - 2) Snapshots
  - 3) Volume Manager
- b) Explain Direct Access File System (DAFS).
- c) Explain NAS in detail.

#### Section - II

#### Q.4 Solve any four.

16

- a) Write a short note on Backup Clients.
- b) Discuss the components of Backup Server.
- c) Write a short note on next generation backup of databases.
- d) Explain static and dynamic load balancing data sharing strategies.
- e) Write a short note on standardized and Proprietary interfaces.

#### Q.5 Solve any two.

12

- Explain the application multipathing software to improve the availability of data.
- **b)** Explain in brief Network Data Management Protocol (NDMP).
- c) Explain Outband management in detail.

Seat	Set	S
No.		)

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

			Computer Science a STORAGE AREA			
•			esday, 26-11-2019 To 05:30 PM		Max. Ma	arks: 70
Instr	uction	ns: 1)	Q. No. 1 is compulsory and sho Book.	uld b	e solved in first 30 minutes in a	answer
		2)	Figures to the right indicates ful	l mar	ks.	
			MCQ/Objective Ty	pe C	Questions	
Dura	tion: 3	0 Mir	nutes		Ma	arks: 14
Q.1	Choo		ne correct alternatives from th	e opt	ions and rewrite the	14
	1)		ch of the following is NOT the co Job Scheduler Media manager	mpor b) d)	nent of Backup Servers? Error handler Volume manager	
	2)	Which	ch of following protocol defines a ork backup system? NDMP FTP	,	<b>G</b>	b
	3)	subs a)	ch of the following is favourable a system? JBOD Volume Manager Mirroring	altern b) d)	ative to cope with failure of dis Remote Mirroring LUN Masking	k
	4)	data a)	ch of following approach leads so set? Static load balancing Real Time data Sharing		I application to work on same  Dynamic load balancing  All of the above	
	5)	In w free	hich of the following type of system Storage Centric IT System Dynamic tape library system	em, p	articular server cannot use the Server Centric IT System	
	6)	Whica)	ch of the following offers very go RAID 0 RAID 5	od re b) d)	ad performance? RAID 10 Both b and c	
	7)	Whica)	ch of following is realised on HB/ End-to-end flow control Data access control		ds of end device? Link flow control None of the above	
	8)		ch of the following component of lware? Volume Manager Journaling	local b) d)	file system is realised with any Snapshots None of the above	/

Set S

9)		hich of the following type of remonowledges write operation immed Synchronous type of remote mixed Asynchronous type of remote not the Combination of both of the Plain remote mirroring	diatel rrorin nirrori	y after saving the block? g ng
10)		ch of the following function of int ess to the hard disk? Instant copy LUN Masking	ellige b) d)	nt disk subsystem synchronizes Remote mirroring None of the above
11)		the process of storage virtualisa n on same path then it is called a Asymmetric storage virtualisation Storage virtualisation at server Storage virtualisation at block lo Symmetric storage virtualization	as on level evel	
12)	a) b)	ch of the following is main object To maintain the backup copy of To make several copies of the To freeze the data for future us To generate the test data	the data	
13)	The a) b) c) d)	important function of multipathin To eliminate failure caused by t To eliminate failure of database To eliminate redundant IO path To implement cluster for load d	he se s in sto	erver orage environments
14)		hich of following type of cluster s indancy? Shared -Null cluster Shared everything cluster	b) d)	r is designed with built-in Shared-Nothing cluster Plain cluster

Seat	Set	C
No.	Set	3

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering STORAGE AREA NETWORK

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM

Time	: 02:3	30 PM To 05:30 PM	
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
		Section – I	
Q.2	Solva) b) c) d)	we any four.  Write a short note on JBOD.  Explain Remote Mirroring in detail.  Explain Shared disk file system  Discuss all the advantage of Symmetric virtualization as well as disadvantage of asymmetric virtualization.  Explain performance bottlenecks in file servers.	<b>16</b>
Q.3	Solva) b) c)	Write a short notes on  1) Journaling 2) Snapshots 3) Volume Manager Explain Direct Access File System (DAFS). Explain NAS in detail.	12
		Section – II	
Q.4	Solva) b) c) d) e)	Write a short note on Backup Clients. Discuss the components of Backup Server. Write a short note on next generation backup of databases. Explain static and dynamic load balancing data sharing strategies. Write a short note on standardized and Proprietary interfaces.	16
Q.5	Solv a)	ve any two.  Explain the application multipathing software to improve the availability of data.	12
	b) c)	Explain in brief Network Data Management Protocol (NDMP).  Explain Outband management in detail.	

Seat	Sat	D
No.	Set	L

# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science WEB 2.0 AND RICH INTER		
•		e: Tuesday, 26-11-2019 0 PM To 05:30 PM		Max. Marks: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory and sho	ould b	e solved in first 30 minutes in answer
		<ul><li>2) Assume suitable data if necess</li><li>3) Figures to the right indicates fu</li></ul>	•	ks.
		MCQ/Objective Ty	/pe C	Questions
Dura	tion: 3	0 Minutes		Marks: 14
Q.1	<b>Cho</b> (1)	Ose the correct alternatives from the Choose the correct HTML element for a) <ol> <li><ol> <li><ol></ol></li> <li><ol></ol></li> </ol></li></ol>	•	
	2)	What is the status code of the HTTP a) 401 c) 404	,	
	3)	var x = 10 $var y = 10$ $x = == y$ What would be the output of the abo a) True c) Undefined	ove JS b) d)	code? False cannot be determined
	4)	x = 10 y = "10" x === y What would be the output of the about a) True b) False c) Error: undefined variable 'x' and d) cannot be determined		code?
	5)	Which of the following is NOT a rich a) Open Laszlo c) XUL	client b) d)	framework? XML XAML
	6)	XPath is syntax for defining parts of a) HTML document c) DTD document	b) d)	XML document All of the above
	7)	RSS stands for  a) Really Simple Syndication c) Real State Signal	b) d)	Random Send Signal Real-time Simple Syndication

Set P

8)	The Document Object Model (DO) of an HTML or XML document.  a) TRUE b) FALSE c) DOM is related to HTML but rd) Not sure	·	
9)	Commenting in XQuery is done by	y which	of the following?
	<ul><li>a) <!-- Comment here--></li><li>c) /*Comment here*/</li></ul>	b) d)	//Comment here :)
10)	Which of the following is a valid de a) "employee":{ "name":"John", "b) "employee":[ "name":"John", "c) "employee":( "name":"John", "d) Any declaration is permitted if	age":30 age":30 age":30	), "city":"New Ýork" } ), "city":"New York" ] ), "city":"New York" )
11)	A is a web page or web services from multiple sources.	site tha	t combines information and
	<ul><li>a) search engine</li><li>c) bookmark</li></ul>	b) d)	Mashup None of the above
12)	Types of mashups are a) Data mashup c) Consumer mashup	b) d)	Business mashup All of the above
13)	The protocol provides a applications, thus ensuring privacy a) HTTPS c) TSL	•	e channel between communicating a authentication and integrity. SSL PSL
14)	<ul> <li>HTTPS stands for</li> <li>a) Hyper Text Transfer Protocol</li> <li>b) Hyper Text Transfer Protocol</li> <li>c) Hybrid Text Transfer Protocol</li> <li>d) Hyper Textual Transcript Prot</li> </ul>	Securit Securi	y ty

Seat	Sot	<b>D</b>
No.	Set	

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering WEB 2.0 AND RICH INTERNET APPLICATIONS

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

- 2) Assume suitable data if necessary.
- 3) Figures to the right indicates full marks.

#### Section - I

### Q.2 Attempt any three.

12

- a) Enlist and describe the HTTP methods.
- b) What do you understand by RSS? Explain web feed.
- c) Differentiate between Web 1.0 and Web 2.0.
- **d)** Explain the necessity and use of XSLT for transformation. Give suitable example.
- e) Compare and contrast HTML and XHTML.

### Q.3 Attempt any two.

16

a) Design a web page with SVG to generate the output as given below. Draw the five rings in blue, black, red, yellow and green colours respectively. Write suitable code.



- **b)** Explain different rich client frameworks.
- c) Explain REST architecture with suitable diagram.

### Section - II

### Q.4 Attempt any three.

12

- a) What are mashups? Give its different types.
- **b)** Explain JSON.
- c) Discuss how SSL protocol helps in web security?
- d) What is XQuery? Explain with example.
- e) Show with a neat diagram how dynamic content is served over the internet.

### Q.5 Attempt any two.

16

- a) What is the business model for Mashups?
- **b)** Describe the two methods for message encyption over the web.
- c) Write down the five general steps for implementing the Web 2.0 model.

	_	
Seat	Set	)
No.	Set	Q

		B.E. (Part – II) (CGPA) Examination Computer Science & Engi	
		WEB 2.0 AND RICH INTERNET A	
•		ate: Tuesday, 26-11-2019 :30 PM To 05:30 PM	Max. Marks: 70
Instr	uctio	<ul><li>ons: 1) Q. No. 1 is compulsory and should be so book.</li><li>2) Assume suitable data if necessary.</li><li>3) Figures to the right indicates full marks.</li></ul>	olved in first 30 minutes in answer
		MCQ/Objective Type Que	estions
		30 Minutes	Marks: 14
Q.1	<b>Cho</b> (1)	oose the correct alternatives from the option The Document Object Model (DOM) is an obj of an HTML or XML document. a) TRUE b) FALSE c) DOM is related to HTML but not to XML d) Not sure	
	2)	,	ne following? comment here Comment here :)
	3)	Which of the following is a valid declaration of a) "employee":{ "name":"John", "age":30, "cib) "employee":[ "name":"John", "age":30, "cic) "employee":( "name":"John", "age":30, "cid) Any declaration is permitted if the values	ty":"New York" } ty":"New York" ] ty":"New York" )
	4)	,	mbines information and ashup one of the above
	5)	, , , , , , , , , , , , , , , , , , , ,	siness mashup of the above
	6)	The protocol provides a private charapplications, thus ensuring privacy of data au a) HTTPS b) SS c) TSL d) PS	thentication and integrity.
	7)	HTTPS stands for  a) Hyper Text Transfer Protocol Secure b) Hyper Text Transfer Protocol Security c) Hybrid Text Transfer Protocol Security d) Hyper Textual Transcript Protocol Secure	<b>)</b>
	8)	Choose the correct HTML element for number a) <ol> <li>ol&gt;</li> </ol>	

ď)

t>

c) <bl>

Set Q

9)	What is the status code of the HTTP a) 401 c) 404	Not f b) d)	ound error? 408 402
10)	var x = 10 $var y = 10$ $x === y$		
	What would be the output of the abo	ve JS	code?
	a) True	b)	False
	c) Undefined	d)	cannot be determined
11)	x = 10 y = "10" x === y What would be the output of the about a) True b) False c) Error: undefined variable 'x' and d) cannot be determined		code?
12)	Which of the following is NOT a rich	client	framework?
	a) Open Laszlo	b)	XML
	c) XUL	d)	XAML
13)	XPath is syntax for defining parts of		<del>.</del>
	a) HTML document	b)	XML document
	c) DTD document	d)	All of the above
14)	RSS stands for a) Really Simple Syndication c) Real State Signal	b) d)	Random Send Signal Real-time Simple Syndication

Seat	Set	O
No.		G

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering WEB 2.0 AND RICH INTERNET APPLICATIONS

WEB 2.0 AND RICH INTERNET APPLICATIONS	
Day & Date: Tuesday, 26-11-2019 Time: 02:30 PM To 05:30 PM	Max. Marks: 56
Instructions: 1) All questions are compulsory. 2) Assume suitable data if necessary. 3) Figures to the right indicates full marks.	
Section – I	

### Q.2 Attempt any three.

12

- a) Enlist and describe the HTTP methods.
- b) What do you understand by RSS? Explain web feed.
- c) Differentiate between Web 1.0 and Web 2.0.
- **d)** Explain the necessity and use of XSLT for transformation. Give suitable example.
- e) Compare and contrast HTML and XHTML.

### Q.3 Attempt any two.

16

a) Design a web page with SVG to generate the output as given below. Draw the five rings in blue, black, red, yellow and green colours respectively. Write suitable code.



- **b)** Explain different rich client frameworks.
- c) Explain REST architecture with suitable diagram.

### Section - II

### Q.4 Attempt any three.

12

- a) What are mashups? Give its different types.
- **b)** Explain JSON.
- c) Discuss how SSL protocol helps in web security?
- d) What is XQuery? Explain with example.
- e) Show with a neat diagram how dynamic content is served over the internet.

### Q.5 Attempt any two.

16

- a) What is the business model for Mashups?
- **b)** Describe the two methods for message encyption over the web.
- c) Write down the five general steps for implementing the Web 2.0 model.

	<u></u>	
Seat	Set	D
No.	Set	K

# B.F. (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering
		WEB 2.0 AND RICH INTERNET APPLICATIONS
-		Tuesday, 26-11-2019 Max. Marks: 70 PM To 05:30 PM
Instr	uctio	: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer
		book. 2) Assume suitable data if necessary. 3) Figures to the right indicates full marks.
		MCQ/Objective Type Questions
Dura	ition: 3	Minutes Marks: 14
Q.1	<b>Cho</b> (1)	se the correct alternatives from the options and rewrite the sentence. 14 Which of the following is NOT a rich client framework?  a) Open Laszlo b) XML  b) XAML
	2)	(Path is syntax for defining parts of  a) HTML document b) XML document b) DTD document d) All of the above
	3)	RSS stands for  a) Really Simple Syndication b) Random Send Signal b) Real State Signal d) Real-time Simple Syndication
	4)	The Document Object Model (DOM) is an object oriented representation of an HTML or XML document.  a) TRUE b) FALSE c) DOM is related to HTML but not to XML d) Not sure
	5)	Commenting in XQuery is done by which of the following?  a) Comment here b) //Comment here  c) /*Comment here*/ d) (: Comment here :)
	6)	Which of the following is a valid declaration of JSON object?  a) "employee":{ "name":"John", "age":30, "city":"New York" }  b) "employee":[ "name":"John", "age":30, "city":"New York" ]  c) "employee":( "name":"John", "age":30, "city":"New York" )  d) Any declaration is permitted if the values are assigned
	7)	A is a web page or web site that combines information and services from multiple sources.  a) search engine b) Mashup b) bookmark d) None of the above
	8)	Types of mashups are  a) Data mashup b) Business mashup c) Consumer mashup d) All of the above

Set R

9)	The protocol provides a applications, thus ensuring privace a) HTTPS c) TSL	•	e channel between communicating a authentication and integrity. SSL PSL
10)	HTTPS stands for  a) Hyper Text Transfer Protocol b) Hyper Text Transfer Protocol c) Hybrid Text Transfer Protoco d) Hyper Textual Transcript Protocol	Securit I Securi	y ty
11)	Choose the correct HTML elemen		
	a) <ol></ol>	b) d)	<ul> <li><li><li></li> </li></li></ul>
40)	,	,	
12)	What is the status code of the HT a) 401	b)	408
	c) 404	d)	402
13)	var x = 10 $var y = 10$ $x === y$ What would be the output of the s	abovo 19	S aada?
	What would be the output of the a a) True	b)	False
	c) Undefined	d)	cannot be determined
14)	x = 10 y = "10" x === y What would be the output of the analysis of the second of the seco		S code?
	<ul><li>d) cannot be determined</li></ul>		

Seat	Set	D
No.	Set	K

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering WEB 2.0 AND RICH INTERNET APPLICATIONS

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.

2) Assume suitable data if necessary.

Section - I

### Q.2 Attempt any three.

12

- Enlist and describe the HTTP methods.
- **b)** What do you understand by RSS? Explain web feed.

3) Figures to the right indicates full marks.

- c) Differentiate between Web 1.0 and Web 2.0.
- **d)** Explain the necessity and use of XSLT for transformation. Give suitable example.
- e) Compare and contrast HTML and XHTML.

### Q.3 Attempt any two.

16

a) Design a web page with SVG to generate the output as given below. Draw the five rings in blue, black, red, yellow and green colours respectively. Write suitable code.



- **b)** Explain different rich client frameworks.
- c) Explain REST architecture with suitable diagram.

### Section - II

### Q.4 Attempt any three.

12

- a) What are mashups? Give its different types.
- **b)** Explain JSON.
- c) Discuss how SSL protocol helps in web security?
- d) What is XQuery? Explain with example.
- e) Show with a neat diagram how dynamic content is served over the internet.

### Q.5 Attempt any two.

16

- a) What is the business model for Mashups?
- **b)** Describe the two methods for message encyption over the web.
- c) Write down the five general steps for implementing the Web 2.0 model.

Seat	Set	S
No.		)

		В	B.E. (Part – II) (CGPA) Exan Computer Science	& Er	ngineering	
			WEB 2.0 AND RICH INTER	RNET	APPLICATIONS	
•			esday, 26-11-2019 To 05:30 PM		Ma	ax. Marks: 70
Instr	uction	<b>ns:</b> 1)	Q. No. 1 is compulsory and sho book.	uld be	e solved in first 30 minute	es in answer
			Assume suitable data if necessa Figures to the right indicates ful	-	KS.	
			MCQ/Objective Ty	pe C	uestions	
Durat	ion: 3	0 Mir		•		Marks: 14
Q.1	<b>Choo</b> 1)	Which	he correct alternatives from the ch of the following is a valid decla "employee":{ "name":"John", "age "employee":[ "name":"John", "age "employee":( "name":"John", "age Any declaration is permitted if the	aratio e":30, e":30, e":30,	n of JSON object? "city":"New York" } "city":"New York" ] "city":"New York" )	ntence. 14
	2)	serv a)	is a web page or web site ices from multiple sources. search engine bookmark	that b) d)	combines information ar Mashup None of the above	nd
	3)	a)	es of mashups are Data mashup Consumer mashup	b) d)	Business mashup All of the above	
	4)	appl a)	protocol provides a prications, thus ensuring privacy of HTTPS			
	5)	a) b) c)	PS stands for Hyper Text Transfer Protocol Se Hyper Text Transfer Protocol Se Hybrid Text Transfer Protocol Se Hyper Textual Transcript Protoco	curity ecurity	1	
	6)	a)	ose the correct HTML element fo <ol> <bl></bl></ol>	or nun b) d)	nbered list. <ul> <list></list></ul>	
	7)	a)	at is the status code of the HTTP 401 404	Not for b)	ound error? 408 402	
	8)	var y x ==	x = 10 y = 10 == y at would be the output of the above	ve JS	code?	

b)

d)

False

cannot be determined

a) True

c) Undefined

9)	<i>x</i> =	= 10		
	<i>y</i> =	= "10"		
	x =	===y		
	Wh	nat would be the output of the abo	ve JS	S code?
	a)	True		
	b)	False		
	c)	Error: undefined variable 'x' and	'y'.	
	d)	cannot be determined	-	
10)	Wh	nich of the following is NOT a rich	client	framework?
. 0 )		Open Laszlo	b)	XML
	c)	XUL	d)	XAML
11\	,		,	
11)		ath is syntax for defining parts of		XML document
			p)	
	c)	DTD document	d)	All of the above
12)	RS	S stands for		
	a)	Really Simple Syndication	b)	Random Send Signal
	c)	Real State Signal	d)	Real-time Simple Syndication
13)		e Document Object Model (DOM) an HTML or XML document.	is an	object oriented representation

c) DOM is related to HTML but not to XML

Commenting in XQuery is done by which of the following?

b) //Comment here

(: Comment here :)

ď)

a) TRUEb) FALSE

d) Not sure

a) <!-- Comment here-->c) /\*Comment here\*/

14)

Seat	Set	6
No.	Set	3

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering WEB 2.0 AND RICH INTERNET APPLICATIONS

	WEB 2.0 AND RICH INTERNET APPLICATIONS	
•	Pate: Tuesday, 26-11-2019 N 2:30 PM To 05:30 PM	Max. Marks: 56
Instruct	ions: 1) All questions are compulsory. 2) Assume suitable data if necessary. 3) Figures to the right indicates full marks.	
	Section – I	
Q.2 At a) b) c) d)	What do you understand by RSS? Explain web feed. Differentiate between Web 1.0 and Web 2.0.	12 itable

### Q.3 Attempt any two.

16

a) Design a web page with SVG to generate the output as given below. Draw the five rings in blue, black, red, yellow and green colours respectively. Write suitable code.



- **b)** Explain different rich client frameworks.
- c) Explain REST architecture with suitable diagram.

Compare and contrast - HTML and XHTML.

### Section - II

### Q.4 Attempt any three.

12

- a) What are mashups? Give its different types.
- **b)** Explain JSON.
- c) Discuss how SSL protocol helps in web security?
- **d)** What is XQuery? Explain with example.
- e) Show with a neat diagram how dynamic content is served over the internet.

### Q.5 Attempt any two.

16

- a) What is the business model for Mashups?
- **b)** Describe the two methods for message encyption over the web.
- c) Write down the five general steps for implementing the Web 2.0 model.

Seat	Sat	D
No.	Set	L

		Computer Science  ARTIFICIAL NEUR	& E	ngineering
		e: Tuesday, 26-11-2019 0 PM To 05:30 PM		Max. Marks: 70
Instr	uctio	<ul><li>ns: 1) Q. No. 1 is compulsory and she book.</li><li>2) Figures to the right indicates full 3) Assume suitable data if necess</li></ul>	ıll ma	pe solved in first 30 minutes in answer rks.
		MCQ/Objective T	ype	Questions
Dura	tion: 3	30 Minutes		Marks: 14
Q.1	<b>Cho</b> (1)	ANN is composed of large number of elements (neurons) working in unisonal True	of hig	hly interconnected processing
	2)	Artificial neural network used for a) Pattern Recognition c) Clustering	b)	 Classification All of these
	3)	Neural Network can answera) For Loop questions b) what-if questions c) IF-The-Else Analysis Questions d) None of these		
	4)	Ability to learn how to do tasks base experience? a) Self Organization c) Fault tolerance	ed on b) d)	the data given for training or initial  Adaptive Learning  Robustness
	5)	Feature of ANN in which ANS creat of information it receives during lear a) Adaptive Learning c) What-If Analysis		· · · · · · · · · · · · · · · · · · ·
	6)	In artificial Neural Network interconr called a) nodes or neurons c) axons	b) d)	d processing elements are weights soma
	7)	Each connection link in ANN is assorbout the input signal.  a) neurons c) bias	b) d)	d with which has information weights activation function
	8)	Neurons or artificial neurons have the original neurons as found in brain.  a) True	ne ca <sub>l</sub> b)	pability to model networks of False

Set P

9)	neu a)	ernal state of neuron is called urons receives. Weight Activation or activity level of neu Bias None of these		is the function of the inputs the
10)	,	uron can send signal a multiple none	t a tim b) d)	ne. one any number of
11)	one whe a)	-input neuron is trained to output when the input is 111. After gen en and only when the input is 000 or 110 or 011 or 101 000 or 010 or 110 or 100	eraliza b)	
12)	A p a) b) c) d)	erceptron is  a single layer feed-forward neur an auto-associative neural netw a double layer auto-associative a neural network that contains fe	ork neura	l network
13)	a)	auto-associative network is a neural network that contains naneural network that contains for a neural network that has only of a single layer feed-forward neur	o loop eedba ne loo	ck op
14)	the	•		1. The transfer function is linear with to 2. The inputs are 4, 10, 5 and 20 76 123

No. Set F	Seat No.
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# B.E. (Part – II) (CGPA) Examination Nov/Dec -2019 Computer Science & Engineering ARTIFICIAL NEURAL NETWORKS

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. 3) Assume suitable data if necessary. Section - I Q.2 Answer any three. 12 Develop the Mc Culloch Pitts model. What is learning? Derive a simple expression. b) State and explain the Delta training rule. What are self organizing Kohenen's map? Q.3 Answer any two. 80 How does Discrete Perceptron work as a classifier? State and derive the error back propagation algorithm. Compare BNN with ANN. Answer any one. 08 Give various topologies of ANN. How do they work? How are Hamming nets and Maxnets used for classification? Section - II 12 Q.5 Answer any three. What is activation? What is competitive learning? What is pattern association? Elaborate on the concepts used in pattern recognition tasks. 80 Q.6 Answer any two. Explain the working of a simple feed-forward network with a flow chart. What is pattern classification? How does it work? What is Neo-recognition? How are handwritten characters recognised? Answer any one. 80 Q.7 List and elaborate on the applications of ANN. What are the operators in NET talk? Elaborate on each.

Seat		
No.	Set	Q

		Computer Science & Engineering  ARTIFICIAL NEURAL NETWORKS
		e: Tuesday, 26-11-2019 Max. Marks: 70 0 PM To 05:30 PM
Instr	uction	<ul><li>1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.</li><li>2) Figures to the right indicates full marks.</li></ul>
		3) Assume suitable data if necessary.
_		MCQ/Objective Type Questions
		Marks: 14
Q.1	<b>Choo</b> 1)	ose the correct alternatives from the options and rewrite the sentence. 14  Neurons or artificial neurons have the capability to model networks of  original neurons as found in brain.  a) True  b) False
	2)	Internal state of neuron is called, is the function of the inputs the neurons receives.  a) Weight b) Activation or activity level of neuron c) Bias d) None of these
	3)	Neuron can send signal at a time. a) multiple b) one c) none d) any number of
	4)	A 3-input neuron is trained to output a zero when the input is 110 and a one when the input is 111. After generalization the output will be zero when and only when the input is  a) 000 or 110 or 011 or 101 b) 010 or 100 or 110 or 101 c) 000 or 010 or 110 or 100 d) 100 or 111 or 101 or 001
	5)	A perceptron is  a) a single layer feed-forward neural network with pre-processing b) an auto-associative neural network c) a double layer auto-associative neural network d) a neural network that contains feedback
	6)	An auto-associative network is  a) a neural network that contains no loops b) a neural network that contains feedback c) a neural network that has only one loop d) a single layer feed-forward neural network with pre-processing
	7)	A 4-input neuron has weights 1, 2, 3 and 4. The transfer function is linear with the constant of proportionality being equal to 2. The inputs are 4, 10, 5 and 20 respectively. The output will be  a) 238 b) 76

ď)

123

c) 119

Set Q

8)	eler	N is composed of large number o ments (neurons) working in uniso True	_	•
9)	a)	ficial neural network used for Pattern Recognition Clustering	b)	Classification All of these
10)	a) b) c)	ural Network can answer For Loop questions what-if questions IF-The-Else Analysis Questions None of these	_•	
11)	exp a)	lity to learn how to do tasks based perience? Self Organization Fault tolerance		he data given for training or initial  Adaptive Learning  Robustness
12)	of in a)	ature of ANN in which ANS create information it receives during learr Adaptive Learning What-If Analysis	ning ti b)	own organization or representation me is Self Organization Supervised Learning
13)	call	artificial Neural Network interconn ed nodes or neurons axons	ected b) d)	
14)		ch connection link in ANN is asso- but the input signal. neurons bias	ciated b) d)	with which has information weights activation function

Seat No.	Set Q
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# B.E. (Part – II) (CGPA) Examination Nov/Dec -2019 Computer Science & Engineering ARTIFICIAL NEURAL NETWORKS

		ARTIFICIAL NEURAL NETWORKS	
		e: Tuesday, 26-11-2019 60 PM To 05:30 PM	Max. Marks: 56
Instr	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicates full marks.</li><li>3) Assume suitable data if necessary.</li></ul>	
		Section – I	
Q.2	Ans a) b) c) d)	wer any three.  Develop the Mc Culloch Pitts model.  What is learning? Derive a simple expression.  State and explain the Delta training rule.  What are self organizing Kohenen's map?	12
Q.3	Ans a) b) c)	wer any two.  How does Discrete Perceptron work as a classifier?  State and derive the error back propagation algorithm.  Compare BNN with ANN.	08
Q.4	Ans a) b)	wer any one. Give various topologies of ANN. How do they work? How are Hamming nets and Maxnets used for classification?	08
		Section – II	
Q.5	Ans a) b) c) d)	wer any three. What is activation? What is competitive learning? What is pattern association? Elaborate on the concepts used in pattern recognition tasks.	12
Q.6	Ans a) b) c)	wer any two.  Explain the working of a simple feed-forward network with a flow What is pattern classification? How does it work?  What is Neo-recognition? How are handwritten characters recog	
Q.7	Ans a) b)	wer any one. List and elaborate on the applications of ANN. What are the operators in NET talk? Elaborate on each.	08

Seat	Set	R
No.	Jet l	11

# B.E. (Part – II) (CGPA) Examination Nov/Dec -2019 Computer Science & Engineering ARTIFICIAL NEURAL NETWORKS

Day & Date: Tuesday, 26-11-2019	Max. Marks: 70
Time: 02:30 PM To 05:30 PM	

เมอน	uctioi	book.	i iouiu i	be solved in first 50 milliates in answer
		2) Figures to the right indicates		rks.
		3) Assume suitable data if nece	•	Questions
Dura	tion: 3	MCQ/Objective 1 30 Minutes	ı ype	Marks: 14
Q.1	<b>Choo</b> 1)	ose the correct alternatives from Feature of ANN in which ANS creators of information it receives during leteral a) Adaptive Learning c) What-If Analysis	ates its	own organization or representation time is
	2)	In artificial Neural Network interco called a) nodes or neurons c) axons	nnecte b) d)	d processing elements are weights soma
	3)	Each connection link in ANN is as about the input signal.  a) neurons c) bias	sociate b) d)	weights activation function
	4)	Neurons or artificial neurons have original neurons as found in brain.  a) True		·
	5)	Internal state of neuron is called _ neurons receives.  a) Weight b) Activation or activity level of n c) Bias d) None of these		_, is the function of the inputs the
	6)	Neuron can send signa a) multiple c) none	l at a ti b) d)	me. one any number of
	7)	A 3-input neuron is trained to outpone when the input is 111. After gwhen and only when the input is _a) 000 or 110 or 011 or 101 c) 000 or 010 or 110 or 100	enerali	•

Set R

8)	A p a) b) c) d)	erceptron is  a single layer feed-forward neur an auto-associative neural netw a double layer auto-associative a neural network that contains fe	ork neura	I network
9)	a) b) c)	auto-associative network is a neural network that contains n a neural network that contains for a neural network that has only o a single layer feed-forward neur	o loop eedba ne loo	ck op
10)	the res	•		4. The transfer function is linear with to 2. The inputs are 4, 10, 5 and 20 76
	,	119	d)	123
11)	ele	N is composed of large number of ments (neurons) working in unison True	n to s	,
12)		_	b) d)	Classification All of these
13)	a) b) c)	ural Network can answer For Loop questions what-if questions IF-The-Else Analysis Questions None of these	_•	
14)		lity to learn how to do tasks base perience?	d on t	he data given for training or initial
	a) <sup>.</sup>	Self Organization Fault tolerance	b) d)	Adaptive Learning Robustness

Seat No. Set	R
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# B.E. (Part – II) (CGPA) Examination Nov/Dec -2019 Computer Science & Engineering ARTIFICIAL NEURAL NETWORKS

		ANTIFICIAL NEURAL NET WORKS	
•		e: Tuesday, 26-11-2019 30 PM To 05:30 PM	Max. Marks: 56
Instr	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicates full marks.</li><li>3) Assume suitable data if necessary.</li></ul>	
		Section – I	
Q.2	Ans a) b) c) d)	wer any three.  Develop the Mc Culloch Pitts model.  What is learning? Derive a simple expression.  State and explain the Delta training rule.  What are self organizing Kohenen's map?	12
Q.3	Ans a) b) c)	wer any two.  How does Discrete Perceptron work as a classifier?  State and derive the error back propagation algorithm.  Compare BNN with ANN.	08
Q.4	Ans a) b)	wer any one. Give various topologies of ANN. How do they work? How are Hamming nets and Maxnets used for classification?	08
		Section – II	
Q.5	Ans a) b) c) d)	wer any three. What is activation? What is competitive learning? What is pattern association? Elaborate on the concepts used in pattern recognition tasks.	12
Q.6	Ans a) b) c)	wer any two. Explain the working of a simple feed-forward network with a flow What is pattern classification? How does it work? What is Neo-recognition? How are handwritten characters recognition?	
Q.7	Ans a) b)	wer any one.  List and elaborate on the applications of ANN.  What are the operators in NET talk? Elaborate on each.	08

Seat	Set	S
No.		)

# B.E. (Part - II) (CGPA) Examination Nov/Dec -2019

		Computer Science & Engineering ARTIFICIAL NEURAL NETWORKS
•		e: Tuesday, 26-11-2019 Max. Marks: 70 0 PM To 05:30 PM
Instr	uction	<ul><li>ns: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.</li><li>2) Figures to the right indicates full marks.</li><li>3) Assume suitable data if necessary.</li></ul>
		MCQ/Objective Type Questions
Dura	ition: 3	30 Minutes Marks: 14
Q.1	<b>Choo</b> 1)	ose the correct alternatives from the options and rewrite the sentence.  Neuron can send signal at a time.  a) multiple b) one c) none d) any number of
	2)	A 3-input neuron is trained to output a zero when the input is 110 and a one when the input is 111. After generalization the output will be zero when and only when the input is  a) 000 or 110 or 011 or 101  b) 010 or 100 or 110 or 101  c) 000 or 010 or 110 or 100  d) 100 or 111 or 101 or 001
	3)	A perceptron is  a) a single layer feed-forward neural network with pre-processing b) an auto-associative neural network c) a double layer auto-associative neural network d) a neural network that contains feedback
	4)	An auto-associative network is  a) a neural network that contains no loops b) a neural network that contains feedback c) a neural network that has only one loop d) a single layer feed-forward neural network with pre-processing
	5)	A 4-input neuron has weights 1, 2, 3 and 4. The transfer function is linear with the constant of proportionality being equal to 2. The inputs are 4, 10, 5 and 20 respectively. The output will be  a) 238 b) 76 c) 119 d) 123
	6)	ANN is composed of large number of highly interconnected processing elements (neurons) working in unison to solve problems.  a) True b) False

b)

ď)

Artificial neural network used for \_ a) Pattern Recognition

c) Clustering

7)

Classification

All of these

Page **10** of **12** 

Set S

8)	Neural Network can answer a) For Loop questions b) what-if questions c) IF-The-Else Analysis Qu d) None of these		
9)	Ability to learn how to do tas experience?	ks based on	the data given for training or initial
	<ul><li>a) Self Organization</li><li>c) Fault tolerance</li></ul>	b) d)	Adaptive Learning Robustness
10)	Feature of ANN in which AN of information it receives dur a) Adaptive Learning c) What-If Analysis	ing learning t	Self Organization
11)	In artificial Neural Network in called	nterconnected	d processing elements are
	<ul><li>a) nodes or neurons</li><li>c) axons</li></ul>	b) d)	weights soma
12)	Each connection link in ANN about the input signal.	is associate	d with which has information
	a) neurons c) bias	b) d)	weights activation
13)	Neurons or artificial neurons original neurons as found in	brain.	•
	a) True	b)	False
14)	Internal state of neuron is can neurons receives.  a) Weight b) Activation or activity level c) Bias d) None of these		, is the function of the inputs the

Seat No.	Set S	S
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# B.E. (Part – II) (CGPA) Examination Nov/Dec -2019 Computer Science & Engineering ARTIFICIAL NEURAL NETWORKS

		ARTIFICIAL NEURAL NETWORKS	
		e: Tuesday, 26-11-2019 30 PM To 05:30 PM	Max. Marks: 56
Instr	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicates full marks.</li><li>3) Assume suitable data if necessary.</li></ul>	
		Section – I	
Q.2	Ans a) b) c) d)	wer any three.  Develop the Mc Culloch Pitts model.  What is learning? Derive a simple expression.  State and explain the Delta training rule.  What are self organizing Kohenen's map?	12
Q.3	Ans a) b) c)	wer any two.  How does Discrete Perceptron work as a classifier?  State and derive the error back propagation algorithm.  Compare BNN with ANN.	08
Q.4	Ans a) b)	wer any one. Give various topologies of ANN. How do they work? How are Hamming nets and Maxnets used for classification?	08
		Section – II	
Q.5	Ans a) b) c) d)	wer any three. What is activation? What is competitive learning? What is pattern association? Elaborate on the concepts used in pattern recognition tasks.	12
Q.6	Ans a) b) c)	wer any two.  Explain the working of a simple feed-forward network with a flow What is pattern classification? How does it work?  What is Neo-recognition? How are handwritten characters recog	
Q.7	Ans a) b)	wer any one.  List and elaborate on the applications of ANN.  What are the operators in NET talk? Elaborate on each.	08

Seat	Set	D
No.	Set	L

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019

		Computer Science BIG DATA A		Engineering	
•		e: Tuesday, 26-11-2019 0 PM To 05:30 PM		Max. Marks: 70	0
Instr	uctio	<ul><li>ns: 1) Q. No. 1 is compulsory and sh book.</li><li>2) Figures to the right indicate ful 3) Assume suitable data if neces</li></ul>	l mar	be solved in first 30 minutes in answerks.	
		MCQ/Objective T	ype	Questions	
Dura	ition: 3	30 Minutes		Marks: 1	4
Q.1	<b>Cho</b> 1)	ose the correct alternatives from the MapReduce framework of Hadoop a) Scheduling c) Re-executing failed task	•		4
	2)	The term NoSQL was first coined b a) Doug Laney c) Brewer	b) d)	Carlo Strozzi Gartner	
	3)	The structured, unstructured and set of the following characteristics?  a) Velocity c) Variability	emi-st b) d)	ructured data is deals with which  Volatility  Volume	
	4)	In which of the following analysis, D prescriptive? a) Analytics 1.0 c) Analytics 3.0	ata is b) d)	Analytics 2.0 None	
	5)	When NameNode starts up, it reads a) TaskTracker, JobTracker c) Master Node, Slave Node	b)	and from disk. FsImage, EditLog None of the above.	
	6)	Which of the following is a tool to translational Databases?  a) Sqoop  c) Hive	ansfei b) d)	r data between Hadoop and HBase Pig	
	7)	Which of the following is/are advant a) Scalable c) Fault-tolerant	ages b) d)	of Hadoop? Cost Effective All the above	
	8)	Core mongo DB operations are		 create read undate delete	

ď)

b)

d)

create, remove, update, drop

**Graph-oriented** 

SQL

c) create, read, update, drop

a) Document-oriented

c) Column-oriented

Cassandra is a \_\_\_\_\_ database.

9)

# Set P

10)	a) c)	Unordered elements Paired elements	b) d)	Ordered elements Only images
11)	PIG a) c)	is dataflow language import export tool	b) d)	NoSQL database scheduling engine
12)	Hiv a) c)	e provides kinds of pa Static Both Static and dynamic	artitio b) d)	ns. Dynamic Neither static nor dynamic
13)	a) c)	is Data warehousing tool. Jaspersoft studio Pig	b) d)	Cassandra Hive
14)	ETI a) c)	processing in Pig stand for Extract, transform and load Extract, transform and local	b) d)	Extend transfer and load None of the above

No. Set F	Seat No.
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# B.E. (Part - II) (CGPA) Examination Nov/Dec-2019

		Computer Science and Engineering BIG DATA ANALYTICS	
		e: Tuesday,26-11-2019 30 PM To 05:30 PM	Max. Marks: 56
Instr	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li><li>3) Assume suitable data if necessary.</li></ul>	
		Section – I	
Q.2	a) b) c)	what do you mean by structured Data? List sources of structured Why it is easy of working with structured data?  Describe the anatomy of File Read in HDFS.  Compare between SQL, NoSQL, and NewSQL.	
	d) e)	List the features of Name Node. Why secondary Name Node is r What is Big Data Analytics? Explain second schools of thought of Analytics.	•
Q.3	Atte a) b) c)	mpt any two.  How does MapReduce work? Explain with suitable example.  Explain various terminologies used in Big Data environments.  What are the limitations of Hadoop 1.0 architecture? Explain YAF  Architecture in detail.	<b>12</b> RN
		Section – II	
Q.4	Atternal (a) (b) (c) (d) (e)	List four important differences between RDBMS and MongoDB. With the help of example, explain set collection, list collection and collection in Cassandra. When collections should not be used? What is static and dynamic partitioning in HIVE? Illustrate with example with example using PIG. Write MongoDB query for an objective given below: Create a collection "students" and insert 5 documents into the stronglection by "_id" and "stdname" array. Check these documents present in students collection. Find that document from students where "joy" is present in 4 <sup>th</sup> index position of the students array.	kample. udents are
Q.5	Atte a) b)	empt any two.  Explain Map reduce Programming in Mongo DB with suitable example with the concept of hinted handoffs, consistency and replication Cassandra?	•

c) Draw the architecture of Hive and explain its components.

Seat	Set	O
No.		G

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering BIG DATA ANALYTICS

Day & Date: Tuesday, 26-11-2019	Max. Marks: 70
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Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

		J	) Assume suitable date	a ii riecessi	ary.		
			MCQ/Obj	ective Ty	pe C	uestions	
Dura	tion: 3	0 Mi		•	•	Marks:	14
Q.1	Choc	ose t	the correct alternative	es from the	e opt	ions and rewrite the sentence.	14
·	1)		e mongo DB operation				
	ŕ		create, select, update create, read, update,			create, read, update, delete create, remove, update, drop	
	2)	Cas	ssandra is a	database.			
		a) c)	Document-oriented Column-oriented		b) d)	Graph-oriented SQL	
	3)	a)	ist is a collection of Unordered elements Paired elements	·	b)	Ordered elements Only images	
	4)	a)	is dataflow language import export tool		b) d)	NoSQL database scheduling engine	
	5) Hive provides kinds of partitions.				ns.		
	,		Static	•	b) d)	Dynamic Neither static nor dynamic	
	6)	a)	is Data warehous Jaspersoft studio Pig	ing tool.	b) d)	Cassandra Hive	
	7)		processing in Pig state Extract, transform and Extract, transform and	load	b)	 Extend transfer and load None of the above	
	8)	a) .	oReduce framework of Scheduling Re-executing failed ta	·	also b) d)	takes care of Monitoring All	
	9)		e term NoSQL was first Doug Laney Brewer	coined by	b)	 Carlo Strozzi Gartner	

Set Q

10)	of th	e structured, unstructured and ser ne following characteristics? Velocity	nı-strı b)	uctured data is deals with which  Volatility
	c)	Variability	d)	Volume
11)		which of the following analysis, Dascriptive?	ıta is	descriptive, predictive and
	a)	Analytics 1.0	b)	Analytics 2.0
	c)	Analytics 3.0	d)	None
12)		en NameNode starts up, it reads TaskTracker, JobTracker Master Node, Slave Node	b)	FsImage, EditLog
13)		ich of the following is a tool to tranational Databases? Sgoop	nsfer b)	data between Hadoop and HBase
	c)	Hive .	ď)	Pig
14)	a)	ich of the following is/are advanta Scalable	b)	Cost Effective
	c)	Fault-tolerant	d)	All the above

Seat	Set	O
No.		G

		Computer Science and Engineering	
		BIG DATA ANALYTICS	
•		te: Tuesday,26-11-2019 Ma 30 PM To 05:30 PM	ax. Marks: 56
Instr	uctio	<ul><li>2) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li><li>3) Assume suitable data if necessary.</li></ul>	
		Section – I	
Q.2	Attera) b) c) d) e)	what do you mean by structured Data? List sources of structured d Why it is easy of working with structured data?  Describe the anatomy of File Read in HDFS.  Compare between SQL, NoSQL, and NewSQL.  List the features of Name Node. Why secondary Name Node is required What is Big Data Analytics? Explain second schools of thought of B Analytics.	uired?
Q.3	Atte a) b) c)	empt any two.  How does MapReduce work? Explain with suitable example.  Explain various terminologies used in Big Data environments.  What are the limitations of Hadoop 1.0 architecture? Explain YARN Architecture in detail.  Section – II	12
Q.4	Δttc	empt any Four.	16
<b>4.</b>	a) b) c) d) e)	List four important differences between RDBMS and MongoDB. With the help of example, explain set collection, list collection and N collection in Cassandra. When collections should not be used? What is static and dynamic partitioning in HIVE? Illustrate with exam Write word count example using PIG. Write MongoDB query for an objective given below: Create a collection "students" and insert 5 documents into the stude collection by "_id" and "stdname" array. Check these documents are present in students collection. Find that document from students cowhere "joy" is present in 4 <sup>th</sup> index position of the students array.	Map  nple.  ents
Q.5		empt any two.	12
	a) b)	Explain Map reduce Programming in Mongo DB with suitable exam What is the concept of hinted handoffs, consistency and replication in Cassandra?	•
	c)	Draw the architecture of Hive and explain its components.	

Seat No.	Set	R
140.		

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering BIG DATA ANALYTICS

Day & Date: Tuesday, 26-11-2019	Max. Marks: 70

Time: 02:30 PM To 05:30 PM

Instructions: 1) O. No. 1 is compulsory and should be solved in first 20 minutes in

Instr	uctio	<b>ns:</b> 1) Q. No. 1 is compulsory and sh book.	ould k	be solved in first 30 minutes in answ	ver
		2) Figures to the right indicate ful		ks.	
		3) Assume suitable data if neces	sary.		
		MCQ/Objective T	ype		
Dura	ition: 3	30 Minutes		Marks	: 14
Q.1	<b>Cho</b> (1)	ose the correct alternatives from the When NameNode starts up, it reads	s the .	and from disk.	14
		<ul><li>a) TaskTracker, JobTracker</li><li>c) Master Node, Slave Node</li></ul>	b) d)		
	2)	Which of the following is a tool to transcript Relational Databases?	ansfe	r data between Hadoop and	
		<ul><li>a) Sqoop</li><li>c) Hive</li></ul>	b) d)	HBase Pig	
	3)	Which of the following is/are advant	•	•	
		a) Scalable	p)	Cost Effective	
	4.	c) Fault-tolerant	d)	All the above	
	4)	Core mongo DB operations are a) create, select, update, delete		create, read, update, delete	
		c) create, read, update, drop	d)	create, remove, update, drop	
	5)	Cassandra is a database	<b>)</b> .		
	-	a) Document-oriented	b)	Graph-oriented	
		c) Column-oriented	d)	SQL	
	6)	A List is a collection of			
		a) Unordered elements	b)	Ordered elements	
		c) Paired elements	d)	Only images	
	7)	PIG is	<b>b</b> \	NaCOL database	
		<ul><li>a) dataflow language</li><li>c) import export tool</li></ul>	b) d)	NoSQL database scheduling engine	
	8)	Hive provides kinds of p	•		
	0)	a) Static	b)	Dynamic	
		c) Both Static and dynamic	d)	Neither static nor dynamic	
	9)	is Data warehousing tool.			
	,	a) Jaspersoft studio	b)	Cassandra	
		c) Pig	d)	Hive	

Set R

10)	ETL a) c)	processing in Pig stand for Extract, transform and load Extract, transform and local	b) d)	 Extend transfer and load None of the above
11)		Reduce framework of Hadoop is Scheduling Re-executing failed task	also b) d)	takes care of Monitoring All
12)	The a) c)	term NoSQL was first coined by Doug Laney Brewer	b) d)	 Carlo Strozzi Gartner
13)	of th	structured, unstructured and ser ne following characteristics? Velocity Variability	ni-stru b) d)	uctured data is deals with which Volatility Volume
14)	pres a)	hich of the following analysis, Dascriptive? Analytics 1.0 Analytics 3.0	ta is o b) d)	descriptive, predictive and Analytics 2.0 None

Seat	Cat	П
No.	Set	K

		Computer Science and Engineering	
		BIG DATA ANALYTICS re: Tuesday,26-11-2019 Max. Mark 80 PM To 05:30 PM	s: 56
		ns: 1) All questions are compulsory. 2) Figures to the right indicate full marks. 3) Assume suitable data if necessary.	
		Section – I	
Q.2	a) b) c) d) e)	What do you mean by structured Data? List sources of structured data. Why it is easy of working with structured data? Describe the anatomy of File Read in HDFS. Compare between SQL, NoSQL, and NewSQL. List the features of Name Node. Why secondary Name Node is required? What is Big Data Analytics? Explain second schools of thought of Big Data Analytics.	16
Q.3	Atte a) b) c)	How does MapReduce work? Explain with suitable example. Explain various terminologies used in Big Data environments. What are the limitations of Hadoop 1.0 architecture? Explain YARN Architecture in detail.	12
		Section – II	
Q.4	a) b) c) d) e)	List four important differences between RDBMS and MongoDB. With the help of example, explain set collection, list collection and Map collection in Cassandra. When collections should not be used? What is static and dynamic partitioning in HIVE? Illustrate with example. Write word count example using PIG. Write MongoDB query for an objective given below: Create a collection "students" and insert 5 documents into the students collection by "_id" and "stdname" array. Check these documents are present in students collection. Find that document from students collection where "joy" is present in 4 <sup>th</sup> index position of the students array.	16
Q.5	Atte	empt any two.	12
	a) b)	Explain Map reduce Programming in Mongo DB with suitable example. What is the concept of hinted handoffs, consistency and replication factor in Cassandra?	
	c)	Draw the architecture of Hive and explain its components.	

Seat	Set	6
No.	Set	3

# B.E. (Part – II) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering BIG DATA ANALYTICS

Day & Date: Tuesday, 26-11-2019	Max. Marks: 70
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Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book

		book. 2) Figures to the right indicate ful 3) Assume suitable data if necess		KS.	
		MCQ/Objective T	•	Questions	
Dura	tion: 3	0 Minutes	, po	Marks:	14
Q.1	Cho	ose the correct alternatives from the	те ор	tions and rewrite the sentence.	14
	1)	<ul><li>A List is a collection of</li><li>a) Unordered elements</li><li>c) Paired elements</li></ul>	b) d)	Ordered elements Only images	
	2)	PIG is a) dataflow language c) import export tool	b) d)	NoSQL database scheduling engine	
	3)	Hive provides kinds of page 3. Static c) Both Static and dynamic	bartitic b) d)	ons. Dynamic Neither static nor dynamic	
	4)	<ul><li>is Data warehousing tool.</li><li>a) Jaspersoft studio</li><li>c) Pig</li></ul>	b) d)	Cassandra Hive	
	5)	ETL processing in Pig stand for a) Extract, transform and load c) Extract, transform and local	,	Extend transfer and load None of the above	
	6)	<ul><li>MapReduce framework of Hadoop i</li><li>a) Scheduling</li><li>c) Re-executing failed task</li></ul>	s also b) d)	takes care of  Monitoring All	
	7)	The term NoSQL was first coined by a) Doug Laney c) Brewer	b) d)	 Carlo Strozzi Gartner	
	8)	The structured, unstructured and set of the following characteristics?  a) Velocity c) Variability	emi-stı b) d)	ructured data is deals with which  Volatility  Volume	
	9)	In which of the following analysis, D prescriptive?  a) Analytics 1.0  c) Analytics 3.0	b)	descriptive, predictive and Analytics 2.0 None	

Set S

10)	<ul><li>When NameNode starts up, it reads</li><li>a) TaskTracker, JobTracker</li><li>c) Master Node, Slave Node</li></ul>	the _ b) d)	
11)	Which of the following is a tool to tra Relational Databases? a) Sqoop	nsfer b)	data between Hadoop and HBase
	c) Hive	ď)	Pig
12)	Which of the following is/are advanta a) Scalable c) Fault-tolerant	nges d b) d)	of Hadoop? Cost Effective All the above
13)	Core mongo DB operations are a) create, select, update, delete c) create, read, update, drop	b) d)	create, read, update, delete create, remove, update, drop
14)	Cassandra is a database.  a) Document-oriented c) Column-oriented	b) d)	Graph-oriented SQL

Seat No.	Set S	S
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		Computer Science and Engineering	
		BIG DATA ANALYTICS	
•		te: Tuesday,26-11-2019 Max. Mark 30 PM To 05:30 PM	s: 56
Instr	uctio	<ul><li>2) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li><li>3) Assume suitable data if necessary.</li></ul>	
		Section – I	
Q.2	Atte a) b) c) d) e)	What do you mean by structured Data? List sources of structured data. Why it is easy of working with structured data? Describe the anatomy of File Read in HDFS. Compare between SQL, NoSQL, and NewSQL. List the features of Name Node. Why secondary Name Node is required? What is Big Data Analytics? Explain second schools of thought of Big Data Analytics.	16
Q.3	Atte a) b) c)	How does MapReduce work? Explain with suitable example. Explain various terminologies used in Big Data environments. What are the limitations of Hadoop 1.0 architecture? Explain YARN Architecture in detail.	12
		Section – II	
Q.4	a) b) c) d) e)	List four important differences between RDBMS and MongoDB. With the help of example, explain set collection, list collection and Map collection in Cassandra. When collections should not be used? What is static and dynamic partitioning in HIVE? Illustrate with example. Write word count example using PIG. Write MongoDB query for an objective given below: Create a collection "students" and insert 5 documents into the students collection by "_id" and "stdname" array. Check these documents are present in students collection. Find that document from students collection where "joy" is present in 4 <sup>th</sup> index position of the students array.	16
Q.5	Atte	empt any two.	12
	a) b)	Explain Map reduce Programming in Mongo DB with suitable example. What is the concept of hinted handoffs, consistency and replication factor in Cassandra?	
	c)	Draw the architecture of Hive and explain its components.	

Seat	
No.	

## S.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – I**

Day & Date: Saturday, 07-12-2019

Max. Marks: 70

Time: 10:00 AM To 01:00 PM

Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer

2) Figures to the right indicate full marks.

### MCQ/Objective Type Questions

**Duration: 30 Minutes** Marks: 14

Choose the correct alternatives from the options and rewrite the sentence. Q.1 14

$$\frac{1}{D-3}$$
 × is equal to \_\_\_\_\_\_

a) 
$$\frac{x}{3} - \frac{1}{9}$$

b) 
$$-\frac{x}{3} - \frac{1}{9}$$

c) 
$$\frac{x}{3} + \frac{1}{9}$$

d) 
$$-\frac{x}{3} + \frac{1}{9}$$

The particular integral of  $(D^2 + 16)y = \cos 4x$  is \_\_\_\_\_\_ 2)

a) 
$$\frac{x}{8}\sin 2x$$

b) 
$$\frac{x}{8}\cos 2x$$

c) 
$$\frac{-x}{8}\sin 2x$$

d) 
$$\frac{-x}{8}\cos 2x$$

3) 
$$L^{-1}\{\phi'(s)\} = \underline{\hspace{1cm}}$$
.

a) 
$$-\frac{1}{t}L^{-1}\{\phi(s)\}$$

b) 
$$-tL^{-1}\{\phi(s)\}$$

c) 
$$tL^{-1}\{\phi(s)\}$$

4) 
$$L^{-1}\left\{\frac{1}{(s-3)^2}\right\} = \underline{\hspace{1cm}}$$

a) 
$$te^{-3t}$$

b) 
$$e^{-3t}$$

c) 
$$te^{3t}$$

d) 
$$t^2e^{3t}$$

5) 
$$Z(1) =$$
\_\_\_\_\_.

a) 
$$\frac{1}{z-1}$$

b) 
$$\frac{z}{z+1}$$

c) 
$$\frac{1}{z+1}$$

d) 
$$\frac{z}{z-1}$$

6) If 
$$Z\{f(k)\} = F(z)$$
 then  $Z\{kf(k)\} =$ \_\_\_\_\_.  
a)  $-z\frac{dF(z)}{dZ}$  b)  $z\frac{dF(z)}{dZ}$ 

a) 
$$-z \frac{dF(z)}{dZ}$$

b) 
$$z^{\frac{dF(z)}{dz}}$$

c) 
$$\frac{-dF(z)}{dZ}$$

d) 
$$\frac{dF(z)}{dZ}$$

If f(x) is an even function then  $\int f(x)dx =$  \_\_\_\_\_.

$$\int_{-\infty}^{x} f(x)dx = \underline{\qquad}$$

a) 
$$2\int_{0}^{z} f(x)dx$$

b) 
$$\int_{a}^{0} f(x) dx$$

c)

d) None of these

# Set P

8)	Αu	nit normal to the surface $z = 2xy$	at th	ne point (2,1,4) is
	a)	2i + 4j - k	b)	2i + 4j + k
		$\frac{1}{\sqrt{21}}(2i+4j-k)$	ď)	$\frac{1}{\sqrt{21}}(4i+2j-k)$
9)	If $\overline{\boldsymbol{v}}$	$= 5xyi + 2y^2j + 3yz^2k$ The diverg	gend	ce of this vector at (1, 1, 1) is
	a)		b)	
	c)	14	d)	15
10)		tean of $x = 70$ mean of $y = 149$ at on x is	and 2	x = 0.7 then the line of regression
	-		b)	y = 0.6x + 80
	c)	y = 0.5x + 60	ď)	y = 0.7x + 100
11)	If coa)	pefficient of correlation $r=\pm 1$ the coincident		ne regression lines are perpendicular
	c)		,	inclined at an angle of 3/3
12)	In a	$M M l \infty$ system the ration $\frac{\lambda}{\mu}$ mu	st b	e
	a)	greater than 1	b)	less than 1
	c)	equal to 1	d)	equal to 1.5
13)		binominal distribution mean = 12 , q are respectively.	2 an	d variance is 4, then the values of
		9, ½, ½	b)	4, ½, ½
	c)	18, 3/3, 1/3	d)	9, 2/3, 1/3
14)	Fou	rier expansion of an odd function	n ha	s only
-	a)	sine terms	b)	cosine terms
	c)	both sine and cosine terms	d)	none of these

	_	
Seat	Set	D
No.	Set	

# S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**APPLIED MATHEMATICS – I** Day & Date: Saturday, 07-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) Q. No. 4 & Q. No. 8 are compulsory. 2) Solve any two questions from each section. 3) Figures to the right indicate full marks. Attempt the following questions. a) Solve  $(D^3 + D)y = \cos x$ 03 **b)** Solve  $(D^3 - 7D + 6)y = x^2$ 03 **c)** Solve  $(D^2 - 2D - 1)y = e^x \cos x$ 03 Attempt any three of following questions. Q.3 a) Find  $L\left\{\int_{0}^{t} u^{-1} 2^{u} \sin u \, du\right\}$ 03 **b)** Find  $L^{-1}\left\{\frac{s}{(s-3)(s^2+4)}\right\}$ 03 c) Evaluate  $\int_{-\infty}^{\infty} \frac{\cos 4t - \cos 3t}{t} dt$  sing Laplace transform. 03 **d)** Find  $L\{te^{-2t}\sin^2 t\}$ 03 Q.4 Attempt the following questions. Find z-transform and its ROC of  $f(k) = \frac{3^k}{k!}$ ,  $k \ge 0$ 03 **b)** Prove that the z-transform of  $x_k = \sin \alpha k$ ,  $k \ge 0$  where  $\alpha$  is real is given by 04  $\frac{z \sin \, \alpha}{z^2 - 2z \cos \, \alpha + 1} \text{ if } |z| > 1$ **c)** Find  $Z^{-1}\left(\frac{z}{z-5}\right) |z| < 5$ 03 Attempt the following questions. Q.5 a) Find a Fourier series to represent  $f(x) = x^2$  in  $(0, 2\pi)$ . 05 b) Find Half-range sine series of 04  $f(x) = \frac{2x}{1}, 0 \le x \le \frac{1}{2}$  $= \frac{2}{1} (1 - x). \frac{1}{2} \le x \le 1$ Section - II

#### Attempt the following questions. Q.6

- a) A particle moves along the curve  $x = t^2 + 1$   $y = t^2$  z = 2t + 3 where t is the 03 time find velocity and acceleration with their magnitudes?
- **b)** Find the directional derivative of  $\phi = x^4 + y^4 + z^4$  at point (1,-2,1) in the 03 directional of AB where B is (2,6,-1).
- Show that the vector field defined by  $\overline{F} = (y + z)i + (z + x)j + (x + y)k$  is 04 irrotational. Also find scalar potential.

Set P

#### Q.7 Attempt the following questions.

09

- a) Six dice are thrown 729 times. How many times do expect at least three dice to show a 5 or 6?
- **b)** Fit a poisson distribution to the following data.

X	0	1	2	3	4	Total
F	109	65	22	3	1	200

- c) Weights of 4000 students are found to be normally distributed with mean 50 kgs and standard deviation 5 kgs. Find the number of students with weight:
  - 1) Less than 45 kgs and
  - 2) Between 45 and 60 kgs.

[Given - for SNV z, Area between z = 0 to z = 1 is 0.3413 and z = 0 to z = 2 is 0.4772].

#### Q.8 Attempt the following questions.

a) Calculate Karl Pearson's coefficient of correlation from the following data.

04

			40							
y :	23	34	33	34	30	26	28	31	36	35

**b)** Fit a second degree parabola for the following data.

03

x :	1	2	3	4	5	6	7	8	9
y :	2	6	7	8	10	11	11	10	9

**c)** The equation to the two lines of regressions are 6y = 5x + 90 and 15x = 8y + 130. Find the mean of x and y and the coefficient of correlation?

03

### Q.9 Attempt the following questions.

a) There are two typists in a type writing shop each typists can type on an average 5 letters per hour. The rate of arrivals of letters is 8 per hours

05

- 1) What is the probability that both the typist are busy?
- 2) What is the average idle time for which both typist are idle?
- b) People arrive to purchase railways tickets at the rate of 5 per minute. On an average is takes 10 seconds to issue the ticket. A person arrives 5 min, before the train starts. It takes 4 min for him to get in the train after purchasing the ticket.
  - 1) Can he be expected in the train before the train starts?
  - 2) What is the probability that he will be in the train before the train starts?

Seat No.			Set	Q

		Computer Science		
		APPLIED MATI		
•		e: Saturday, 07-12-2019 D AM To 01:00 PM		Max. Marks: 70
Instr	uctior		nould	be solved in first 30 minutes in answer
		book. 2) Figures to the right indicate fu	ıll ma	rke
		MCQ/Objective 1		
Dura	tion: 3	0 Minutes	JPU	Marks: 14
Q.1	Choo	ose the correct alternatives from t	he o	ptions and rewrite the sentence. 14
	1)	A unit normal to the surface $z = 2x$		
		a) $2i + 4j - k$		2i + 4j + k
		c) $\frac{1}{\sqrt{21}}(2i+4j-k)$		$\frac{1}{\sqrt{21}}(4i+2j-k)$
	2)			ce of this vector at (1, 1, 1) is
		a) 9 c) 14	q) p)	10 15
	3)	If mean of $x = 70$ mean of $y = 149$	,	
	0)	of y on x is	anu	x = 0.7 then the line of regression
		a) $y = 0.8x + 120$		y = 0.6x + 80
		c) $y = 0.5x + 60$	,	y = 0.7x + 100
	4)	If coefficient of correlation $r = \pm 1$ t		=
		<ul><li>a) coincident</li><li>c) parallel</li></ul>	•	perpendicular inclined at an angle of 3/3
	5)	In a M M l  $\infty$ system the ration $\frac{\lambda}{\mu}$ m		-
		a) greater than 1		less than 1
		c) equal to 1	d)	equal to 1.5
	6)	For binominal distribution mean = 7 n, p, q are respectively.	12 an	d variance is 4, then the values of
		a) 9, ½, ¾		4, ½, ½
		c) 18, <sup>2</sup> / <sub>3</sub> , <sup>1</sup> / <sub>3</sub>	,	9, 2/3, 1/3
	7)	Fourier expansion of an odd function		
		<ul><li>a) sine terms</li><li>both sine and cosine terms</li></ul>	b) d)	cosine terms none of these
	8)	$\frac{1}{D-3}$ × is equal to		
		a) $\frac{x}{3} = \frac{1}{9}$	b)	$-\frac{x}{3} - \frac{1}{9}$
		C) $\frac{x}{3} + \frac{1}{9}$		$-\frac{x}{3} + \frac{1}{9}$
		$\frac{1}{3} + \frac{1}{9}$	٠,	$-\frac{1}{3} + \frac{1}{9}$

# Set | Q

- The particular integral of  $(D^2 + 16)y = \cos 4x$  is \_\_\_\_\_. 9)
  - a)  $\frac{x}{8}\sin 2x$

b)  $\frac{x}{8}\cos 2x$ 

c)  $\frac{-x}{8}\sin 2x$ 

- d)  $\frac{-x}{8}\cos 2x$
- 10)  $L^{-1}\{\phi'(s)\} =$ \_\_\_\_\_\_
  - a)  $-\frac{1}{t}L^{-1}\{\phi(s)\}$
- b)  $-tL^{-1}\{\phi(s)\}$

c)  $tL^{-1}\{\phi(s)\}$ 

- d) None of these
- 11)  $L^{-1}\left\{\frac{1}{(s-3)^2}\right\} = \underline{\hspace{1cm}}.$ 
  - a)  $te^{-3t}$

b)  $\frac{e^{-3t}}{t}$ 

c)  $te^{3t}$ 

d)  $t^2e^{3t}$ 

- 12)  $Z\{1\} = \underline{\qquad}$ a)  $\frac{1}{z-1}$

- 13) If  $Z\{f(k)\} = F(z)$  then  $Z\{kf(k)\} =$ \_\_\_\_\_. a)  $-z \frac{dF(z)}{dZ}$  b)  $z \frac{dF(z)}{dZ}$

c)  $\frac{-dF(z)}{dz}$ 

- d)  $\frac{dF(z)}{dZ}$
- 14) If f(x) is an even function then  $\int_{-x}^{x} f(x)dx =$ a)  $\int_{2}^{z} f(x)dx$ b)  $\int_{1}^{0} f(x)dx$

c) 0

d) None of these

# S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**APPLIED MATHEMATICS – I** Day & Date: Saturday, 07-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) Q. No. 4 & Q. No. 8 are compulsory. 2) Solve any two questions from each section. 3) Figures to the right indicate full marks. Attempt the following questions. a) Solve  $(D^3 + D)y = \cos x$ 03 **b)** Solve  $(D^3 - 7D + 6)y = x^2$ 03 **c)** Solve  $(D^2 - 2D - 1)y = e^x \cos x$ 03 Attempt any three of following questions. Q.3 a) Find  $L\left\{\int_{0}^{t} u^{-1} 2^{u} \sin u \, du\right\}$ 03 **b)** Find  $L^{-1}\left\{\frac{s}{(s-3)(s^2+4)}\right\}$ 03 c) Evaluate  $\int_{x}^{\infty} \frac{\cos 4t - \cos 3t}{t} dt$  sing Laplace transform. 03 **d)** Find  $L\{te^{-2t}\sin^2 t\}$ 03 Q.4 Attempt the following questions. Find z-transform and its ROC of  $f(k) = \frac{3^k}{k!}$ ,  $k \ge 0$ 03 **b)** Prove that the z-transform of  $x_k = \sin \alpha k$ ,  $k \ge 0$  where  $\alpha$  is real is given by 04  $\frac{z \sin \, \alpha}{z^2 - 2z \cos \, \alpha + 1} \text{ if } |z| > 1$ **c)** Find  $Z^{-1}\left(\frac{z}{z-5}\right) |z| < 5$ 03 Attempt the following questions. Q.5 a) Find a Fourier series to represent  $f(x) = x^2$  in  $(0, 2\pi)$ . 05 b) Find Half-range sine series of 04  $f(x) = \frac{2x}{1}, 0 \le x \le \frac{1}{2}$  $= \frac{2}{1} (1 - x). \frac{1}{2} \le x \le 1$ Section - II

#### Attempt the following questions. Q.6

- a) A particle moves along the curve  $x = t^2 + 1$   $y = t^2$  z = 2t + 3 where t is the 03 time find velocity and acceleration with their magnitudes?
- **b)** Find the directional derivative of  $\phi = x^4 + y^4 + z^4$  at point (1,-2,1) in the 03 directional of AB where B is (2,6,-1).
- Show that the vector field defined by  $\overline{F} = (y + z)i + (z + x)j + (x + y)k$  is 04 irrotational. Also find scalar potential.

Set Q

#### Q.7 Attempt the following questions.

09

- a) Six dice are thrown 729 times. How many times do expect at least three dice to show a 5 or 6?
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Χ	0	1	2	3	4	Total
F	109	65	22	3	1	200

- c) Weights of 4000 students are found to be normally distributed with mean 50 kgs and standard deviation 5 kgs. Find the number of students with weight:
  - 1) Less than 45 kgs and
  - 2) Between 45 and 60 kgs.

[Given - for SNV z, Area between z = 0 to z = 1 is 0.3413 and z = 0 to z = 2 is 0.4772].

#### Q.8 Attempt the following questions.

a) Calculate Karl Pearson's coefficient of correlation from the following data.

04

			40							
y :	23	34	33	34	30	26	28	31	36	35

**b)** Fit a second degree parabola for the following data.

03

x :	1	2	3	4	5	6	7	8	9
y :	2	6	7	8	10	11	11	10	9

**c)** The equation to the two lines of regressions are 6y = 5x + 90 and 15x = 8y + 130. Find the mean of x and y and the coefficient of correlation?

03

#### Q.9 Attempt the following questions.

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05

- 1) What is the probability that both the typist are busy?
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- b) People arrive to purchase railways tickets at the rate of 5 per minute. On an average is takes 10 seconds to issue the ticket. A person arrives 5 min, before the train starts. It takes 4 min for him to get in the train after purchasing the ticket.
  - 1) Can he be expected in the train before the train starts?
  - 2) What is the probability that he will be in the train before the train starts?

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		S.E. (Part – I) (Old) (CGPA) Ex		
		Computer Science APPLIED MATHE		
•		e: Saturday, 07-12-2019 0 AM To 01:00 PM		Max. Marks: 70
			uld	be solved in first 30 minutes in answer
		book.		
		2) Figures to the right indicate full		
Dura	tion: 3	MCQ/Objective Ty 0 Minutes	pe	Marks: 14
Q.1		ose the correct alternatives from the	e o	
	41	$\pi(A)$		
		$Z(1) = \underline{\qquad}$ a) $\frac{1}{z-1}$	b)	$\frac{z}{z+1}$
		c) $\frac{1}{z+1}$	d)	$\frac{z}{z-1}$
	2)	If $Z\{f(k)\} = F(z)$ then $Z\{kf(k)\} = $		·
		a) $-z \frac{dF(z)}{dz}$	b)	$Z\frac{dF(z)}{dZ}$
		2{1) = a) $\frac{1}{z-1}$ c) $\frac{1}{z+1}$ If $Z\{f(k)\} = F(z)$ then $Z\{kf(k)\} =$ a) $-z\frac{dF(z)}{dZ}$ c) $\frac{-dF(z)}{dZ}$	d)	$\frac{dF(z)}{dZ}$
	3)	If $f(x)$ is an even function then $\int_{-x}^{x} f(x) dx$ a) $2 \int_{0}^{z} f(x) dx$	(x)	dx =
		a) $2\int_{0}^{z} f(x)dx$	b)	$\int_{0}^{0} f(x) dx$
		-	d)	None of these
	4)	A unit normal to the surface $z = 2xy$		
		a) $2i + 4j - k$	q) p)	2i + 4j + k
		c) $\frac{1}{\sqrt{21}}(2i+4j-k)$	u)	$\frac{1}{\sqrt{21}}(41+2\mathbf{j}-\mathbf{K})$
	5)	If $\bar{v} = 5xyi + 2y^2j + 3yz^2k$ The diverg		
		•	b) d)	10 15
	6)	If mean of $x = 70$ mean of $y = 149$ are of y on x is	,	
		-	b)	y = 0.6x + 80
		c) $y = 0.5x + 60$	d)	y = 0.7x + 100
	7)			he regression lines are perpendicular inclined at an angle of ¾
	8)	In a M M I  $\infty$ system the ration $\frac{\lambda}{2}$ mus	,	-
	٠,	μ		
		, 3	b) d)	less than 1 equal to 1.5

- 9) For binominal distribution mean = 12 and variance is 4, then the values of n, p, q are respectively.
  - a)  $9, \frac{1}{3}, \frac{2}{3}$

b) 4, ½, ½

c)  $18, \frac{2}{3}, \frac{1}{3}$ 

- d) 9, <sup>2</sup>/<sub>3</sub>, <sup>1</sup>/<sub>3</sub>
- 10) Fourier expansion of an odd function has only \_\_\_\_\_
  - a) sine terms

- b) cosine terms
- c) both sine and cosine terms
- d) none of these
- 11)  $\frac{1}{D-3}$  × is equal to \_\_\_\_\_.
  - a)  $\frac{x}{3} \frac{1}{9}$

b)  $-\frac{x}{3} - \frac{1}{9}$ 

c)  $\frac{x}{3} + \frac{1}{9}$ 

- d)  $-\frac{x}{3} + \frac{1}{9}$
- 12) The particular integral of  $(D^2 + 16)y = \cos 4x$  is \_\_\_\_\_.
  - a)  $\frac{x}{8}\sin 2x$

b)  $\frac{x}{8}\cos 2x$ 

c)  $\frac{-x}{8}\sin 2x$ 

- d)  $\frac{-x}{8}\cos 2x$
- 13)  $L^{-1}\{\phi'(s)\} = \underline{\hspace{1cm}}$ 
  - a)  $-\frac{1}{t}L^{-1}\{\phi(s)\}$

b)  $-tL^{-1}\{\phi(s)\}$ 

c)  $tL^{-1}\{\phi(s)\}$ 

- d) None of these
- 14)  $L^{-1}\left\{\frac{1}{(s-3)^2}\right\} = \underline{\hspace{1cm}}.$ 
  - a)  $te^{-3t}$

b)  $\frac{e^{-3i}}{t}$ 

c)  $te^{3t}$ 

d)  $t^2e^{3t}$ 

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Max. Marks: 56

### S.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering APPLIED MATHEMATICS – I**

Day & Date: Saturday, 07-12-2019 Time: 10:00 AM To 01:00 PM

**Instructions:** 1) Q. No. 4 & Q. No. 8 are compulsory.

- 2) Solve any two questions from each section.
- 3) Figures to the right indicate full marks.
- Attempt the following questions.
  - a) Solve  $(D^3 + D)y = \cos x$ 03 **b)** Solve  $(D^3 - 7D + 6)y = x^2$ 03
  - **c)** Solve  $(D^2 2D 1)y = e^x \cos x$ 03
- Attempt any three of following questions. Q.3
  - a) Find  $L\left\{\int_{0}^{t} u^{-1} 2^{u} \sin u \, du\right\}$ 03
  - **b)** Find  $L^{-1}\left\{\frac{s}{(s-3)(s^2+4)}\right\}$ 03
  - c) Evaluate  $\int_{-\infty}^{\infty} \frac{\cos 4t \cos 3t}{t} dt$  sing Laplace transform. 03
  - **d)** Find  $L\{te^{-2t} \sin^2 t\}$ 03
- Q.4 Attempt the following questions.
  - Find z-transform and its ROC of  $f(k) = \frac{3^k}{k!}$ ,  $k \ge 0$ 03
  - **b)** Prove that the z-transform of  $x_k = \sin \alpha k$ ,  $k \ge 0$  where  $\alpha$  is real is given by 04  $\frac{z \sin \, \alpha}{z^2 - 2z \cos \, \alpha + 1} \text{ if } |z| > 1$
  - **c)** Find  $Z^{-1}\left(\frac{z}{z-5}\right) |z| < 5$ 03
- Attempt the following questions. Q.5
  - a) Find a Fourier series to represent  $f(x) = x^2$  in  $(0, 2\pi)$ . 05 b) Find Half-range sine series of 04
  - - $f(x) = \frac{2x}{1}, 0 \le x \le \frac{1}{2}$  $= \frac{2}{1} (1 x). \frac{1}{2} \le x \le 1$

#### Section - II

- Attempt the following questions. Q.6
  - a) A particle moves along the curve  $x = t^2 + 1$   $y = t^2$  z = 2t + 3 where t is the 03 time find velocity and acceleration with their magnitudes?
  - **b)** Find the directional derivative of  $\phi = x^4 + y^4 + z^4$  at point (1,-2,1) in the 03 directional of AB where B is (2,6,-1).
  - Show that the vector field defined by  $\overline{F} = (y + z)i + (z + x)j + (x + y)k$  is 04 irrotational. Also find scalar potential.

Set R

#### Q.7 Attempt the following questions.

09

- a) Six dice are thrown 729 times. How many times do expect at least three dice to show a 5 or 6?
- **b)** Fit a poisson distribution to the following data.

Χ	0	1	2	3	4	Total
F	109	65	22	3	1	200

- c) Weights of 4000 students are found to be normally distributed with mean 50 kgs and standard deviation 5 kgs. Find the number of students with weight:
  - 1) Less than 45 kgs and
  - 2) Between 45 and 60 kgs.

[Given - for SNV z, Area between z = 0 to z = 1 is 0.3413 and z = 0 to z = 2 is 0.4772].

#### Q.8 Attempt the following questions.

a) Calculate Karl Pearson's coefficient of correlation from the following data.

04

			40							
y :	23	34	33	34	30	26	28	31	36	35

**b)** Fit a second degree parabola for the following data.

03

03

x :	1	2	3	4	5	6	7	8	9
y :	2	6	7	8	10	11	11	10	9

**c)** The equation to the two lines of regressions are 6y = 5x + 90 and 15x = 8y + 130. Find the mean of x and y and the coefficient of correlation?

#### Q.9 Attempt the following questions.

a) There are two typists in a type writing shop each typists can type on an average 5 letters per hour. The rate of arrivals of letters is 8 per hours

05

- 1) What is the probability that both the typist are busy?
- 2) What is the average idle time for which both typist are idle?
- b) People arrive to purchase railways tickets at the rate of 5 per minute. On an average is takes 10 seconds to issue the ticket. A person arrives 5 min, before the train starts. It takes 4 min for him to get in the train after purchasing the ticket.
  - 1) Can he be expected in the train before the train starts?
  - 2) What is the probability that he will be in the train before the train starts?

Seat	Set	9
No.	Set	3

		S.E. (Part – I) (Old) (CGPA Computer Scien APPLIED MA	nce & F	Engineering
•		e: Saturday, 07-12-2019 D AM To 01:00 PM		Max. Marks: 70
Instr	uction	ns: 1) Q. No. 1 is compulsory and book.	should	be solved in first 30 minutes in answer
		2) Figures to the right indicate		
Б.		MCQ/Objective	e Type	
		0 Minutes		Marks: 14
Q.1	1)		49 and 3 b)	ptions and rewrite the sentence. 14 $x = 0.7$ then the line of regression $y = 0.6x + 80$ $y = 0.7x + 100$
	2)	If coefficient of correlation $r=\pm r$ a) coincident c) parallel	b)	ne regression lines are  perpendicular  inclined at an angle of ¾
	3)	In a M M l  $\infty$ system the ration $\frac{\lambda}{a}$	must be	e
		a) greater than 1 c) equal to 1		less than 1 equal to 1.5
	4)	For binominal distribution mean and n, p, q are respectively.  a) 9, 1/3, 2/3  c) 18, 2/3, 1/3	b)	d variance is 4, then the values of  4, ½, ½ 9, ⅔, ⅓
	5)	Fourier expansion of an odd fund a) sine terms c) both sine and cosine terms	b)	
	6)	$\frac{1}{D-3}$ × is equal to a) $\frac{x}{3} - \frac{1}{9}$ c) $\frac{x}{3} + \frac{1}{9}$		$-\frac{x}{3} - \frac{1}{9} \\ -\frac{x}{3} + \frac{1}{9}$
	7)	The particular integral of $(D^2 + 1)$	6)y = co	os 4x is
		a) $\frac{x}{8}\sin 2x$		$\frac{x}{8}\cos 2x$
	8)	c) $\frac{-x}{8} \sin 2x$ $L^{-1} \{ \phi'(s) \} = \underline{\hspace{1cm}}$ .	d)	$\frac{-x}{8}\cos 2x$
	•,	a) $-\frac{1}{2}L^{-1}\{\phi(s)\}$	b)	$-tL^{-1}\{\varphi(s)\}$

d) None of these

c)  $tL^{-1}\{\phi(s)\}$ 

- $L^{-1}\left\{\frac{1}{(s-3)^2}\right\} = \underline{\hspace{1cm}}.$

c)  $te^{3t}$ 

- 10)  $Z\{1\} = \underline{\qquad}$ a)  $\frac{1}{z-1}$

- If  $Z\{f(k)\} = F(z)$  then  $Z\{kf(k)\} =$ \_\_\_\_\_.

  a)  $-z \frac{dF(z)}{dZ}$ b)  $z \frac{dF(z)}{dZ}$

- $\int f(x)dx =$ If f(x) is an even function then
  - $2\int_{a}^{x} f(x)dx$

c) 0

- d) None of these
- A unit normal to the surface z = 2xy at the point (2,1,4) is \_\_\_\_\_ 13)
  - a) 2i + 4j k

- c)  $\frac{1}{\sqrt{21}}(2i + 4j k)$

- b) 2i + 4j + kd)  $\frac{1}{\sqrt{21}}(4i + 2j k)$
- If  $\bar{v} = 5xyi + 2y^2j + 3yz^2k$  The divergence of this vector at (1, 1, 1) is \_\_\_\_\_.

b) 10

c) 14

d) 15 Seat No.

# S.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**APPLIED MATHEMATICS – I** Day & Date: Saturday, 07-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) Q. No. 4 & Q. No. 8 are compulsory. 2) Solve any two questions from each section. 3) Figures to the right indicate full marks. Attempt the following questions. a) Solve  $(D^3 + D)y = \cos x$ 03 **b)** Solve  $(D^3 - 7D + 6)y = x^2$ 03 **c)** Solve  $(D^2 - 2D - 1)y = e^x \cos x$ 03 Attempt any three of following questions. Q.3 a) Find  $L\left\{\int_{0}^{t} u^{-1} 2^{u} \sin u \, du\right\}$ 03 **b)** Find  $L^{-1}\left\{\frac{s}{(s-3)(s^2+4)}\right\}$ 03 c) Evaluate  $\int_{x}^{\infty} \frac{\cos 4t - \cos 3t}{t} dt$  sing Laplace transform. 03 **d)** Find  $L\{te^{-2t} \sin^2 t\}$ 03 Q.4 Attempt the following questions. Find z-transform and its ROC of  $f(k) = \frac{3^k}{k!}$ ,  $k \ge 0$ 03 **b)** Prove that the z-transform of  $x_k = \sin \alpha k$ ,  $k \ge 0$  where  $\alpha$  is real is given by 04  $\frac{z \sin \, \alpha}{z^2 - 2z \cos \, \alpha + 1} \text{ if } |z| > 1$ **c)** Find  $Z^{-1}\left(\frac{z}{z-5}\right) |z| < 5$ 03 Attempt the following questions. Q.5 a) Find a Fourier series to represent  $f(x) = x^2$  in  $(0, 2\pi)$ . 05 b) Find Half-range sine series of 04  $f(x) = \frac{2x}{1}, 0 \le x \le \frac{1}{2}$  $= \frac{2}{1} (1 - x). \frac{1}{2} \le x \le 1$ 

#### Section - II

#### Attempt the following questions. Q.6

- a) A particle moves along the curve  $x = t^2 + 1$   $y = t^2$  z = 2t + 3 where t is the 03 time find velocity and acceleration with their magnitudes?
- **b)** Find the directional derivative of  $\phi = x^4 + y^4 + z^4$  at point (1,-2,1) in the 03 directional of AB where B is (2,6,-1).
- Show that the vector field defined by  $\overline{F} = (y + z)i + (z + x)j + (x + y)k$  is 04 irrotational. Also find scalar potential.

Set S

#### Q.7 Attempt the following questions.

09

- a) Six dice are thrown 729 times. How many times do expect at least three dice to show a 5 or 6?
- **b)** Fit a poisson distribution to the following data.

X	0	1	2	3	4	Total
F	109	65	22	3	1	200

- c) Weights of 4000 students are found to be normally distributed with mean 50 kgs and standard deviation 5 kgs. Find the number of students with weight:
  - 1) Less than 45 kgs and
  - 2) Between 45 and 60 kgs.

[Given - for SNV z, Area between z = 0 to z = 1 is 0.3413 and z = 0 to z = 2 is 0.4772].

#### Q.8 Attempt the following questions.

a) Calculate Karl Pearson's coefficient of correlation from the following data.

04

			40							
y :	23	34	33	34	30	26	28	31	36	35

**b)** Fit a second degree parabola for the following data.

03

x :	1	2	3	4	5	6	7	8	9
y :	2	6	7	8	10	11	11	10	9

The equation to the two lines of regressions are 6y = 5x + 90 and 15x = 8y + 130. Find the mean of x and y and the coefficient of correlation?

03

#### Q.9 Attempt the following questions.

a) There are two typists in a type writing shop each typists can type on an average 5 letters per hour. The rate of arrivals of letters is 8 per hours

05

- 1) What is the probability that both the typist are busy?
- 2) What is the average idle time for which both typist are idle?
- b) People arrive to purchase railways tickets at the rate of 5 per minute. On an average is takes 10 seconds to issue the ticket. A person arrives 5 min, before the train starts. It takes 4 min for him to get in the train after purchasing the ticket.
  - 1) Can he be expected in the train before the train starts?
  - 2) What is the probability that he will be in the train before the train starts?

Seat	Set	D
No.	Set	

# S.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DISCRETE MATHEMATICAL STRUCTURES

		DISCRETE MATHEMATI		
•		e: Tuesday,10-12-2019 O AM To 01.00 PM		Max. Marks: 70
Instr	uction	<b>ss:</b> 1) Q. No. 1 is compulsory. It shoul book.	d be	solved in first 30 minutes in answer
		2) Figures to the right indicate full i	marks	S.
		MCQ/Objective Ty	pe C	Questions
Durat	ion: 3	0 Minutes		Marks: 14
Q.1	<b>Choo</b> 1)	Pose the correct alternatives from the POSET on set P can be represented a) $< P, <>$ c) $< P >>$	by _ b)	
	2)	Suppose A= {1,2,3}, B= { } . What do a) {< 1,1 >, < 2,2 >, < 3,3 >} c) {}	es th b)	e set A x B contain
	3)	The function of f: $N\rightarrow N$ (N is set of national f(n) = $2n + 3$ is  a) one to one c) Onto	atural b) d)	numbers) is defined by into Both a & b
	4)	LUB is called as a) Join c) Infimum	b)	Supermum Both a & b
	5)	A group is said to if there exist element of G can be written as some a) Acyclic c) Abalian		
	6)	Which of the following is partition of a) {{4,5,6},{7,4},{8,6}} c) {{4,5},{8,9},{6,7}}	b)	• • • • • •
	7)	The possible number of relation from a) 12 c) 4096	b) d)	$\{a, b, c\}$ to $B = \{1,2,3,4\}$ is 144 128
	8)	The number of possible function from elements are  a) m + n  c) n m	b) d)	of <b>m</b> elements to set of <b>n</b> m   m   m   n
	9)	Hesse diagram are drawn for a) POSET c) Boolean algebra	 b) d)	Lattice POSET which is not lattice

Set P

10) Join operation is denoted by the symbol						
	a)	+	b)	U		
	c)	۸	d)	Both a and b		
11)	Abs	sorption law is defined as				
,	a)	a* (a* b) = b	b)	$a^* (a \oplus b) = b$		
	c)	$a * (a \oplus b) = b$	d)	$a*(a \oplus b) = a$		
12)	Pic	k the correct prefix				
,	a)	→P v Q R <sub>¬</sub> S	b)	$\rightarrow$ P v QRS		
	c)	$\rightarrow$ PQ $\rightarrow$ QR $\rightarrow$ PR	d)	$\rightarrow$ P v Q <sub>7</sub> QSP		
13)		ery finite subset of lattice has An LUB and GLB		_•		
	b)	Many LUB and a GLB				
	c)	Many LUBs and Many GLBs				
	d)	Either some LUBs or some GLB	S			
14)	A s	elf-complemented, distributive lat	tice is	called as		
	a)	Boolean Algebra	b)	Modular Lattice		
	c)	Complemented lattice	d)	Complete Lattice		

Seat	
No	

#### S.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering** DISCRETE MATHEMATICAL STRUCTURES

Day & Date: Tuesday, 10-12-2019

Max. Marks: 56

Time: 10.00 AM To 01.00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

#### Section - I

#### **Answer the following questions. (Any Three)** Q.2

12

- State and explain Duality law with example.
- Show the following Tautological implication  $((P \lor \sim P) \to Q) \to ((P \lor \sim P) \to R)) => (Q \to R)$
- Defined Cartesian product and find (AXB), (BXA) and (AXB) ∩ (BXA) for c)  $A = {\alpha, \beta} \& B = {x, y, z, w}.$
- Draw the Hesse diagram of the given sets under partial ordering which satisfy "divides" and indicate which set is totally ordered
  - {2, 6, 12, 24}
  - {1, 2, 3, 6, 12} ii)

#### Q.3 **Answer the following questions. (Any One)**

80

- a) Define Relation and explain the Properties of relation with example.
- **b)** Define and explain the following with suitable example.
  - i) Ordered pair & order - n- type
  - ii) Equivalence Relation

#### Obtain PDNF and PCNF of the following Q.4

08

- a)  $(\neg p \rightarrow \neg q) \rightarrow (p \leftrightarrow \neg q)$
- **b)**  $p \vee (\neg p \rightarrow (q \vee (\neg q \rightarrow r)))$

#### Section - II

#### Q.5 **Answer the following questions. (Any Three)**

- Let  $X = \{1, 2, 3, 4\}$  Define function f from X to X such that  $f \neq I_x$  and it is one to one onto find
  - $f \circ f = f^2$ i)
  - $f \circ f^2 = f^3$ ii)
  - $f^{-1}$ iii)
  - $f \circ f^{-1}$ iv)
- Define Semi group & Monoid with example. b)
- What is Permutation Group? Define order of Permutation Group and Degree of Permutation Group.
- Define with example d)
  - upper bound i)
  - lower bound ii)
  - iii) LUB
  - **GLB** iv)

Set P

Q.6 Answer the following questions. (Any One)

- a) Obtain the sum of product of canonical form of following Boolean algebra
  - i)  $X_1 \oplus X_2$
  - ii)  $X_1 \oplus [X_2^0 * X_3^1]$
- b) Let  $Z_4$  be the set of equivalence classes generated so that  $Z_4$ = {[0], [1], [2],[3]}. Let  $+_4$  on  $Z_4$  is given by [i]  $+_4$ [j]=[(i + j) mod 4] determine an algebraic System & list out the properties which are applicable on algebraic system
- Q.7 Composition table for <G \* > and < S, ♦ > are given below show that they are groups and they are isomorphic

*	p1	p2	рЗ	p4	
p1	p1	p2	рЗ	p4	
p2	p2	p1	p4	р3	
p3	р3	p4	p1	p2	
p4	p4	p2 p2 p1 p4 p3	p2	p1	

$\Diamond$	q1	q2	q3	q4
q1	q3	q4 q3 q2	q1	q2
q2	q4	q3	q2	q1
q3	q1	q2	q3	q4
q4	q2	q1	q4	q3

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# S.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science DISCRETE MATHEMAT		
-		e: Tuesday,10-12-2019 O AM To 01.00 PM		Max. Marks: 70
Instr	uction	ns: 1) Q. No. 1 is compulsory. It shoul book.	d be	solved in first 30 minutes in answer
		2) Figures to the right indicate full i	marks	S.
		MCQ/Objective Ty	pe (	Questions
Dura	tion: 3	0 Minutes	•	Marks: 14
Q.1	<b>Choo</b> 1)	The number of possible function from elements are  a) m + n	-	cions and rewrite the sentence. 14 of m elements to set of n
		c) n <sup>m</sup>	d)	m * n
	2)	Hesse diagram are drawn for a) POSET c) Boolean algebra	 b) d)	Lattice POSET which is not lattice
	3)	Join operation is denoted by the syma) + c) ^	nbol _ b) d)	U Both a and b
	4)	Absorption law is defined as a) $a^*(a^*b) = b$ c) $a^*(a \oplus b) = b$	b)	$a^* (a \oplus b) = b$ $a^*(a \oplus b) = a$
	5)	Pick the correct prefix  a) $\rightarrow P \lor Q R_{7} S$ c) $\rightarrow \rightarrow P Q \rightarrow \rightarrow QR \rightarrow PR$		<ul><li>→ P v QRS</li><li>→ P v Q<sub>1</sub> QSP</li></ul>
	6)	Every finite subset of lattice has a) An LUB and GLB b) Many LUB and a GLB c) Many LUBs and Many GLBs d) Either some LUBs or some GLB		
	7)	<ul><li>A self-complemented, distributive lat</li><li>a) Boolean Algebra</li><li>c) Complemented lattice</li></ul>	tice is b) d)	s called as  Modular Lattice  Complete Lattice
	8)	POSET on set P can be represented a) < P, <> c) < P >>	b)	· · · · · · · · · · · · · · · · · · ·
	9)	Suppose A= {1,2,3}, B= { } . What do a) {< 1,1>,< 2,2>,< 3,3>} c) { }	b)	e set A x B contain {< 1, 2, 3 >} {<< 1, 2 >, 3 >}

## Set Q

10)	f(n) = $2n + 3$ is a) one to one	aturai b)	into
	c) Onto	d)	Both a & b
11)	LUB is called as		
ŕ	a) Join	b)	Supermum
	c) Infimum	d)	Both a & b
12)	A group is said to if there exist element of G can be written as some a) Acyclic c) Abalian		
13)	Which of the following is partition of	the se	et S= {4,5,6,7,8,9}?
ŕ	a) {{4,5,6},{7,4},{8,6}}	b)	{{4,5}, {8}, {6,7}}
	c) {{4,5},{8,9},{6,7}}	d)	{{4,5,6,7,8,9},{9}}
14)	The possible number of relation from a) 12	b)	${a, b, c}$ to $B = (1,2,3,4)$ is 144

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#### S.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering** DISCRETE MATHEMATICAL STRUCTURES

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56 Time: 10.00 AM To 01.00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I **Answer the following questions. (Any Three)** 12 Q.2 State and explain Duality law with example. Show the following Tautological implication  $((P \lor \sim P) \to Q) \to ((P \lor \sim P) \to R)) => (Q \to R)$ Defined Cartesian product and find (AXB), (BXA) and (AXB) ∩ (BXA) for c)  $A = {\alpha, \beta} \& B = {x, y, z, w}.$ Draw the Hesse diagram of the given sets under partial ordering which satisfy "divides" and indicate which set is totally ordered {2, 6, 12, 24} {1, 2, 3, 6, 12} ii) Q.3 **Answer the following questions. (Any One)** 80 a) Define Relation and explain the Properties of relation with example. **b)** Define and explain the following with suitable example. i) Ordered pair & order - n- type ii) Equivalence Relation Obtain PDNF and PCNF of the following Q.4 08 a)  $(\neg p \rightarrow \neg q) \rightarrow (p \leftrightarrow \neg q)$ **b)**  $p \vee (\neg p \rightarrow (q \vee (\neg q \rightarrow r)))$ Section - II 12 Q.5 **Answer the following questions. (Any Three)** Let  $X = \{1, 2, 3, 4\}$  Define function f from X to X such that  $f \neq I_x$  and it is one to one onto find  $f \circ f = f^2$ i)  $f \circ f^2 = f^3$ ii)  $f^{-1}$ iii)  $f \circ f^{-1}$ iv) Define Semi group & Monoid with example. b) What is Permutation Group? Define order of Permutation Group and Degree of Permutation Group. Define with example d) upper bound i) lower bound ii) iii) LUB

**GLB** 

iv)

Set Q

Q.6 Answer the following questions. (Any One)

- a) Obtain the sum of product of canonical form of following Boolean algebra
  - i)  $X_1 \oplus X_2$
  - ii)  $X_1 \oplus [X_2^0 * X_3^1]$
- b) Let Z<sub>4</sub> be the set of equivalence classes generated so that Z<sub>4</sub>= {[0], [1], [2],[3]}. Let +<sub>4</sub> on Z<sub>4</sub> is given by [i] +<sub>4</sub>[j]=[(i + j) mod 4] determine an algebraic System & list out the properties which are applicable on algebraic system
- Q.7 Composition table for <G \* > and < S, ♦ > are given below show that they are groups and they are isomorphic

*	p1	p2	рЗ	p4	
p1	p1	p2	рЗ	p4	
p2	p2	p1	p4	р3	
p3	р3	p4	p1	p2	
p4	p4	p2 p2 p1 p4 p3	p2	p1	

$\Diamond$	q1	q2		q4
q1	q3 q4 q1	q4	q1	q2
q2	q4	q3	q2	q1
q3	q1	q2	q3	q4
q4	q2	q1	q4	q3

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# S.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DISCRETE MATHEMATICAL STRUCTURES

		DIS	Computer S SCRETE MATH			igineering STRUCTURES		
•		e: Tuesday, 0 AM To 01	,10-12-2019 I.00 PM				Max. Mark	s: 70
Instr	uctio	ns: 1) Q. No book		. It should b	e s	solved in first 30 minut	es in answ	er
		2) Figure	es to the right indi	cate full ma	rks			
			MCQ/Object	ctive Type	e C	uestions		
Dura	tion: 3	0 Minutes					Mark	s: 14
Q.1	<b>Cho</b> (1)	A group is	s said to if the f G can be written c	here exist a	n e Owe	i <b>ons and rewrite the</b> s lement a € G such tha er of a Cyclic Angular		14
	2)		the following is par 6}, {7, 4}, {8, 6}} }, {8, 9}, {6, 7}}			t S= {4,5,6,7,8,9}? {{4,5}, {8}, {6,7}} {{4,5,6,7,8,9}, {9}}		
	3)	The possi a) 12 c) 4096	ble number of rela	tion from A b) d)		{a, b, c} to B = (1,2,3,4} 144 128	is	
	4)		are	ction from s b) d)	)	of <b>m</b> elements to set o m <sup>n</sup> m * n	f <b>n</b>	
	5)	a) POSE	igram are drawn fo ET ean algebra	or b) d)		Lattice POSET which is not le	attice	
	6)	Join opera a) + c) ^	ation is denoted by		)	U Both a and b		
	7)	a) a <sup>*</sup> (a*	n law is defined as (b) = b ⊕ b) = b	b)		$a^* (a \oplus b) = b$ $a^*(a \oplus b) = a$		
	8)	a) →P v	orrect prefix Q R <sub>1</sub> S P Q $\rightarrow$ $\rightarrow$ QR $\rightarrow$ P	b)		→ P v QRS → P v Q <sub>1</sub> QSP		
	9)	<ul><li>a) An Ll</li><li>b) Many</li><li>c) Many</li></ul>	e subset of lattice JB and GLB LUB and a GLB LUBs and Many 0 r some LUBs or so	GLBs				

Set R

10)	<ul><li>A self-complemented, distributive latt</li><li>a) Boolean Algebra</li><li>c) Complemented lattice</li></ul>	ice is b) d)	called as  Modular Lattice  Complete Lattice
11)	POSET on set P can be represented a) $< P, <>$ c) $< P >>$	b)	 < P,≥> < P ≤>
12)	Suppose $A = \{1,2,3\}, B = \{\}$ . What do	es th	e set A x B contain
	a) $\{<1,1>,<2,2>,<3,3>\}$	b)	{< 1, 2, 3 >}
	c) {}	d)	{<< 1, 2 >, 3 >}
13)	The function of f: $N\rightarrow N$ (N is set of na $f(n) = 2n + 3$ is	atural	numbers) is defined by
	a) one to one	b)	into
	c) Onto	ď)	Both a & b
14)	LUB is called as		
·	a) Join	b)	Supermum
	c) Infimum	d)	Both a & b

Seat	
No.	

Max. Marks: 56

#### S.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering** DISCRETE MATHEMATICAL STRUCTURES

Day & Date: Tuesday, 10-12-2019 Time: 10.00 AM To 01.00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

#### Section - I

#### **Answer the following questions. (Any Three)** Q.2

12 State and explain Duality law with example.

Show the following Tautological implication

 $((P \lor \sim P) \rightarrow Q) \rightarrow ((P \lor \sim P) \rightarrow R)) = > (Q \rightarrow R)$ 

- Defined Cartesian product and find (AXB), (BXA) and (AXB) ∩ (BXA) for c)  $A = \{\alpha, \beta\} \& B = \{x, y, z, w\}.$
- Draw the Hesse diagram of the given sets under partial ordering which satisfy "divides" and indicate which set is totally ordered
  - {2, 6, 12, 24}
  - {1, 2, 3, 6, 12} ii)

#### Q.3 **Answer the following questions. (Any One)**

80

- a) Define Relation and explain the Properties of relation with example.
- **b)** Define and explain the following with suitable example.
  - i) Ordered pair & order - n- type
  - ii) Equivalence Relation
- Obtain PDNF and PCNF of the following Q.4

08

- a)  $(\neg p \rightarrow \neg q) \rightarrow (p \leftrightarrow \neg q)$
- **b)**  $p \vee (\neg p \rightarrow (q \vee (\neg q \rightarrow r)))$

#### Section - II

#### Q.5 **Answer the following questions. (Any Three)**

- Let  $X = \{1, 2, 3, 4\}$  Define function f from X to X such that  $f \neq I_x$  and it is one to one onto find
  - $f \circ f = f^2$ i)
  - $f \circ f^2 = f^3$ ii)
  - $f^{-1}$ iii)
  - $f \circ f^{-1}$ iv)
- Define Semi group & Monoid with example. b)
- What is Permutation Group? Define order of Permutation Group and Degree of Permutation Group.
- Define with example d)
  - upper bound i)
  - lower bound ii)
  - iii) LUB
  - **GLB** iv)

Set R

Q.6 Answer the following questions. (Any One)

- a) Obtain the sum of product of canonical form of following Boolean algebra
  - i)  $X_1 \oplus X_2$
  - ii)  $X_1 \oplus [X_2^0 * X_3^1]$
- b) Let Z<sub>4</sub> be the set of equivalence classes generated so that Z<sub>4</sub>= {[0], [1], [2],[3]}. Let +<sub>4</sub> on Z<sub>4</sub> is given by [i] +<sub>4</sub>[j]=[(i + j) mod 4] determine an algebraic System & list out the properties which are applicable on algebraic system
- Q.7 Composition table for <G \* > and < S, ♦ > are given below show that they are groups and they are isomorphic

*	p1	p2	рЗ	p4
p1	p1	p2	рЗ	p4
p2	p2	p1	p4	рЗ
р3	р3	p4	p1	p2
p4	p4	p2 p2 p1 p4 p3	p2	p1

$\Diamond$	q1	q2	q3	q4
q1	q3	q4 q3 q2 q1	q1	q2
q2	q4	q3	q2	q1
q3	q1	q2	q3	q4
q4	q2	q1	q4	q3

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# S.E. (Part -I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DISCRETE MATHEMATICAL STRUCTURES

		DISCRETE MATHEMATI	CAL	. STRUCTURES
•		e: Tuesday,10-12-2019 O AM To 01.00 PM		Max. Marks: 70
Instr	uction	ns: 1) Q. No. 1 is compulsory. It shoul book.	d be	solved in first 30 minutes in answer
		2) Figures to the right indicate full r	narks	S.
		MCQ/Objective Ty	pe C	Questions
Dura	tion: 3	0 Minutes	-	Marks: 14
Q.1	Choo 1)	ose the correct alternatives from the Join operation is denoted by the sym	-	
		a) + c) ^	b) d)	U Both a and b
	2)	Absorption law is defined as a) $a^*(a^*b) = b$ c) $a^*(a \oplus b) = b$	b)	$a^* (a \oplus b) = b$ $a^*(a \oplus b) = a$
	3)	Pick the correct prefix  a) $\rightarrow P \lor Q R_{7} S$ c) $\rightarrow \rightarrow P Q \rightarrow \rightarrow QR \rightarrow PR$		<ul><li>→ P v QRS</li><li>→ P v Q<sub>1</sub> QSP</li></ul>
	4)	<ul> <li>Every finite subset of lattice has</li> <li>a) An LUB and GLB</li> <li>b) Many LUB and a GLB</li> <li>c) Many LUBs and Many GLBs</li> <li>d) Either some LUBs or some GLB</li> </ul>		
	5)	<ul><li>A self-complemented, distributive late</li><li>a) Boolean Algebra</li><li>c) Complemented lattice</li></ul>	b)	Modular Lattice
	6)	POSET on set P can be represented a) < P, <> c) < P >>	by _ b) d)	< P,≥> < P ≤>
	7)	Suppose A= $\{1,2,3\}$ , B= $\{\}$ . What do a) $\{<1,1>,<2,2>,<3,3>\}$ c) $\{\}$	b)	
	8)	The function of f: $N\rightarrow N$ (N is set of na $f(n)=2n+3$ is  a) one to one c) Onto	atural b) d)	numbers) is defined by into Both a & b
	9)	LUB is called as  a) Join c) Infimum	b) d)	Supermum Both a & b

Set S

10)	<ul><li>A group is said to if there exist element of G can be written as some</li><li>a) Acyclic</li><li>c) Abalian</li></ul>		•
11)	Which of the following is partition of ta) {{4, 5, 6}, {7, 4}, {8, 6}}	he se b)	et S= {4,5,6,7,8,9}?
12)	The possible number of relation from a) 12 c) 4096	A = b) d)	$\{a, b, c\}$ to $B = \{1,2,3,4\}$ is 144 128
13)	The number of possible function from elements are  a) m + n  c) n m	b) d)	of <b>m</b> elements to set of <b>n</b> m   m   m * n
14)	Hesse diagram are drawn for a) POSET c) Boolean algebra	 b) d)	Lattice POSET which is not lattice

Seat	
No.	

Set

S

## S.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DISCRETE MATHEMATICAL STRUCTURES

Day & Date: Tuesday,10-12-2019

Max. Marks: 56

Time: 10.00 AM To 01.00 PM

**Instructions:** 1) All questions are compulsory.

2) Figures to the right indicate full marks.

#### Section - I

#### Q.2 Answer the following questions. (Any Three)

12

- a) State and explain Duality law with example.
  - Show the following Tautological implication  $((P \lor P) \to Q) \to ((P \lor P) \to R)) => (Q \to R)$
- Defined Cartesian product and find (AXB), (BXA) and (AXB)  $\cap$  (BXA) for  $A = \{\alpha, \beta\} \& B = \{x, y, z, w\}.$
- d) Draw the Hesse diagram of the given sets under partial ordering which satisfy "divides" and indicate which set is totally ordered
  - i) {2, 6, 12, 24}
  - ii) {1, 2, 3, 6, 12}

#### Q.3 Answer the following questions. (Any One)

08

- a) Define Relation and explain the Properties of relation with example.
- b) Define and explain the following with suitable example.
  - i) Ordered pair & order n- type
  - ii) Equivalence Relation

### Q.4 Obtain PDNF and PCNF of the following

08

- a)  $( \neg p \rightarrow \neg q) \rightarrow (p \leftrightarrow \neg q)$
- **b)**  $p \vee (\neg p \rightarrow (q \vee (\neg q \rightarrow r)$

#### Section - II

### Q.5 Answer the following questions. (Any Three)

- a) Let  $X = \{1, 2, 3, 4\}$  Define function f from X to X such that  $f \neq I_x$  and it is one to one onto find
  - i)  $f \circ f = f^2$
  - ii)  $f \circ f^2 = f^3$
  - iii)  $f^{-1}$
  - iv) f o  $f^{-1}$
- **b)** Define Semi group & Monoid with example.
- **c)** What is Permutation Group? Define order of Permutation Group and Degree of Permutation Group.
- d) Define with example
  - i) upper bound
  - ii) lower bound
  - iii) LUB
  - iv) GLB

Set S

Q.6 Answer the following questions. (Any One)

- a) Obtain the sum of product of canonical form of following Boolean algebra
  - i)  $X_1 \oplus X_2$
  - ii)  $X_1 \oplus [X_2^0 * X_3^1]$
- b) Let Z<sub>4</sub> be the set of equivalence classes generated so that Z<sub>4</sub>= {[0], [1], [2],[3]}. Let +<sub>4</sub> on Z<sub>4</sub> is given by [i] +<sub>4</sub>[j]=[(i + j) mod 4] determine an algebraic System & list out the properties which are applicable on algebraic system
- Q.7 Composition table for <G \* > and < S, ♦ > are given below show that they are groups and they are isomorphic

		p2		
р1	p1	p2 p1 p4	рЗ	p4
p2	p2	p1	p4	р3
рЗ	рЗ	p4	p1	p2
p4	р4	р3	p2	p1

$\Diamond$	q1	q2	q3	q4
q1	q3	q4 q3 q2 q1	q1	q2
q2	q4	q3	q2	q1
q3	q1	q2	q3	q4
q4	q2	q1	q4	q3

Seat	Set	D
No.	Set	1

## S.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering ADVANCED C CONCEPTS	,500 2010
•		te: Thursday,12-12-2019 00 AM To 01:00 PM	Max. Marks: 70
Insti	uctio	<ul><li>Dns: 1) Q. No. 1 is compulsory and should be solved in first book.</li><li>2) Figures to the right indicate full marks.</li></ul>	st 30 minutes in answer
		MCQ/Objective Type Questions	
Dura	ition: 3	30 Minutes	Marks: 14
Q.1	<b>Cho</b> 1)	Dose the correct alternatives from the options and rew Default storage class of a variable is  a) static b) auto	rite the sentence. 14
		c) extern d) register	
	2)	The library function used to calculate power is  a) raised_to() b) power () c) pow () d) all above	
	3)	Recursive function, during execution uses  a) stack b) queue c) heap d) none of these	
	4)	One of the following is not a type of recursion  a) mutual b) linear c) head d) tail	
	5)	Find the correct declaration  a) char name[] = "exam"; b) char name[10 c) char name[] = 'e','x','a','m'; d) char name[] =	-
	6)	To work out ***p, how many minimum variable are requiable 1 b) 2 c) 3 d) 4	ired
	7)	A pointer can hold the address of a function. a) true b) false	
	8)	Which one is not a file handling library function?  a) open() b) close() c) delete() d) remove()	
	9)	How many arguments are there in fread function? a) 2 b) 4 c) 0 d) 3	
	10)	For analysis of algorithm which notation are used a) infix b) postfix c) arithmetic d) omega	

Set P

11)	In which searching method compara)  a) Linear search	rison i b)	s carried out sequentially? Binary search
	c) In both (a) and (b)	d)	None of these
12)	Partition sort is also known as		
	a) Bubble sort	b)	Insertion sort
	c) quick sort	d)	shell sort
13)	Linear probability is the case of col	lision	, ,
	a) True	b)	False
14)	Hashing means effective search.	b)	False

	<u>.                                      </u>	
Seat	Set	D
No.	Sei	<u> </u>

## S.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering ADVANCED C CONCEPTS	
•		ate: Thursday,12-12-2019 00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	a) b) c) d)	empt any four.  Explain storage classes with example. List and explain any four data conversion function. Write advantage and disadvantage of recursive techniques. Explain Array of strings. Explain with example pointer to an array. Explain the concept of dynamic memory allocation	16
Q.3		empt any two. Write a program to display Fibonacci series using recursion. Write a program to count the length of string entered by user usir (Do not use library function). Write a function which displays your name 5 times. Invoke this fu using pointer to function.	
		Section – II	
Q.4	a) b) c)	empt any four  Explain the following functions:  1) fseek()  2) ftail()  Explain the concept of command line arguments.  Write in short about how algorithm analysis can be done.	16
	d) e) f)	Explain the steps for Binary search. Explain what is hashing & hash function. Write in short different ways of collision resolution.	
Q.5	An a) b)	swer the following questions.  Write a program to copy the content of one file to another.  Sort the numbers using quick sort: 25 38 7 42 18 39 97 84 77 12  Write answer step by step.	12

OR

Write a program for Bubble sort technique.

Seat		
No.	Set	Q

		Computer Science  ADVANCED C	& I	Engineering
•		e: Thursday,12-12-2019 0 AM To 01:00 PM		Max. Marks: 70
Instr	uction	book.		be solved in first 30 minutes in answer
		2) Figures to the right indicate full		
Dura	tion: 2	MCQ/Objective Ty 30 Minutes	/pe	Questions  Marks: 14
Q.1	1)	<ul><li>ose the correct alternatives from the Which one is not a file handling librate</li><li>a) open()</li><li>c) delete()</li></ul>	-	
	2)	How many arguments are there in fr a) 2 c) 0	,	V
	3)	For analysis of algorithm which nota a) infix c) arithmetic	tion b) d)	are used postfix omega
	4)	In which searching method comparis a) Linear search c) In both (a) and (b)	son b) d)	is carried out sequentially? Binary search None of these
	5)	Partition sort is also known as a) Bubble sort c) quick sort	 b) d)	Insertion sort shell sort
	6)	Linear probability is the case of collina) True	sion b)	resolution by chaining. False
	7)	Hashing means effective search. a) True	b)	False
	8)	Default storage class of a variable is a) static c) extern	b) d)	auto register
	9)	The library function used to calculate a) raised_to() c) pow ()	e po b) d)	wer is power () all above
	10)	Recursive function, during execution a) stack c) heap	use b) d)	es queue none of these
	11)	One of the following is not a type of a) mutual c) head	recu b) d)	ırsion linear tail

Set Q

12)	Find the correct declaration		
,	a) char name[] = "exam";	b)	char name[10] = 'exam';
	c) char name[ ] = 'e','x','a','m';	ď)	char name[] = "exam",'\o';
13)	To work out ***p, how many minim	ium va	riable are required
,	a) 1	b)	2
	c) 3	ď)	4
14)	A pointer can hold the address of a	a funct	ion.
,	a) true	b)	false

Seat	Set	
No.	Set	Q

# S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering ADVANCED C CONCEPTS	
•		ate: Thursday,12-12-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	a) b) c) d)	Explain storage classes with example. List and explain any four data conversion function. Write advantage and disadvantage of recursive techniques. Explain Array of strings. Explain with example pointer to an array. Explain the concept of dynamic memory allocation	16
Q.3	a) b)	tempt any two.  Write a program to display Fibonacci series using recursion.  Write a program to count the length of string entered by user using (Do not use library function).  Write a function which displays your name 5 times. Invoke this funusing pointer to function.  Section – II	•
<b>~</b> 4	A 11		4.0
Q.4	a)	tempt any four Explain the following functions:  1) fseek() 2) ftail()	16
	b) c) d) e) f)	Explain the concept of command line arguments.  Write in short about how algorithm analysis can be done.  Explain the steps for Binary search.  Explain what is hashing & hash function.  Write in short different ways of collision resolution.	
Q.5	An a) b)	swer the following questions.  Write a program to copy the content of one file to another.  Sort the numbers using quick sort: 25 38 7 42 18 39 97 84 77 12  Write answer step by step.	12

Write a program for Bubble sort technique.

Seat	_	
No.	Set	R

		S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering ADVANCED C CONCEPTS	
-		e: Thursday,12-12-2019 Max. Mar 0 AM To 01:00 PM	ks: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in ar book.	iswer
		2) Figures to the right indicate full marks.	
		MCQ/Objective Type Questions	
Dura	ition: 3		ks: 14
Q.1	Cho	ose the correct alternatives from the options and rewrite the sentence	. 14
	1)	Find the correct declaration  a) char name[] = "exam"; b) char name[10] = 'exam';  c) char name[] = 'e','x','a','m'; d) char name[] = "exam",'\o';	
	2)	To work out ***p, how many minimum variable are required  a) 1	
	3)	A pointer can hold the address of a function. a) true b) false	
	4)	Which one is not a file handling library function?  a) open() b) close() c) delete() d) remove()	
	5)	How many arguments are there in fread function? a) 2 b) 4 c) 0 d) 3	
	6)	For analysis of algorithm which notation are used a) infix b) postfix c) arithmetic d) omega	
	7)	In which searching method comparison is carried out sequentially?  a) Linear search b) Binary search c) In both (a) and (b) d) None of these	
	8)	Partition sort is also known as  a) Bubble sort b) Insertion sort c) quick sort d) shell sort	
	9)	Linear probability is the case of collision resolution by chaining. a) True b) False	
	10)	Hashing means effective search. a) True b) False	
	11)	Default storage class of a variable is  a) static b) auto c) extern d) register	

Set R

12)	The library function used to calculate power is					
	a)	raised_to()	b)	power ()		
	c)	pow ()	d)	all above		
13)	Re	cursive function, duri	ng execution use	S		
	a)	stack	b)	queue		
	c)	heap	d)	none of these		
14)	On	e of the following is r	not a type of recu	rsion		
	a)	mutual	b)	linear		
	c)	head	d)	tail		

Seat	_ [	
No.	Set	R

## S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering ADVANCED C CONCEPTS	
•		ate: Thursday,12-12-2019 00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	Att a) b) c) d) e) f)	empt any four.  Explain storage classes with example.  List and explain any four data conversion function.  Write advantage and disadvantage of recursive techniques.  Explain Array of strings.  Explain with example pointer to an array.  Explain the concept of dynamic memory allocation	16
Q.3		empt any two. Write a program to display Fibonacci series using recursion. Write a program to count the length of string entered by user using (Do not use library function). Write a function which displays your name 5 times. Invoke this fur using pointer to function.	
		Section – II	
Q.4	a) b)	empt any four Explain the following functions: 1) fseek() 2) ftail() Explain the concept of command line arguments.	16
	c) d) e) f)	Write in short about how algorithm analysis can be done.  Explain the steps for Binary search.  Explain what is hashing & hash function.  Write in short different ways of collision resolution.	
Q.5	An a) b)	swer the following questions.  Write a program to copy the content of one file to another.  Sort the numbers using quick sort: 25 38 7 42 18 39 97 84 77 12  Write answer step by step.	12

OR

Write a program for Bubble sort technique.

Seat	Set	S
No.		)

		Computer Science ADVANCED C	& E	Engineering
•		e: Thursday,12-12-2019 00 AM To 01:00 PM		Max. Marks: 70
nstr	uctio	<ul><li>ns: 1) Q. No. 1 is compulsory and sho book.</li><li>2) Figures to the right indicate full</li></ul>		be solved in first 30 minutes in answer ks.
		MCQ/Objective Ty		
Dura	tion: 3	30 Minutes	P	Marks: 14
Q.1	<b>Cho</b> (1)	ose the correct alternatives from the For analysis of algorithm which notat a) infix c) arithmetic		
	2)	In which searching method comparis  a) Linear search  c) In both (a) and (b)	on i b) d)	s carried out sequentially? Binary search None of these
	3)	Partition sort is also known as a) Bubble sort c) quick sort	 b) d)	Insertion sort shell sort
	4)	Linear probability is the case of collisa) True	sion b)	resolution by chaining. False
	5)	Hashing means effective search. a) True	b)	False
	6)	Default storage class of a variable is a) static c) extern	b) d)	auto register
	7)	The library function used to calculate a) raised_to() c) pow ()		
	8)	Recursive function, during execution a) stack c) heap	use b) d)	es queue none of these
	9)	One of the following is not a type of rational a) mutual c) head	ecu b) d)	rsion linear tail
	10)	Find the correct declarationa) char name[] = "exam"; c) char name[] = 'e', 'x', 'a', 'm';	b)	
	11)	To work out ***p, how many minimur a) 1 c) 3	n va	

Set S

12)	A pointer can hold the address of a function.				
	a) true	b)	false		
13)	Which one is not a file handling libra) open() c) delete()	b)	nction? close() remove()		
14)	How many arguments are there in tage 2 c) 0	read b) d)	function? 4 3		

Coot	]	
Seat	Set	S
No.		

## S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering ADVANCED C CONCEPTS	
•		ate: Thursday,12-12-2019 :00 AM To 01:00 PM	Max. Marks: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	a) b) c) d)	empt any four.  Explain storage classes with example. List and explain any four data conversion function. Write advantage and disadvantage of recursive techniques. Explain Array of strings. Explain with example pointer to an array. Explain the concept of dynamic memory allocation	16
Q.3	Atta) b) c)	empt any two. Write a program to display Fibonacci series using recursion. Write a program to count the length of string entered by user usir (Do not use library function). Write a function which displays your name 5 times. Invoke this fu using pointer to function.	
		Section – II	
Q.4	a) b) c)	empt any four  Explain the following functions:  1) fseek()  2) ftail()  Explain the concept of command line arguments.  Write in short about how algorithm analysis can be done.	16
	d) e) f)	Explain the steps for Binary search. Explain what is hashing & hash function. Write in short different ways of collision resolution.	
Q.5	An a) b)	swer the following questions.  Write a program to copy the content of one file to another.  Sort the numbers using quick sort: 25 38 7 42 18 39 97 84 77 12  Write answer step by step.	12

OR

Write a program for Bubble sort technique.

Max. Marks: 70

	 ,	
Seat	Set	D
No.	Set	

## S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DIGITAL TECHNIQUES

Day & Date: Saturday, 14-12-2019

Time: 10:00 AM To 01:00 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.

- 2) Figures to the right indicates full marks.
- 3) Illustrate your answers with sketches wherever necessary.
- 4) Assume suitable data if necessary.

### **MCQ/Objective Type Questions**

Duration: 30 Minutes Marks: 14

#### Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

- 1) Which statement below best describes a Karnaugh map?
  - a) A Karnaugh map can be used to replace Boolean rules
  - b) The Karnaugh map eliminates the need for using NAND and NOR gates
  - c) Variable complements can be eliminated by using Karnaugh maps
  - d) Karnaugh maps provide a visual approach to simplifying Boolean expressions
- 2) The Boolean equation for the exclusive-OR function is \_\_\_\_\_.
  - a)  $X = \overline{AB} + \overline{AB}$

b)  $X = \overline{A}B + \overline{AB}$ 

c)  $X = \overline{A} \overline{B} + AB$ 

- d)  $X = \overline{A}B + A\overline{B}$
- 3) A full-adder adds \_\_\_\_\_.
  - a) two single bits and one carry bit
  - b) two 2-bit binary numbers
  - c) two 4-bit binary numbers
  - d) two 2-bit numbers and one carry bit
- 4) A 4-variable AND-OR circuit produces a 1 at its Y output. Which combination of inputs is correct?
  - a) A = 0, B = 0, C = 0, D = 0
- b) A = 0, B = 1, C = 1, D = 0
- c) A = 1, B = 1, C = 0, D = 0
- d) A = 1, B = 0, C = 0, D = 0
- 5) What is a multiplexer?
  - a) It is a type of decoder which decodes several inputs and gives one output
  - b) A multiplexer is a device which converts many signals into one
  - c) It takes one input and results into many output
  - d) None of the Mentioned
- 6) The output of an exclusive-NOR gate is 1. Which input combination is correct?
  - a) A = 1, B = 0

b) A = 0, B = 1

c) A = 0, B = 0

d) none of the above

## Set P

7)	How many inputs of a four-input ANI output of the logic gate to go HIGH?	_	e must be HIGH in order for the
	<ul><li>a) any one of the inputs</li><li>c) any three of the inputs</li></ul>	b) d)	any two of the inputs all four inputs
8)	<ul> <li>"#100 \$finish" indicate</li> <li>a) end of simulation time</li> <li>b) end of simulation at 100 time un</li> <li>c) suspend the simulation at 100 ti</li> <li>d) None</li> </ul>		nit
9)	a) MOD 5 followed by MOD 2 sync b) MOD 5 followed by MOD 2 Async c) MOD 2 followed by MOD 5 sync d) MOD 2 followed by MOD 5 Asyn	nchroi chron	nous counter ous counter
10)	A MOD 12 and MOD 10 counters are frequency if input frequency is of 60 a) 1500 KHz c) 500 KHz		
11)	In initial content of 4 bit SIPO, right s After three clock pulses are applied		
	SI 0 1		1 0
	a) 0101 c) 0011	b) d)	1010 1011

b)

d)

b)

d)

b)

d)

Bistable

Metastable

JK flip flop

D Flip flop

\$finish

\$hold

Flip is also called as \_\_\_\_\_ Device.

Which Flip flop is free from Race around condition?

What is the system task to suspend simulation?

12)

13)

14)

a) Astable

c) Monostable

a) SR flip flop

a) \$Stop

c) \$monitor

c) MS JK flip flop

Seat No.			Set	Р	
	C E /Dort	I) (Old) (CCDA) Examination Nov/Dec 2010			

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering DIGITAL TECHNIQUES** Day & Date: Saturday, 14-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. 3) Illustrate your answers with sketches wherever necessary. 4) Assume suitable data if necessary. Section - I 12 Q.2 Solve any three. Given a)  $Y = A\overline{B} + \overline{B}\overline{C} + \overline{A}C$ Implement the logical expression using NAND and NOR gates. Minimize the following Boolean expression using K – map. b)  $Y = \sum_{m=0}^{\infty} (m1, m3, m5, m7, m10, m11, m14, m15).$ Design 16:1 multiplexer using 4:1 multiplexers only. c) Short Note on: d) Arithmetic and Logic Unit 2) IC 74151 Q.3 Solve any two. 16 Simplify the Boolean Function:  $F(w, x, y, z) = \sum (1,3,7,11,15)$ , the Don't care conditions  $d(w, x, y, z) = \sum (0,2,5)$ and Implement using NAND gates. Design a 8 to 1 multiplexer by using the four variable function given by b)  $F(A, B, C, D) = \sum m(0,1,3,4,8,9,15).$ State and prove De'Morgan's Theorems with the help of truth tables. c) Section - II Attempt any three. 12 Q.4 Draw and explain SIPO shift register with waveform. Write the verilog code for JK flip flop using behavioral modeling. b) Design 3 bit asynchronous down counter with waveform in detail. c) Write the verilog code for full adder. d) 16

- Q.5 Attempt any two. Write a Verilog code for 3 line to 8 line decoder using behavioral modeling.
  - Design synchronous counter which counts following sequence b)
  - ---1-2-3-4-5-6-7-8-0-1-2--- using JK flip flop
  - Explain the IC 7490. Also design MOD 9 counter using IC 7490 in detail. c)

Seat	Set	O
No.		G

## S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DIGITAL TECHNIQUES

Day & Date: Saturday, 14-12-20 <sup>-</sup>	9 Max. Marks: 70
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Time: 10:00 AM To 01:00 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.

- 2) Figures to the right indicates full marks.
- 3) Illustrate your answers with sketches wherever necessary.
- 4) Assume suitable data if necessary.

#### **MCQ/Objective Type Questions**

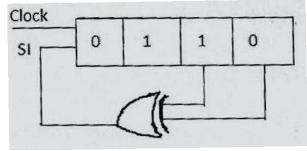
Duration: 30 Minutes Marks: 14

- Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14
  - 1) "#100 \$finish" indicate \_\_\_\_\_.
    - a) end of simulation time
    - b) end of simulation at 100 time unit
    - c) suspend the simulation at 100 time unit
    - d) None
  - 2) IC 7490 is \_\_\_\_\_.
    - a) MOD 5 followed by MOD 2 synchronous counter
    - b) MOD 5 followed by MOD 2 Asynchronous counter
    - c) MOD 2 followed by MOD 5 synchronous counter
    - d) MOD 2 followed by MOD 5 Asynchronous counter
  - 3) A MOD 12 and MOD 10 counters are cascaded. Determine the output frequency if input frequency is of 60 MHz.
    - a) 1500 KHz

b) 6 MHz

c) 500 KHz

- d) 5 MHz
- 4) In initial content of 4 bit SIPO, right shift, shift register shown in figure is 0110. After three clock pulses are applied contents of shift register will be \_\_\_\_\_.



a) 0101

b) 1010

c) 0011

- d) 1011
- 5) Flip is also called as Device.
  - a) Astable

b) Bistable

c) Monostable

d) Metastable

## Set Q

6)	a)	ich Flip flop is free from Race aro SR flip flop MS JK flip flop		condition? JK flip flop D Flip flop	
7)	Wha)	at is the system task to suspend s \$Stop \$monitor	simula b) d)	ation? \$finish \$hold	
8)	a) b) c)	ich statement below best describe A Karnaugh map can be used to The Karnaugh map eliminates th gates Variable complements can be el	repla ne nee imina	ace Boolean rules ed for using NAND and NOR ted by using Karnaugh maps	
	u)	Karnaugh maps provide a visual expressions	аррі	oach to simpiliying boolean	
9)	a)	Boolean equation for the exclusion $X = \overline{AB} + AB$ $X = \overline{A}  \overline{B} + AB$	b)	R function is $X = \overline{A}B + \overline{A}\overline{B}$ $X = \overline{A}B + A\overline{B}$	
10)	a) b) c)	Ill-adder adds  two single bits and one carry bit two 2-bit binary numbers two 4-bit binary numbers two 2-bit numbers and one carry	bit		
11)		A 4-variable AND-OR circuit produces a 1 at its Y output. Which combination of inputs is correct?			
	a)	A = 0, B = 0, C = 0, D = 0 A = 1, B = 1, C = 0, D = 0	,	A = 0, B = 1, C = 1, D = 0 A = 1, B = 0, C = 0, D = 0	
12)	<ul><li>a)</li><li>b)</li><li>c)</li></ul>	at is a multiplexer? It is a type of decoder which decoutput A multiplexer is a device which of takes one input and results into None of the Mentioned	onve	rts many signals into one	
13)	The output of an exclusive-NOR gate is 1. Which input combination is correct?				
	a)	A = 1, B = 0 A = 0, B = 0	b) d)	A = 0, B = 1 none of the above	
14)		w many inputs of a four-input ANE out of the logic gate to go HIGH? any one of the inputs any three of the inputs	b) b) d)	any two of the inputs all four inputs	

	_	
Seat	Set	
No.	Set	u

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering DIGITAL TECHNIQUES** Day & Date: Saturday, 14-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. 3) Illustrate your answers with sketches wherever necessary. 4) Assume suitable data if necessary. Section - I Solve any three. 12 Q.2 Given a)  $Y = A\overline{B} + \overline{B}\overline{C} + \overline{A}C$ Implement the logical expression using NAND and NOR gates. Minimize the following Boolean expression using K – map. b)  $Y = \sum_{m=0}^{\infty} (m1, m3, m5, m7, m10, m11, m14, m15).$ Design 16:1 multiplexer using 4:1 multiplexers only. c) Short Note on: d) Arithmetic and Logic Unit 2) IC 74151 Q.3 Solve any two. 16 Simplify the Boolean Function:  $F(w, x, y, z) = \sum (1,3,7,11,15)$ , the Don't care conditions  $d(w, x, y, z) = \sum (0,2,5)$ and Implement using NAND gates. Design a 8 to 1 multiplexer by using the four variable function given by b)  $F(A, B, C, D) = \sum m(0,1,3,4,8,9,15).$ State and prove De'Morgan's Theorems with the help of truth tables. c) Section - II Attempt any three. 12 Draw and explain SIPO shift register with waveform. Write the verilog code for JK flip flop using behavioral modeling. b) Design 3 bit asynchronous down counter with waveform in detail. c) Write the verilog code for full adder. d) Q.5 Attempt any two. 16 Write a Verilog code for 3 line to 8 line decoder using behavioral modeling. Design synchronous counter which counts following sequence b) ---1-2-3-4-5-6-7-8-0-1-2--- using JK flip flop

Explain the IC 7490. Also design MOD 9 counter using IC 7490 in detail.

c)

Page **6** of **12** 

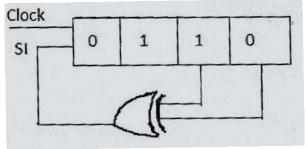
Seat	Set	D
No.	Set	N

## S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science	e & E	Engineering
		DIGITAL TEC	CHNI	QUES
-		e: Saturday, 14-12-2019 0 AM To 01:00 PM		Max. Marks: 70
Instr	uction	Book.		be solved in first 30 minutes in answer
		<ul><li>2) Figures to the right indicates for 3) Illustrate your answers with sk</li><li>4) Assume suitable data if neces</li></ul>	etche	
		MCQ/Objective T	ype	Questions
Dura	ition: 3	30 Minutes	•	Marks: 14
Q.1		ose the correct alternatives from t	he op	otions and rewrite the sentence. 14
	1)	What is a multiplexer?  a) It is a type of decoder which de output	code	s several inputs and gives one
		<ul><li>b) A multiplexer is a device which</li><li>c) It takes one input and results in</li><li>d) None of the Mentioned</li></ul>		, ,
	2)	The output of an exclusive-NOR gas correct? a) A = 1, B = 0 c) A = 0, B = 0		<ul><li>1. Which input combination is</li><li>A = 0, B = 1 none of the above</li></ul>
	3)	How many inputs of a four-input AN output of the logic gate to go HIGH a) any one of the inputs c) any three of the inputs		te must be HIGH in order for the any two of the inputs all four inputs
	4)	<ul> <li>"#100 \$finish" indicate</li> <li>a) end of simulation time</li> <li>b) end of simulation at 100 time u</li> <li>c) suspend the simulation at 100 d)</li> <li>d) None</li> </ul>		unit
	5)	a) MOD 5 followed by MOD 2 syn b) MOD 5 followed by MOD 2 Asy c) MOD 2 followed by MOD 5 syn d) MOD 2 followed by MOD 5 Asy	nchro chror	onous counter nous counter
	6)	A MOD 12 and MOD 10 counters a frequency if input frequency is of 60 a) 1500 KHz c) 500 KHz		·

## Set R

7) In initial content of 4 bit SIPO, right shift, shift register shown in figure is 0110. After three clock pulses are applied contents of shift register will be \_\_\_\_\_.



a) 0101

b) 1010

c) 0011

- d) 1011
- 8) Flip is also called as \_\_\_\_\_ Device.
  - a) Astable

b) Bistable

c) Monostable

- d) Metastable
- 9) Which Flip flop is free from Race around condition?
  - a) SR flip flop

b) JK flip flop

c) MS JK flip flop

- d) D Flip flop
- 10) What is the system task to suspend simulation?
  - a) \$Stop

b) \$finish

c) \$monitor

- d) \$hold
- 11) Which statement below best describes a Karnaugh map?
  - a) A Karnaugh map can be used to replace Boolean rules
  - b) The Karnaugh map eliminates the need for using NAND and NOR gates
  - c) Variable complements can be eliminated by using Karnaugh maps
  - d) Karnaugh maps provide a visual approach to simplifying Boolean expressions
- 12) The Boolean equation for the exclusive-OR function is \_\_\_\_\_
  - a)  $X = \overline{AB} + AB$

b)  $X = \overline{A}B + \overline{A}B$ 

c)  $X = \overline{A} \overline{B} + AB$ 

- d)  $X = \overline{A}B + A\overline{B}$
- 13) A full-adder adds \_\_\_\_\_.
  - a) two single bits and one carry bit
  - b) two 2-bit binary numbers
  - c) two 4-bit binary numbers
  - d) two 2-bit numbers and one carry bit
- 14) A 4-variable AND-OR circuit produces a 1 at its Y output. Which combination of inputs is correct?
  - a) A = 0, B = 0, C = 0, D = 0
- b) A = 0, B = 1, C = 1, D = 0
- c) A = 1, B = 1, C = 0, D = 0
- d) A = 1, B = 0, C = 0, D = 0

Seat	Sat	D
No.	Set	K

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering DIGITAL TECHNIQUES** Day & Date: Saturday, 14-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. 3) Illustrate your answers with sketches wherever necessary. 4) Assume suitable data if necessary. Section - I Solve any three. 12 Q.2 Given a)  $Y = A\overline{B} + \overline{B}\overline{C} + \overline{A}C$ Implement the logical expression using NAND and NOR gates. Minimize the following Boolean expression using K – map. b)  $Y = \sum_{m=0}^{\infty} (m1, m3, m5, m7, m10, m11, m14, m15).$ Design 16:1 multiplexer using 4:1 multiplexers only. c) Short Note on: d) Arithmetic and Logic Unit 2) IC 74151 Q.3 Solve any two. 16 Simplify the Boolean Function:  $F(w, x, y, z) = \sum (1,3,7,11,15)$ , the Don't care conditions  $d(w, x, y, z) = \sum (0,2,5)$ and Implement using NAND gates. Design a 8 to 1 multiplexer by using the four variable function given by b)  $F(A, B, C, D) = \sum m(0,1,3,4,8,9,15).$ State and prove De'Morgan's Theorems with the help of truth tables. c) Section - II Attempt any three. 12 Draw and explain SIPO shift register with waveform. Write the verilog code for JK flip flop using behavioral modeling. b) Design 3 bit asynchronous down counter with waveform in detail. c) Write the verilog code for full adder. d) Q.5 Attempt any two. 16 Write a Verilog code for 3 line to 8 line decoder using behavioral modeling. Design synchronous counter which counts following sequence b)

Explain the IC 7490. Also design MOD 9 counter using IC 7490 in detail.

---1-2-3-4-5-6-7-8-0-1-2--- using JK flip flop

c)

Seat	Set	9
No.	Set	3

# S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DIGITAL TECHNIQUES

Day & Date: Saturday, 14-12-2019 Max. Marks: 70

Time: 10:00 AM To 01:00 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.

- 2) Figures to the right indicates full marks.
- 3) Illustrate your answers with sketches wherever necessary.
- 4) Assume suitable data if necessary.

#### **MCQ/Objective Type Questions**

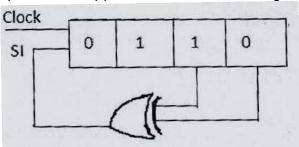
Duration: 30 Minutes Marks: 14

- Q.1 Choose the correct alternatives from the options and rewrite the sentence.
  - A MOD 12 and MOD 10 counters are cascaded. Determine the output frequency if input frequency is of 60 MHz.
    - a) 1500 KHz

b) 6 MHz

c) 500 KHz

- d) 5 MHz
- 2) In initial content of 4 bit SIPO, right shift, shift register shown in figure is 0110. After three clock pulses are applied contents of shift register will be \_\_\_\_\_.



a) 0101

b) 1010

c) 0011

- d) 1011
- 3) Flip is also called as \_\_\_\_\_ Device.
  - a) Astable

b) Bistable

c) Monostable

- d) Metastable
- 4) Which Flip flop is free from Race around condition?
  - a) SR flip flop

b) JK flip flop

c) MS JK flip flop

- d) D Flip flop
- 5) What is the system task to suspend simulation?
  - a) \$Stop

b) \$finish

c) \$monitor

- d) \$hold
- 6) Which statement below best describes a Karnaugh map?
  - a) A Karnaugh map can be used to replace Boolean rules
  - b) The Karnaugh map eliminates the need for using NAND and NOR gates
  - c) Variable complements can be eliminated by using Karnaugh maps
  - Karnaugh maps provide a visual approach to simplifying Boolean expressions

## Set S

7)	The	Boolean equation for the exclusi	ve-O	R function is
	a)	$X = \overline{AB} + AB$	b)	$X = \overline{A}B + \overline{AB}$
	c)	$X = \overline{A}  \overline{B} + AB$	d)	$X = \overline{A}B + A\overline{B}$
8)	a) b) c)	Ill-adder adds  two single bits and one carry bit two 2-bit binary numbers two 4-bit binary numbers two 2-bit numbers and one carry	bit	
9)	of ir	nputs is correct?		at its Y output. Which combination
	,	A = 0, B = 0, C = 0, D = 0 A = 1, B = 1, C = 0, D = 0	,	
10)	Wh a)	at is a multiplexer? It is a type of decoder which dec output	odes	several inputs and gives one
		A multiplexer is a device which of the latest takes one input and results into None of the Mentioned		
11)		e output of an exclusive-NOR gate rect?	e is 1.	Which input combination is
	a)	A = 1, B = 0	,	A = 0, B = 1
	c)	A = 0, B = 0	d)	none of the above
12)		w many inputs of a four-input ANE out of the logic gate to go HIGH?	) gate	e must be HIGH in order for the
	,	any one of the inputs any three of the inputs	b) d)	any two of the inputs all four inputs
13)	a)	00 \$finish" indicate end of simulation time end of simulation at 100 time uni suspend the simulation at 100 tir None		nit
14)	IC 7 a) b) c) d)	7490 is  MOD 5 followed by MOD 2 sync MOD 5 followed by MOD 2 Asyn MOD 2 followed by MOD 5 sync MOD 2 followed by MOD 5 Asyn	chror hronc	nous counter ous counter

Seat No.			Set	S
	S.E. (Part – I	(Old) (CGPA) Examination Nov/Dec-2019		

### **Computer Science & Engineering DIGITAL TECHNIQUES**

Day & Date: Saturday, 14-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicates full marks. 3) Illustrate your answers with sketches wherever necessary. 4) Assume suitable data if necessary. Section - I Solve any three. 12 Q.2 Given a)  $Y = A\overline{B} + \overline{B}\overline{C} + \overline{A}C$ Implement the logical expression using NAND and NOR gates. Minimize the following Boolean expression using K – map. b)  $Y = \sum_{m=0}^{\infty} (m1, m3, m5, m7, m10, m11, m14, m15).$ Design 16:1 multiplexer using 4:1 multiplexers only. c) Short Note on: d) Arithmetic and Logic Unit 2) IC 74151 Q.3 Solve any two. 16 Simplify the Boolean Function:  $F(w, x, y, z) = \sum (1,3,7,11,15)$ , the Don't care conditions  $d(w, x, y, z) = \sum (0,2,5)$ and Implement using NAND gates. Design a 8 to 1 multiplexer by using the four variable function given by b)  $F(A, B, C, D) = \sum m(0,1,3,4,8,9,15).$ State and prove De'Morgan's Theorems with the help of truth tables. c) Section - II 12 Attempt any three. Draw and explain SIPO shift register with waveform. Write the verilog code for JK flip flop using behavioral modeling. b) Design 3 bit asynchronous down counter with waveform in detail. Write the verilog code for full adder. d) **Q.5** Attempt any two. 16

Seat	Set	Ъ
No.	Set	

# S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science COMPUTER	ce & E	ngineering
•		e: Tuesday,17-12-2019 00 AM To 01:00 PM		Max. Marks: 70
Insti	ructio	book.		be solved in first 30 minutes in answer
		2) Figures to the right indicate f		
Dura	otion: 3	MCQ/Objective 30 Minutes	Type (	Questions Marks: 14
			the en	
Q.1	1)	The transformation which results to another is called as  a) Translation c) Reflection	•	
	2)	The picture definition stored in me a) Refresh buffer c) Both a & b	emory is b) d)	generally referred as Frame buffer None of above
	3)	Reflection through an arbitrary line a) 7 c) 3	e requir b) d)	es transformations. 2 5
	4)	is used to include a segme making visibility of objects.  a) Posting c) Deleting	ent in the b) d)	e display refresh cycle for Unposting Appending
	5)	In generalised 4X4 transformation matrix produces a) Translation c) Scaling	n matrix b) d)	for 3D, the lower left 1X3 sub  Rotation All above
	6)	Bezier curves are generated by u a) 6 c) 5	sing b) d)	number of control points.  2 4
	7)	The window can be mapped direct called as  a) Window c) Viewport	ctly onto b) d)	the sub region of the display is  Region  None of above
	8)	Super sampling is a technique for a) Shading c) Half toning	· b) d)	Anti-aliasing None of the above

Set P

9)	The resolution of an image is a) Number of pixels per unit area b) Number of pixels per unit leng c) Number of pixels per unit leng d) None of These	th in h	
10)	A line with end point codes 0001 a	nd 011	10 respectively then the line is
	a) Completely Visible c) Invisible	b) d)	Partially Visible All above
11)	number of bits are used for Cohen-Sutherland line clipping.  a) 1 c) 3	repres b) d)	4
12)	is a technique for using min obtain increase visual resolution.  a) Antialiasing c) Rasterization	b) d)	Half-toning
13)	In interpolation, curve always pass a) Last and Second c) First and Last		ough control points. First and Second All
14)	Rotation about an arbitrary point real 5	equires b)	

Seat	Set	Р
No.	Set	

#### S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering COMPUTER GRAPHICS**

Day & Date: Tuesday,17-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I 12 Q.2 Attempt any three. What is 3D rotation? Write the matrix for it about X, Y and Z axis. Describe joy stick in brief. b) Explain in detail raster scan display. c) Write note on reflection through an arbitrary line. Consider a triangle A(2,2) B(4,2) and C(4,4) and apply combined transformation Q.3 80 as: 90 degree rotation about origin 1) Reflection through the line y=-x 2) OR Explain DDA line drawing algorithm in detail. Rasterise the line with the same whose end points are A(0,0) and B(5,5). **Q.4** Write and explain Bresenham's line drawing algorithm in detail. 80 Section - II 12 Q.5 Attempt any three Write note on display file compilation. Explain Bezier curves in brief. b) Write note on viewing transformation. c) Define corruption. How to tackle the problem of corruption? Explain. Explain in detail Z-buffer algorithm. Also state its advantages and Q.6 80 disadvantages. OR What is display file? Enlist the functions of segmented display file. Explain each. Q.7 Explain the working of Warnock algorithm in detail. Also explain quad tree data 80 structure.

Seat	Set	O
No.		G

		S.E	Computer So	•	
•			nesday,17-12-2019 M To 01:00 PM		Max. Marks: 70
Insti	ructio		book.		e solved in first 30 minutes in answer
		4	2) Figures to the right indic		
Dura	ation: 3	30 Mi	MCQ/Object inutes	ive Type G	Marks: 14
Q.1	Cho	ose i	the correct alternatives t	rom the opt	ions. 14
	1)	Sup	per sampling is a techniqu Shading Half toning	•	Anti-aliasing None of the above
	2)	The a) b) c) d)	resolution of an image is Number of pixels per unit Number of pixels per unit Number of pixels per unit None of These	t area t length in ho	
	3)	A li	ne with end point codes 0	001 and 0110	0 respectively then the line is
		a) c)	Completely Visible Invisible	b) d)	Partially Visible All above
	4)	Col a) c)	hen-Sutherland line clippir 1	•	enting each sub-region of the  4 2
	5)			g minimum n	umber of intensity levels to  Half-toning  Aliasing
	6)	In i a) c)	nterpolation, curve always Last and Second First and Last	passes thro b) d)	ugh control points. First and Second All
	7)	Rot a) c)	tation about an arbitrary po 5 4	oint requires b) d)	transformations. 3
	8)		e transformation which res another is called as Translation Reflection		ing of object from one position  Rotation  Shearing
	9)	The	e picture definition stored i Refresh buffer	n memory is b)	generally referred as Frame buffer

ď)

None of above

c) Both a & b

Set Q

10)	Reflection through an arbitrary line	requir	es transformations.
	a) 7	b)	2
	c) 3	ď)	5
11)	is used to include a segmen making visibility of objects.	t in the	e display refresh cycle for
	a) Posting	b)	Unposting
	c) Deleting	ď)	Appending
12)	In generalised 4X4 transformation matrix produces	matrix	for 3D, the lower left 1X3 sub
	a) Translation	b)	Rotation
	c) Scaling	ď)	All above
13)	Bezier curves are generated by usi	ing	number of control points.
,	a) 6	b)	2
	c) 5	ď)	4
14)	The window can be mapped directled as	ly onto	the sub region of the display is
	a) Window	b)	Region
	c) Viewport	ď)	None of above

Seat No.	Set	Q
140.		

#### S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering COMPUTER GRAPHICS**

Day & Date: Tuesday,17-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I 12 Q.2 Attempt any three. What is 3D rotation? Write the matrix for it about X, Y and Z axis. Describe joy stick in brief. b) Explain in detail raster scan display. c) Write note on reflection through an arbitrary line. Consider a triangle A(2,2) B(4,2) and C(4,4) and apply combined transformation Q.3 80 as: 90 degree rotation about origin 1) Reflection through the line y=-x 2) OR Explain DDA line drawing algorithm in detail. Rasterise the line with the same whose end points are A(0,0) and B(5,5). **Q.4** Write and explain Bresenham's line drawing algorithm in detail. 80 Section - II 12 Q.5 Attempt any three Write note on display file compilation. Explain Bezier curves in brief. b) Write note on viewing transformation. c) Define corruption. How to tackle the problem of corruption? Explain. Explain in detail Z-buffer algorithm. Also state its advantages and Q.6 80 disadvantages. OR What is display file? Enlist the functions of segmented display file. Explain each. Q.7 Explain the working of Warnock algorithm in detail. Also explain quad tree data 80

structure.

Seat	_	
No.	Set	R

		S.E. (Part – I) (Old) (CGPA)  Computer Science  COMPUTER	ce & E	ngineering
_		e: Tuesday,17-12-2019 00 AM To 01:00 PM		Max. Marks: 70
Insti	ructio	book.		be solved in first 30 minutes in answer
		2) Figures to the right indicate f		
Dura	ation: (	MCQ/Objective 30 Minutes	ı ype	<b>Questions</b> Marks: 14
Q.1		In generalised 4X4 transformation matrix produces  a) Translation c) Scaling	-	tions. 14
	2)	Bezier curves are generated by us a) 6 c) 5	,	
	3)	The window can be mapped direct called as  a) Window c) Viewport	tly onto b) d)	the sub region of the display is  Region  None of above
	4)	Super sampling is a technique for a) Shading c) Half toning	 b) d)	Anti-aliasing None of the above
	5)	The resolution of an image isa) Number of pixels per unit area b) Number of pixels per unit length of the control of the	a gth in ho	
	6)	A line with end point codes 0001 a  a) Completely Visible c) Invisible	and 011 b) d)	0 respectively then the line is  Partially Visible  All above
	7)	number of bits are used for Cohen-Sutherland line clipping.  a) 1 c) 3	repres b) d)	enting each sub-region of the  4 2
	8)	is a technique for using mir obtain increase visual resolution.  a) Antialiasing c) Rasterization	nimum ( b) d)	number of intensity levels to  Half-toning  Aliasing

## Set R

9)	In ir a) c)	nterpolation, curve always passes Last and Second First and Last		ugh control points. First and Second All
10)	Rot a) c)	ation about an arbitrary point req 5 4	uires b) d)	transformations.  3 1
11)	to a	e transformation which results in on the inother is called as  Translation  Reflection	draggi b) d)	ng of object from one position  Rotation  Shearing
12)	The a) c)	e picture definition stored in memo Refresh buffer Both a & b	•	generally referred as Frame buffer None of above
13)	Ref a) c)	lection through an arbitrary line ro 7 3	equire b) d)	es transformations. 2 5
14)	mal a) c)	is used to include a segment king visibility of objects. Posting Deleting	in the b) d)	display refresh cycle for Unposting Appending

Seat No.	Set	R
140.		

#### S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering COMPUTER GRAPHICS**

Day & Date: Tuesday,17-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I 12 Q.2 Attempt any three. What is 3D rotation? Write the matrix for it about X, Y and Z axis. Describe joy stick in brief. b) Explain in detail raster scan display. c) Write note on reflection through an arbitrary line. Consider a triangle A(2,2) B(4,2) and C(4,4) and apply combined transformation Q.3 80 as: 90 degree rotation about origin 1) Reflection through the line y=-x 2) OR Explain DDA line drawing algorithm in detail. Rasterise the line with the same whose end points are A(0,0) and B(5,5). **Q.4** Write and explain Bresenham's line drawing algorithm in detail. 80 Section - II 12 Q.5 Attempt any three Write note on display file compilation. Explain Bezier curves in brief. b) Write note on viewing transformation. c) Define corruption. How to tackle the problem of corruption? Explain. Explain in detail Z-buffer algorithm. Also state its advantages and Q.6 80 disadvantages. OR What is display file? Enlist the functions of segmented display file. Explain each. Q.7 Explain the working of Warnock algorithm in detail. Also explain quad tree data 80 structure.

Seat		
No.	Set	S

		S.I	E. (Part – I) (Old) (CGPA) E Computer Science COMPUTER	e & E	ngineering
			uesday,17-12-2019 // To 01:00 PM		Max. Marks: 70
Instr	uction		l) Q. No. 1 is compulsory and sh book. 2) Figures to the right indicate fu		e solved in first 30 minutes in answer
			MCQ/Objective T		
Dura	tion: 3	0 M		,,,,	Marks: 14
Q.1	<b>Cho</b> (1)		the correct alternatives from to ne with end point codes 0001 are	•	
		a) c)	Completely Visible Invisible	b) d)	Partially Visible All above
	2)	a)	hen-Sutherland line clipping. 1	b)	enting each sub-region of the
	3)		<ul> <li>is a technique for using mini ain increase visual resolution.</li> <li>Antialiasing</li> <li>Rasterization</li> </ul>	d) mum r b) d)	2 number of intensity levels to Half-toning Aliasing
	4)	In i a)	nterpolation, curve always passo Last and Second First and Last	,	•
	5)	Roa) c)	tation about an arbitrary point re 5 4	b)	transformations. 3
	6)		e transformation which results in another is called as Translation Reflection	dragg b) d)	ring of object from one position  Rotation  Shearing
	7)	The a) c)	e picture definition stored in men Refresh buffer Both a & b	nory is b) d)	generally referred as Frame buffer None of above
	8)	Re <sup>r</sup> a) c)	flection through an arbitrary line 7 3	requir b) d)	es transformations. 2 5
	9)	ma a) c)	is used to include a segmen king visibility of objects. Posting Deleting	t in the b) d)	e display refresh cycle for Unposting Appending

Set S

10)	In generalised 4X4 transformation r matrix produces  a) Translation c) Scaling	b) d)	Rotation All above
11)	Bezier curves are generated by usin a) 6 c) 5	ng b) d)	number of control points.  2 4
12)	The window can be mapped directly called as  a) Window c) Viewport	onto b) d)	the sub region of the display is  Region None of above
13)	Super sampling is a technique for _ a) Shading c) Half toning	b) d)	•
14)	The resolution of an image is a) Number of pixels per unit area b) Number of pixels per unit length c) Number of pixels per unit length d) None of These	n in ho	

Seat No.		Set	S
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#### S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering COMPUTER GRAPHICS**

Day & Date: Tuesday,17-12-2019 Max. Marks: 56 Time: 10:00 AM To 01:00 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I 12 Q.2 Attempt any three. What is 3D rotation? Write the matrix for it about X, Y and Z axis. Describe joy stick in brief. b) Explain in detail raster scan display. c) Write note on reflection through an arbitrary line. Consider a triangle A(2,2) B(4,2) and C(4,4) and apply combined transformation Q.3 80 as: 90 degree rotation about origin 1) Reflection through the line y=-x 2) OR Explain DDA line drawing algorithm in detail. Rasterise the line with the same whose end points are A(0,0) and B(5,5). **Q.4** Write and explain Bresenham's line drawing algorithm in detail. 80 Section - II 12 Q.5 Attempt any three Write note on display file compilation. Explain Bezier curves in brief. b) Write note on viewing transformation. c) Define corruption. How to tackle the problem of corruption? Explain. Explain in detail Z-buffer algorithm. Also state its advantages and Q.6 80 disadvantages. OR What is display file? Enlist the functions of segmented display file. Explain each. Q.7 Explain the working of Warnock algorithm in detail. Also explain quad tree data 80 structure.

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Seat	Set	D
No.	Set	

# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering APPLIED MATHEMATICS - II

			APPLIED MATI	HEMA	TICS - II
•			day, 22-11-2019 I To 05:30 PM		Max. Marks: 70
Instr	uctior	າຣ: 1	,	nould b	e solved in first 30 minutes in answer
			book. ) Answer MCQ/Objective type of mention, Q. P. Set (A, B, C, D) Use of non programmable cal	on To	. •
			MCQ/Objective 1	ype Q	uestions
Dura	tion: 3	0 Mi	nutes		Marks: 14
Q.1	<b>Choo</b> 1)	The a) b)	he correct alternatives from to use of Romberg's method is _ To solve simultaneous linear of To find root of the equation To evaluate definite integration To find eigen values	equation	
	2)		soon as a new value of a variab nediately in the next step, this m Gauss-Jacobi's method Gauss-Jordan method	nethod i b)	
	3)	mat	rix A is transformed to Upper triangular matrix	b)	o solve set of equation AX = B,  Diagonal matrix Identity matrix
	4)	Trui a) c)	ncation error in Trapezoidal rule h h <sup>3</sup>	e is of o b) d)	rder h <sup>2</sup> h <sup>4</sup>
	5)		order of convergence of Regulation $f(x) = 0$ is Second order First order	a falsi ı b) d)	method for finding roots of  Cubic order  Very slow
	6)	A ro a) c)	oot of the equation $x - \cos x = 1$ and 2 0 and 1	0 lies (b) d)	between 2 and 3 -1 and 0
	7)	The a) c)	Newton - Raphson method fail $f'(x)$ is negative Never fails	s when b) d)	f'(x) is positive $f'(x)$ is zero
	8)	The a)	Multiplication of closed interva [-15,20]	b)	$\left[\frac{1}{15},\frac{1}{20}\right]$
		c)	[20, -15]	d)	[9, 15]

# Set P

9)	Quantifiers of the second kind are c a) Absolute c) Approximate	alled <sub>.</sub> b) d)	
10)	Consider i) $A(x) = x$ $0 \le x \le 1$ = 0 $owii) B(x) = \min\{1, x\} x \ge 0= 0$ $x < 0Then the fuzzy number are$		
	a) Both i) and ii) c) Only i)	 b) d)	Only ii) Neither i) or nor ii)
11)	For any set A defined on universal s a) Ø c) A	b) d)	$0_A = \underline{\qquad}$ $X$ $A^c$
12)	The fuzzy sets A and B are defined $A = \frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.6}{x_3}$ $B = \frac{0.1}{x_1} + \frac{0.4}{x_2}$ a) $\frac{0.9}{x_1} + \frac{0.6}{x_2} + \frac{0.5}{x_3}$ c) $\frac{0.3}{x_1} + \frac{0.9}{x_2} + \frac{0.1}{x_3}$	as fol $\frac{1}{x_3} + \frac{0.5}{x_3}$ b) d)	lows, the set $A \cap B^c$ is $\frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.5}{x_3}$ $\frac{0.9}{x_1} + \frac{0.6}{x_2} + \frac{0.6}{x_3}$
13)	For the fuzzy set defined by the fund		
	The scalar cardinality of t set A is _a) 5.2 c) 5.5	b)	5.4 5.6
14)	The largest membership grade obtacalled as		
	<ul><li>a) Support of fuzzy set</li><li>c) Normal of fuzzy set</li></ul>	b) d)	Height of Fuzzy set Fuzzy number
	o, italina or lazzy oot	$\mathbf{a}_{j}$	. u 110111001

Seat	Set	D
No.	Set	

# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering APPLIED MATHEMATICS - II

APPLIED WATHEWATICS - II				
Day & Date: Friday, 22-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM				
<ul> <li>Instructions: 1) Question No. 3 is compulsory in Section –I solve any two questions from Q. No.2, 4, 5.</li> <li>2) Question No. 6 is compulsory in Section –II solve any two questions from Q. No.7, 8, 9.</li> <li>2) Figures to the right indicate full marks.</li> <li>3) Use of non programmable calculator is allowed.</li> </ul>				
		Section – I		
Q.2	a) b)	Find the positive real root of the equation $e^{-x} = \sin x$ Correct to three decimal places by Regula falsi method. Find the positive real root of the equation $x^3 - 9x + 1 = 0$ by Bisection	05 04	
		method.(Carry out 6 iterations)  OR		
	b)	Use <i>N R</i> method to find a positive root of $e^{0.4x} - 0.4 x = 9$	04	
Q.3	a)	Perform two iterations of the $N-R$ method to solve non-linear equations $x^2 + y = 11$ and $y^2 - x = 7$ starting with initial conditions as $x_0 = 3.5$ ,	05	
	b)	$y_0 = -1.8$ Solve the following equations by using factorization method. x + 5y + z = 14.2x + y + 3z = 13.3x + y + 4z = 17	05	
Q.4	a)	Evaluate $\int_0^1 \frac{dx}{2x+3}$ by using Trapezoidal Rule by taking $h = 0.2$	03	
	b)	Use Romberg's method to evaluate $\int_0^1 \frac{dx}{x^2+4} dx$ take $n=2$	06	
Q.5	a)	Solve the following equations by Gauss Elimination method. $x + 4y + 9z = 16$ , $2x + y + z = 10$ , $3x + 2y + 3z = 18$	04	
	b)	Using Trapezoidal rule evaluate $\int_{1}^{2} \int_{3}^{4} \frac{1}{(x+y)^{2}} dx dy$ , $h = k = 0.5$	05	
		Section – II		
Q.6	a)	State the conditions for fuzzy set to be a fuzzy number and hence determine whether the following fuzzy set is a fuzzy number. $C(x) = 1 \qquad 0 \le x \le b \\ = 0 \qquad otherwise$	04	
	a)	Prove that: i) $\alpha(A \cup B) = \alpha_A \cup \alpha_B$ ii) $\alpha_+(A \cap B) = \alpha_{+A} \cap \alpha_{+B}$	04	

Set I

For given fuzzy numbers find MIN(A, B)

06

For given fuzzy numbers find MIN (A, B)

Where 
$$A(x) = \frac{x-2}{3}$$

$$= \frac{7-x}{3}$$

$$= 0$$

$$B(x) = x-3$$

$$= \frac{9-x}{3}$$

$$= 0$$
otherwise
$$4 < x \le 9$$

$$= 0$$
otherwise

Q.7 For the following fuzzy sets a)

04

Elements 
$$x_1$$
  $x_2$   $x_3$   $x_4$   $x_5$   $x_6$   $A(x)$  0.1 0.6 0.8 0.9 0.7 0.1  $B(x)$  0.9 0.7 0.5 0.2 0.1 0

Find S(B, A) &  $0.4 A \cap B$ 

b) Find A - B for the following membership function: 05

$$B(x) = \frac{x - 10}{10} \qquad 10 < x \le 20$$

$$= \frac{35 - x}{15} \qquad 20 < x \le 35$$

$$= 0 \qquad otherwise$$

$$A(x) = x - 4 \qquad 4 < x \le 5$$

$$= 6 - x \qquad 5 < x \le 6$$

$$= 0 \qquad otherwise$$

Let A be fuzzy set defined on  $X = \{-3, -2, -1, 0, 1, 2, 3, 4, 5\}$  by membership function  $A(x) = \frac{12-x}{15}$  for all x and  $f(x) = x^2 + 2$  is crisp **Q.8** a)

function for all  $x \in X$  then by using extension principle find f(A). Calculate  $\alpha$ -cuts and strong  $\alpha$ -cuts for the fuzzy set B, b)

04

05

$$B(x) = 0 x > 13, x < 7$$

$$= \frac{x - 7}{3} 7 < x \le 10$$

$$= \frac{13 - x}{3} 10 < x \le 13 \text{ where } \alpha = 0.7, 0.8, 1$$

Solve the fuzzy equation A + X = B where Q.9 a)

05

A(x) = x-3 3 < x \le 4  
= 5-x 4 < x < 5  
= 0 otherwise  
B(x) = 
$$\frac{(x-12)}{8}$$
 12 < x \le 20  
=  $\frac{32-x}{12}$  20 < x \le 32  
= 0 otherwise

Explain the concept of fuzzy quantifiers and their types. b)

04

	_	
Seat	Set	
No.	Set	Q

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019  Computer Science and Engineering  APPLIED MATHEMATICS - II				
	e: Friday, 22-11-2019 0 PM To 05:30 PM		Max. Marks: 70	
Instruction	ns: 1) Q. No. 1 is compulsory and she book.	ould b	e solved in first 30 minutes in answer	
		on To		
	MCQ/Objective Ty	/pe Q	uestions	
Duration: 3	0 Minutes		Marks: 14	
<b>Q.1 Choo</b> 1)	, , , ,	•		
2)	Quantifiers of the second kind are can also also also also also also also also	,	Quantifiers	
3)	Consider i) $A(x) = x$ $0 \le x \le 1$ = 0 $owii) B(x) = \min\{1, x\} x \ge 0= 0$ $x < 0Then the fuzzy number are$	 b) d)	Only ii) Neither i) or nor ii)	
4)	For any set A defined on universal s a) Ø c) A		$O_A = \underline{\qquad}$ $X$ $A^c$	
5)	The fuzzy sets A and B are defined $A = \frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.6}{x_3}$ $B = \frac{0.1}{x_1} + \frac{0.4}{x_2}$ a) $\frac{0.9}{x_1} + \frac{0.6}{x_2} + \frac{0.5}{x_3}$ c) $\frac{0.3}{x_1} + \frac{0.9}{x_2} + \frac{0.1}{x_3}$	$+\frac{0.5}{x_3}$ b)	lows, the set $A \cap B^c$ is $\frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.5}{x_3}$ $\frac{0.9}{x_1} + \frac{0.6}{x_2} + \frac{0.6}{x_3}$	
6)	For the fuzzy set defined by the fund The scalar cardinality of t set A is a) 5.2 c) 5.5			

# Set Q

7)		largest membership grade obted as	ained b	by an element in a fuzzy set is
	a)	Support of fuzzy set Normal of fuzzy set		
8)	a) b) c)	e use of Romberg's method is _ To solve simultaneous linear of To find root of the equation To evaluate definite integration To find eigen values	equation	
9)	imm a)	soon as a new value of a variat nediately in the next step, this n Gauss-Jacobi's method Gauss-Jordan method	nethod b)	is called as Gauss-Seidal method
10)	mat a)	en Gauss Elimination method is rix A is transformed to Upper triangular matrix Lower triangular matrix	b)	to solve set of equation AX = B,  Diagonal matrix Identity matrix
11)	Trui a) c)	ncation error in Trapezoidal rule h h <sup>3</sup>	e is of c b) d)	order h <sup>2</sup> h <sup>4</sup>
12)	The equ	e order of convergence of Regulation $f(x) = 0$ is Second order First order	b)	method for finding roots of  Cubic order  Very slow
13)	a)	pot of the equation $x - \cos x = 1$ and 2 0 and 1	b)	between 2 and 3 -1 and 0
14)	a)	Newton - Raphson method fai $f'(x)$ is negative Never fails	b)	f'(x) is positive $f'(x)$ is zero

Seat	
No.	

Set C

# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering APPLIED MATHEMATICS – II

Day & Date: Friday, 22-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Question No. 3 is compulsory in Section –I solve any two questions from Q. No.2, 4, 5. 2) Question No. 6 is compulsory in Section –II solve any two questions from Q. No.7, 8, 9. 2) Figures to the right indicate full marks. 3) Use of non programmable calculator is allowed. Section - I Q.2 a) Find the positive real root of the equation  $e^{-x} = \sin x$  Correct to three 05 decimal places by Regula falsi method. Find the positive real root of the equation  $x^3 - 9x + 1 = 0$  by Bisection b) 04 method.(Carry out 6 iterations) Use N R method to find a positive root of  $e^{0.4x} - 0.4 x = 9$ b) 04 Q.3 a) Perform two iterations of the N-R method to solve non-linear equations 05  $x^2 + y = 11$  and  $y^2 - x = 7$  starting with initial conditions as  $x_0 = 3.5$ , Solve the following equations by using factorization method. 05 b) x + 5y + z = 14,2x + y + 3z = 13,3x + y + 4z = 17Evaluate  $\int_0^1 \frac{dx}{2x+3}$  by using Trapezoidal Rule by taking h = 0.2**Q.4** 03 a) Use Romberg's method to evaluate  $\int_0^1 \frac{dx}{x^2+4} dx$  take n=206 b) Solve the following equations by Gauss Elimination method. Q.5 a) 04 x + 4y + 9z = 16,2x + y + z = 10,3x + 2y + 3z = 18Using Trapezoidal rule evaluate  $\int_{1}^{2} \int_{3}^{4} \frac{1}{(x+y)^{2}} dxdy$ , h = k = 0.505 b) Section - II State the conditions for fuzzy set to be a fuzzy number and hence 04 Q.6 a) determine whether the following fuzzy set is a fuzzy number. C(x) = 1 $0 \le x \le b$ = 0otherwise OR Prove that: 04 a)  $\alpha(A \cup B) = \alpha_A \cup \alpha_B$  $\alpha_{+}(A \cap B) = \alpha_{+A} \cap \alpha_{+B}$ 

### Set | Q

**b)** For given fuzzy numbers find 
$$MIN(A, B)$$

06

For given fuzzy numbers find MIN (A, B)

Where 
$$A(x) = \frac{x-2}{3}$$

$$= \frac{7-x}{3}$$

$$= 0$$

$$B(x) = x-3$$

$$= \frac{9-x}{3}$$

$$= 0$$
otherwise
$$4 < x \le 9$$

$$= 0$$
otherwise

04

Elements 
$$x_1$$
  $x_2$   $x_3$   $x_4$   $x_5$   $x_6$   $A(x)$  0.1 0.6 0.8 0.9 0.7 0.1  $B(x)$  0.9 0.7 0.5 0.2 0.1 0

Find S(B, A) &  $0.4 A \cap B$ 

b) Find A - B for the following membership function: 05

Find A - B for the following members
$$B(x) = \frac{x - 10}{10} \qquad 10 < x \le 20$$

$$= \frac{35 - x}{15} \qquad 20 < x \le 35$$

$$= 0 \qquad otherwise$$

$$A(x) = x - 4 \qquad 4 < x \le 5$$

$$= 6 - x \qquad 5 < x \le 6$$

$$= 0 \qquad otherwise$$

**Q.8 a)** Let A be fuzzy set defined on 
$$X = \{-3, -2, -1, 0, 1, 2, 3, 4, 5\}$$
 by membership function  $A(x) = \frac{12-x}{15}$  for all  $x$  and  $f(x) = x^2 + 2$  is crisp

05

function for all  $x \in X$  then by using extension principle find f(A). Calculate  $\alpha$ -cuts and strong  $\alpha$ -cuts for the fuzzy set B, b)

04

$$B(x) = 0 x > 13, x < 7$$

$$= \frac{x - 7}{3} 7 < x \le 10$$

$$= \frac{13 - x}{3} 10 < x \le 13 \text{ where } \alpha = 0.7, 0.8, 1$$

Solve the fuzzy equation A + X = B where Q.9 a)

05

A(x) = x-3 3 < x ≤ 4  
= 5-x 4 < x < 5  
= 0 otherwise  
B(x) = 
$$\frac{(x-12)}{8}$$
 12 < x ≤ 20  
=  $\frac{32-x}{12}$  20 < x ≤ 32  
= 0 otherwise

Explain the concept of fuzzy quantifiers and their types. b)

04

Seat No. Set R
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# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering APPLIED MATHEMATICS – II

APPLIED MATHEMATICS – II						
•	Day & Date: Friday, 22-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM					
Instr	uction	s: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer				
		<ul> <li>book.</li> <li>2) Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q. P. Set (A, B, C, D) on Top of Page.</li> <li>3) Use of non programmable calculator is allowed.</li> </ul>				
		MCQ/Objective Type Questions				
Dura	tion: 3	0 Minutes Marks: 14				
Q.1	<b>Choo</b> 1)	The order of convergence of Regula falsi method for finding roots of equation $f(x) = 0$ is  a) Second order b) Cubic order c) First order d) Very slow				
	2)	A root of the equation $x - \cos x = 0$ lies between a) 1 and 2 b) 2 and 3 c) 0 and 1 d) -1 and 0				
	3)	The Newton - Raphson method fails when a) $f'(x)$ is negative b) $f'(x)$ is positive c) Never fails d) $f'(x)$ is zero				
	4)	The Multiplication of closed interval $[-3,4]$ . $[-3,5] =$ a) $[-15,20]$ b) $\left[\frac{1}{15},\frac{1}{20}\right]$ c) $[20,-15]$ d) $[9,15]$				
	5)	Quantifiers of the second kind are called Quantifiers  a) Absolute				
	6)	Consider i) $A(x) = x$ $0 \le x \le 1$ $= 0$ $ow$ ii) $B(x) = \min\{1, x\}$ $x \ge 0$ $= 0$ $x < 0$ Then the fuzzy number are  a) Both i) and ii) b) Only ii) c) Only i) d) Neither i) or nor ii)				
	7)	For any set A defined on universal set $X$ , $0_A =$ a) $\emptyset$ b) $X$ c) $A$ d) $A^c$				

## Set R

8)	The fuzzy sets A and	B are defined as follows,
•	$A = \frac{0.2}{0.5} + \frac{0.5}{0.6}$	$R = \frac{0.1}{100} + \frac{0.4}{100} + \frac{0.5}{100}$ the set A

$$\frac{6.7}{x_2} + \frac{6.5}{x_3}$$
 the set  $A \cap B^c$  is \_\_\_\_\_

a) 
$$\frac{0.9}{x_1} + \frac{0.6}{x_2} + \frac{0.5}{x_2}$$

b) 
$$\frac{0.2}{3} + \frac{0.5}{3} + \frac{0.5}{3}$$

c) 
$$\frac{x_1}{x_1} + \frac{x_2}{0.9} + \frac{x_3}{x_2}$$

d) 
$$\frac{x_1}{0.9} + \frac{x_2}{0.6} + \frac{x_3}{0.6}$$

9) For the fuzzy set defined by the function  $A(x) = 1 - \frac{x}{10}$ ,  $x \in \{0,1,2,...10\}$ 

The scalar cardinality of t set A is \_\_\_\_\_

a) 5.2

b) 5.4

c) 5.5

- d) 5.6
- 10) The largest membership grade obtained by an element in a fuzzy set is called as \_\_\_\_\_.
  - a) Support of fuzzy set
- b) Height of Fuzzy set
- c) Normal of fuzzy set
- d) Fuzzy number
- 11) The use of Romberg's method is \_\_\_\_\_.
  - a) To solve simultaneous linear equations
  - b) To find root of the equation
  - c) To evaluate definite integration
  - d) To find eigen values
- 12) As soon as a new value of a variable is found by iteration, it is used immediately in the next step, this method is called as \_\_\_\_\_.
  - a) Gauss-Jacobi's method
- b) Gauss-Seidal method
- c) Gauss-Jordan method
- d) Gauss Elimination method
- 13) When Gauss Elimination method is used to solve set of equation AX = B, matrix A is transformed to \_\_\_\_\_.
  - a) Upper triangular matrix
- b) Diagonal matrix
- c) Lower triangular matrix
- d) Identity matrix
- 14) Truncation error in Trapezoidal rule is of order \_\_\_\_\_
  - a) h

b)  $h_1^2$ 

c) h<sup>3</sup>

d)  $h^4$ 

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Set R

# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering APPLIED MATHEMATICS – II

**APPLIED MATHEMATICS – II** Day & Date: Friday, 22-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Question No. 3 is compulsory in Section –I solve any two questions from Q. No.2, 4, 5. 2) Question No. 6 is compulsory in Section –II solve any two questions from Q. No.7, 8, 9. 2) Figures to the right indicate full marks. 3) Use of non programmable calculator is allowed. Section - I Q.2 a) Find the positive real root of the equation  $e^{-x} = \sin x$  Correct to three 05 decimal places by Regula falsi method. Find the positive real root of the equation  $x^3 - 9x + 1 = 0$  by Bisection b) 04 method.(Carry out 6 iterations) Use N R method to find a positive root of  $e^{0.4x} - 0.4 x = 9$ b) 04 Q.3 a) Perform two iterations of the N-R method to solve non-linear equations 05  $x^2 + y = 11$  and  $y^2 - x = 7$  starting with initial conditions as  $x_0 = 3.5$ , Solve the following equations by using factorization method. 05 b) x + 5y + z = 14,2x + y + 3z = 13,3x + y + 4z = 17Evaluate  $\int_0^1 \frac{dx}{2x+3}$  by using Trapezoidal Rule by taking h = 0.2**Q.4** 03 a) Use Romberg's method to evaluate  $\int_0^1 \frac{dx}{x^2+4} dx$  take n=206 b) Solve the following equations by Gauss Elimination method. Q.5 a) 04 x + 4y + 9z = 16,2x + y + z = 10,3x + 2y + 3z = 18Using Trapezoidal rule evaluate  $\int_{1}^{2} \int_{3}^{4} \frac{1}{(x+y)^{2}} dxdy$ , h = k = 0.505 b) Section - II State the conditions for fuzzy set to be a fuzzy number and hence Q.6 04 a) determine whether the following fuzzy set is a fuzzy number. C(x) = 1 $0 \le x \le b$ = 0otherwise OR Prove that: 04 a)  $\alpha(A \cup B) = \alpha_A \cup \alpha_B$  $\alpha_+(A \cap B) = \alpha_{+A} \cap \alpha_{+B}$ 

Set | R

For given fuzzy numbers find MIN(A, B)

06

For given fuzzy numbers find MIN (A, B)

Where 
$$A(x) = \frac{x-2}{3}$$

$$= \frac{7-x}{3}$$

$$= 0$$

$$B(x) = x-3$$

$$= \frac{9-x}{3}$$

$$= 0$$
otherwise
$$4 < x \le 9$$

$$= 0$$
otherwise

Q.7 For the following fuzzy sets a)

b)

04

Elements 
$$x_1$$
  $x_2$   $x_3$   $x_4$   $x_5$   $x_6$   $A(x)$  0.1 0.6 0.8 0.9 0.7 0.1  $B(x)$  0.9 0.7 0.5 0.2 0.1 0

Find S(B, A) &  $0.4 A \cap B$ 

b) Find A - B for the following membership function: 05

Find A - B for the following members
$$B(x) = \frac{x - 10}{10} \qquad 10 < x \le 20$$

$$= \frac{35 - x}{15} \qquad 20 < x \le 35$$

$$= 0 \qquad otherwise$$

$$A(x) = x - 4 \qquad 4 < x \le 5$$

$$= 6 - x \qquad 5 < x \le 6$$

$$= 0 \qquad otherwise$$

Let A be fuzzy set defined on  $X = \{-3, -2, -1, 0, 1, 2, 3, 4, 5\}$  by membership function  $A(x) = \frac{12-x}{15}$  for all x and  $f(x) = x^2 + 2$  is crisp **Q.8** a)

function for all  $x \in X$  then by using extension principle find f(A). Calculate  $\alpha$ -cuts and strong  $\alpha$ -cuts for the fuzzy set B,

04

05

$$B(x) = 0 x > 13, x < 7$$

$$= \frac{x - 7}{3} 7 < x \le 10$$

$$= \frac{13 - x}{3} 10 < x \le 13 \text{ where } \alpha = 0.7, 0.8, 1$$

Solve the fuzzy equation A + X = B where Q.9 a)

05

A(x) = x-3 3 < x \le 4  
= 5-x 4 < x < 5  
= 0 otherwise  
B(x) = 
$$\frac{(x-12)}{8}$$
 12 < x \le 20  
=  $\frac{32-x}{12}$  20 < x \le 32  
= 0 otherwise

Explain the concept of fuzzy quantifiers and their types. b)

04

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# S.F. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

	Computer Science and Engineering  APPLIED MATHEMATICS - II	13
•	Date: Friday, 22-11-2019 N 02:30 PM To 05:30 PM	lax. Marks: 70
Instruct	<ul> <li>ctions: 1) Q. No. 1 is compulsory and should be solved in first 30 minute book.</li> <li>2) Answer MCQ/Objective type questions on Page No. 3 only. I mention, Q. P. Set (A, B, C, D) on Top of Page.</li> </ul>	
	3) Use of non programmable calculator is allowed.	
_	MCQ/Objective Type Questions	
	on: 30 Minutes	Marks: 14
Q.1 Cr 1)	Choose the correct alternatives from the options and rewrite the set of the consider i) $ A(x) = x \qquad 0 \le x \le 1 $ $ = 0 \qquad ow $ ii) $ B(x) = \min\{1, x\}  x \ge 0 $ $ = 0 \qquad x < 0 $ Then the fuzzy number are   a) Both i) and ii)	entence. 14
2)	2) For any set A defined on universal set $X$ , $0_A =$ a) $\emptyset$ b) $X$ c) $A$ d) $A^c$	
3)	The fuzzy sets A and B are defined as follows, $A = \frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.6}{x_3}$ $B = \frac{0.1}{x_1} + \frac{0.4}{x_2} + \frac{0.5}{x_3} \text{ the set } A \cap B^c \text{ is } \underline{\hspace{1cm}}$ a) $\frac{0.9}{x_1} + \frac{0.6}{x_2} + \frac{0.5}{x_3}$ b) $\frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.5}{x_3}$ c) $\frac{0.3}{x_1} + \frac{0.9}{x_2} + \frac{0.1}{x_3}$ d) $\frac{0.9}{x_1} + \frac{0.6}{x_2} + \frac{0.6}{x_3}$	
4)		
5)	The largest membership grade obtained by an element in a fuzzy called as  a) Support of fuzzy set  b) Height of Fuzzy set  c) Normal of fuzzy set  d) Fuzzy number	set is
6)	The use of Romberg's method is  a) To solve simultaneous linear equations b) To find root of the equation c) To evaluate definite integration d) To find eigen values	

# Set S

7)	imm	soon as a new value of a variab nediately in the next step, this m Gauss-Jacobi's method Gauss-Jordan method	nethod i b)	·
8)	mat a)	en Gauss Elimination method is rix A is transformed to Upper triangular matrix Lower triangular matrix	b)	
9)		ncation error in Trapezoidal rule h h <sup>3</sup>	b)	
10)	equa a)	order of convergence of Regulation $f(x) = 0$ is Second order First order	b)	nethod for finding roots of  Cubic order  Very slow
11)	a)	oot of the equation $x - \cos x = 1$ and 2 0 and 1	b)	between 2 and 3 -1 and 0
12)	a)	Newton - Raphson method fail $f'(x)$ is negative Never fails	b)	f'(x) is positive $f'(x)$ is zero
13)		Multiplication of closed interval [-15,20]		$. [-3,5] = \underline{\qquad}.$ $\left[\frac{1}{15}, \frac{1}{20}\right]$
	c)	[20, -15]		[9, 15]
14)	a)	antifiers of the second kind are of Absolute Approximate	called _ b) d)	

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# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering APPLIED MATHEMATICS - II

Day & Date: Friday, 22-11-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM Instructions: 1) Question No. 3 is compulsory in Section –I solve any two questions from Q. No.2, 4, 5. 2) Question No. 6 is compulsory in Section –II solve any two questions from Q. No.7, 8, 9. 2) Figures to the right indicate full marks. 3) Use of non programmable calculator is allowed. Section - I Q.2 a) Find the positive real root of the equation  $e^{-x} = \sin x$  Correct to three 05 decimal places by Regula falsi method. Find the positive real root of the equation  $x^3 - 9x + 1 = 0$  by Bisection b) 04 method.(Carry out 6 iterations) Use N R method to find a positive root of  $e^{0.4x} - 0.4 x = 9$ b) 04 Q.3 a) Perform two iterations of the N-R method to solve non-linear equations 05  $x^2 + y = 11$  and  $y^2 - x = 7$  starting with initial conditions as  $x_0 = 3.5$ , Solve the following equations by using factorization method. 05 b) x + 5y + z = 14,2x + y + 3z = 13,3x + y + 4z = 17Evaluate  $\int_0^1 \frac{dx}{2x+3}$  by using Trapezoidal Rule by taking h = 0.2**Q.4** 03 a) Use Romberg's method to evaluate  $\int_0^1 \frac{dx}{x^2+4} dx$  take n=206 b) Solve the following equations by Gauss Elimination method. Q.5 a) 04 x + 4y + 9z = 16,2x + y + z = 10,3x + 2y + 3z = 18Using Trapezoidal rule evaluate  $\int_{1}^{2} \int_{3}^{4} \frac{1}{(x+y)^{2}} dxdy$ , h = k = 0.505 b) Section - II State the conditions for fuzzy set to be a fuzzy number and hence Q.6 04 a) determine whether the following fuzzy set is a fuzzy number. C(x) = 1 $0 \le x \le b$ = 0otherwise OR Prove that: 04 a)  $\alpha(A \cup B) = \alpha_A \cup \alpha_B$  $\alpha_+(A \cap B) = \alpha_{+A} \cap \alpha_{+B}$ 

Set | S

For given fuzzy numbers find MIN(A, B)

06

For given fuzzy numbers find MIN (A, B)

Where 
$$A(x) = \frac{x-2}{3}$$

$$= \frac{7-x}{3}$$

$$= 0$$

$$B(x) = x-3$$

$$= \frac{9-x}{3}$$

$$= 0$$
otherwise
$$4 < x \le 9$$

$$= 0$$
otherwise

Q.7 For the following fuzzy sets a)

04

Elements 
$$x_1$$
  $x_2$   $x_3$   $x_4$   $x_5$   $x_6$   $A(x)$  0.1 0.6 0.8 0.9 0.7 0.1  $B(x)$  0.9 0.7 0.5 0.2 0.1 0

Find S(B, A) &  $0.4 A \cap B$ 

b) Find A - B for the following membership function: 05

Find A - B for the following members
$$B(x) = \frac{x - 10}{10} \qquad 10 < x \le 20$$

$$= \frac{35 - x}{15} \qquad 20 < x \le 35$$

$$= 0 \qquad otherwise$$

$$A(x) = x - 4 \qquad 4 < x \le 5$$

$$= 6 - x \qquad 5 < x \le 6$$

$$= 0 \qquad otherwise$$

Let A be fuzzy set defined on  $X = \{-3, -2, -1, 0, 1, 2, 3, 4, 5\}$  by membership function  $A(x) = \frac{12-x}{15}$  for all x and  $f(x) = x^2 + 2$  is crisp **Q.8** a)

function for all  $x \in X$  then by using extension principle find f(A).

Calculate  $\alpha$ -cuts and strong  $\alpha$ -cuts for the fuzzy set B, b)

04

05

$$B(x) = 0 x > 13, x < 7$$

$$= \frac{x - 7}{3} 7 < x \le 10$$

$$= \frac{13 - x}{3} 10 < x \le 13 \text{ where } \alpha = 0.7, 0.8, 1$$

Solve the fuzzy equation A + X = B where Q.9 a)

05

A(x) = x-3 3 < x ≤ 4  
= 5-x 4 < x < 5  
= 0 otherwise  
B(x) = 
$$\frac{(x-12)}{8}$$
 12 < x ≤ 20  
=  $\frac{32-x}{12}$  20 < x ≤ 32  
= 0 otherwise

Explain the concept of fuzzy quantifiers and their types. b)

04

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# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering THEORY OF COMPUTATION

		<del>-</del>	Science and Engineering Y OF COMPUTATION	
•		e: Saturday, 23-11-2019 0 PM To 05:30 PM	Max. Marks:	: 70
Instr	uctio	ns: 1) Q. No. 1 is compuls book.	ory and should be solved in first 30 minutes in answ	/er
		2) Figures to the right	ndicate full marks.	
		MCQ/Ob	jective Type Questions	
Dura	ition: 3	0 Minutes	Marks:	: 14
Q.1	<b>Cho</b> (1)	ose the correct alternation Productions in CNF are	res from the options and rewrite the sentence.	14
		a) $A \rightarrow \alpha, B \rightarrow C$ c) $A \rightarrow \alpha, A \rightarrow BC, A \rightarrow A$	b) $A \rightarrow \alpha, A \rightarrow BC$ d) None	
	2)	Productions in CFGs are a) $A \rightarrow \alpha, \alpha \in (VU\Sigma)^*$ c) $A \rightarrow \alpha, \alpha \in (V^*U\Sigma^*)^*$	of the form   b) $A \rightarrow \alpha, \alpha \in V^*$ d) Both a and c	
	3)	The class of type 1 gram a) PDA c) Finite automata	mars corresponds to b) Linear bounded automata d) Turing machine	
	4)	CFG $S \to AB AS, A \to a aA$ a) (ab)* c) $aa*b^+$	$A, B \rightarrow b$ generates the language  b) a(ab)*b d) aa*b	
	5)	The language accepted la) Nonregular c) Both a and b	by finite automata is b) Regular d) None	
	6)	Definition of $\delta$ for NFA- $\Lambda$ a) $\delta: QX\Sigma \to Q$ c) $\delta: QX(\Sigma \cup \{\Lambda\}) \to 2^Q$	is b) $\delta : QX\Sigma \rightarrow 2^Q$ d) None of above	
	7)	$\delta^*$ for NFA is a) $\delta^*$ (q, $\Lambda$ ) = q c) $\delta^*$ (q, $\Lambda$ ) = $\Lambda$ ({q})	b) $\delta^* (q, \Lambda) = \{q\}$ d) None of above	
	8)	Which is not a part of the a) Input tape c) Stack	mechanical diagram of Turing machine? b) Finite control d) Read-write head	
	9)	PDA is the machine form a) Type 0 language c) Type 2 language	at of b) Type 1 language d) Type 3 language	

Set P

10)	<ul><li>Universal TM is more powerful that</li><li>a) Tape movement is confined to</li><li>b) It has not finite state control</li></ul>		
	<ul><li>c) It has the capability to rememsymbols</li><li>d) None</li></ul>	ber arb	oitrary long sequences of input
11)	Pumping lemma is generally used for proving  a) Given grammar is regular  b) Given grammar is non regular  c) Given regular expressions are equivalent  d) None		
12)	Which is the most powerful langua a) TM c) PDA	age acc b) d)	ceptor? FA All
13)	Which of the following languages a) $\{wcw^R   w \epsilon \{a, b\}^*\}$ c) $\{a^n b^n c^n   n > = 0\}$	b)	,b,c} is accepted by DPDA? $ \{ww^R \mid w \in \{a, b, c\}^*\} $ $ \{ww \mid w \in \{a, b, c\}^*\} $
14)	PDA accept the langual marker input symbol.  a) May c) May not	nge of p b) d)	alindrome without the middle  Can  Can not

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#### S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science and Engineering** THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

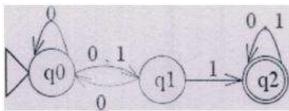
**Instructions:** 1) All questions are compulsory.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

#### Q.2 Attempt any three of the following questions.

12

- Write the regular expression for the following languages:
  - The language of all strings of length 5 or less over  $\Sigma = \{a, b\}$ .
  - The language of all strings of length 5 or more over  $\Sigma = \{a,b\}$ . 2)
  - 3) The language of all strings of length exact 5 over  $\Sigma = \{a,b\}$ .
  - The language of all strings of odd length over  $\Sigma = \{a,b\}$ .
- Give the deterministic finite automata accepting the following language b) over  $\Sigma = \{0,1\}$ 
  - 1) Number of 1's is multiple of 4.
  - 2) Number of 1's is not multiple of 4.
- Define  $\Lambda$  closure for NFA- $\Lambda$  with example. c)
- Construct finite automata equivalent to the following regular sets.
  - ba + (a + bb) a\* b
  - (b + ba + bba) \* a2)
- Convert the follow NFA to DFA. e)



Q.3 Consider language L1 where each string ends with 00 and language L2 where each string ends with 11 over  $\Sigma = \{0,1\}$ , construct finite automata for L1 U L2, L1 – L2, L2 - L1.

OR

Define non-recursive definition of  $\delta^*$  for DFA, NFA and NFA-  $\wedge$  with example.

**Q.4** Given CFG G. find CFG G' in Chomsky normal form.

80

80

 $S \rightarrow ABA$ 

 $A \rightarrow aA \mid A$ 

 $B \rightarrow bB \mid A$ 

Q.5 Solve any three.

- 12
- Define PDA, and explain the condition of acceptance by empty stack.
- State and explain the pumping Lemma for CFL's. b)
- Design a TM that compute the function  $f(x) = x \mod 2$ . c)
- Explain the following w.r.t. TM d)
  - Multi-tape Turing Machine.
  - Multi-track Turing Machine.
- Design a DPDA accept a Strings with More a's than b's over an alphabet e)  $\Sigma = \{a, b\}$

Set P

**Q.6** Show that the Language  $L = \{a^n \ b^n c^n | n >= 0\}$  is a non context free language. **08 OR** 

Design a TM to accept a language  $L = \{x \epsilon \{a, b\}^* \mid x \text{ should end with aba} \}$ 

#### Q.7 Write a short note on.

80

- a) Universal TM.
- **b)** Deterministic Push down automata (DPDA) with example.

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# S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		0.2	Computer Scien THEORY OF	ce and	Engineering
•			nturday, 23-11-2019 N To 05:30 PM		Max. Marks: 70
Instr	ructio	<b>ns:</b> 1	) Q. No. 1 is compulsory and book.	d should b	e solved in first 30 minutes in answer
		2	2) Figures to the right indicate	e full mark	s.
			MCQ/Objective	е Туре (	Questions
Dura	ition: 3	30 Mi	nutes		Marks: 14
Q.1	<b>Cho</b> 1)	Wh	the correct alternatives fro ich is not a part of the mecha Input tape Stack	•	tions and rewrite the sentence. 14 gram of Turing machine? Finite control Read-write head
	2)	a)	A is the machine format of _ Type 0 language Type 2 language	b) d)	Type 1 language Type 3 language
	3)		versal TM is more powerful to Tape movement is confined It has not finite state control It has the capability to remessymbols  None	d to one di I	
	4)	a)	mping lemma is generally us Given grammar is regular Given grammar is non regu Given regular expressions a None	lar	
	5)	Wh a) c)	ich is the most powerful lang TM PDA	_	•
	6)	a)	ich of the following language $\{wcw^R \mid w \in \{a, b\}^*\}$ $\{a^n b^n c^n \mid n > = 0\}$	-	b,c} is accepted by DPDA? $\{ww^R \mid w \in \{a, b, c\}^*\}$ $\{ww \mid w \in \{a, b, c\}^*\}$
	7)		A accept the lang rker input symbol. May May not	uage of pa b) d)	alindrome without the middle  Can  Can not
	8)	a)	ductions in CNF are $A \to \alpha, B \to C$ $A \to \alpha, A \to BC  A \to A$	  	$A \rightarrow \alpha, A \rightarrow BC$

## Set Q

9)	Productions in CFGs are of the form a) $A \rightarrow \alpha, \alpha \in (VU\Sigma)^*$ c) $A \rightarrow \alpha, \alpha \in (V^*U\Sigma^*)^*$		$A \rightarrow \alpha, \alpha \in V^*$ Both a and c
10)	The class of type 1 grammars corres a) PDA c) Finite automata	spond b) d)	s to Linear bounded automata Turing machine
11)	CFG $S \rightarrow AB \mid AS, A \rightarrow a \mid aA, B \rightarrow b$ ger a) (ab)* c) $aa*b^+$		es the language a(ab)*b aa*b
12)	The language accepted by finite auto a) Nonregular c) Both a and b	omata b) d)	is Regular None
13)	Definition of $\delta$ for NFA- $\wedge$ is a) $\delta$ : QX $\Sigma \to Q$ c) $\delta$ : QX( $\Sigma U\{\wedge\}$ ) $\to 2^Q$	 b) d)	δ: QXΣ → 2Q None of above
14)	$\delta^*$ for NFA is a) $\delta^*$ (q, $\Lambda$ ) = q c) $\delta^*$ (q, $\Lambda$ ) = $\Lambda$ ({q})		$\delta^*$ (q, $\wedge$ ) = {q} None of above

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## S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

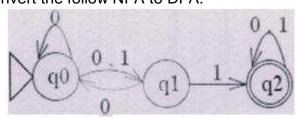
**Instructions:** 1) All questions are compulsory.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

### Q.2 Attempt any three of the following questions.

12

- a) Write the regular expression for the following languages:
  - 1) The language of all strings of length 5 or less over  $\Sigma = \{a, b\}$ .
  - 2) The language of all strings of length 5 or more over  $\Sigma = \{a,b\}$ .
  - 3) The language of all strings of length exact 5 over  $\Sigma = \{a,b\}$ .
  - 4) The language of all strings of odd length over  $\Sigma = \{a,b\}$ .
- b) Give the deterministic finite automata accepting the following language over  $\Sigma = \{0,1\}$ 
  - 1) Number of 1's is multiple of 4.
  - 2) Number of 1's is not multiple of 4.
- c) Define  $\wedge$  closure for NFA- $\wedge$  with example.
- d) Construct finite automata equivalent to the following regular sets.
  - 1) ba +  $(a + bb) a^* b$
  - 2) (b + ba + bba) \* a
- e) Convert the follow NFA to DFA.



Q.3 Consider language L1 where each string ends with 00 and language L2 where each string ends with 11 over ∑={0,1}, construct finite automata for L1 U L2, L1 – L2, L2 - L1.

OR

Define non-recursive definition of  $\delta^*$  for DFA, NFA and NFA-  $\wedge$  with example.

Q.4 Given CFG G. find CFG G' in Chomsky normal form.

08

- $S \rightarrow ABA$
- $A \rightarrow aA \mid A$
- $B \rightarrow bB \mid A$

### Q.5 Solve any three.

12

- a) Define PDA, and explain the condition of acceptance by empty stack.
- **b)** State and explain the pumping Lemma for CFL's.
- c) Design a TM that compute the function  $f(x) = x \mod 2$ .
- d) Explain the following w.r.t. TM
  - 1) Multi-tape Turing Machine.
  - 2) Multi-track Turing Machine.
- e) Design a DPDA accept a Strings with More a's than b's over an alphabet  $\Sigma = \{a, b\}$

Set Q

**Q.6** Show that the Language  $L = \{a^n \ b^n c^n | n >= 0\}$  is a non context free language. **08 OR** 

Design a TM to accept a language  $L = \{x \epsilon \{a, b\}^* \mid x \text{ should end with aba} \}$ 

### Q.7 Write a short note on.

80

- a) Universal TM.
- **b)** Deterministic Push down automata (DPDA) with example.

Seat No.	Set	R

# S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		0.1	Computer Sci	ence and	Engineering	2013
			THEORY (	OF COMPU	JTATION	
•			aturday, 23-11-2019 M To 05:30 PM			Max. Marks: 70
Insti	ructio	ns: ′	1) Q. No. 1 is compulsory book.	and should b	e solved in first 30 m	inutes in answer
		2	<ol><li>Figures to the right indicate</li></ol>	cate full mark	KS.	
			MCQ/Object	tive Type (	Questions	
Dura	ation: 3	30 M	inutes	, , , , , , , , , , , , , , , , , , ,		Marks: 14
Q.1	Cho	ose	the correct alternatives	from the on	tions and rewrite the	e sentence. 14
٠	1)		e language accepted by fi	-		
	,		Nonregular	b)	Regular	
		c)	Both a and b	d)	None	
	2)	De	finition of $\delta$ for NFA- $\wedge$ is _			
			$\delta \colon QX\Sigma \to Q$	b)	$\delta: QX\Sigma \to 2^Q$	
		c)	$\delta: QX(\Sigma U\{\Lambda\}) \to 2^Q$	d)	None of above	
	3)	$\delta^*$	for NFA is			
	ŕ	,	$\delta^* (q, \Lambda) = q$	b)	$\delta^* (q, \Lambda) = \{q\}$	
		c)	$\delta^* (q, \Lambda) = \Lambda (\{q\})$	d)	None of above	
	4)	Wr	nich is not a part of the me	chanical dia	gram of Turing machi	ne?
		,	Input tape	b)	Finite control	
		c)	Stack	d)	Read-write head	
	5)	PD	A is the machine format o	f		
		,	Type 0 language	b)	Type 1 language	
		c)	Type 2 language	d)	Type 3 language	
	6)		iversal TM is more powerf			
		,	Tape movement is confi		irection	
			It has not finite state con		itrony long gogyonoog	of input
		c)	It has the capability to re symbols	inember arb	illary long sequences	o or iriput
		d)	None			
	7)	,	mping lemma is generally	used for pro	vina	
	' )		Given grammar is regula	•	viiig	
		b)	Given grammar is non re			
		c)	Given regular expression	ns are equiva	alent	
		d)	None			
	8)		nich is the most powerful la		•	
		a)	TM	p)	FA	
		c)	PDA	d)	All	

## Set R

9)	which of the following languages over	er {a,ı	o,c} is accepted by DPDA?
	a) $\{wcw^R   w \varepsilon \{a, b\}^*\}$	b)	$\{ww^R \mid w \in \{a, b, c\}^*\}$
	c) $\{a^n b^n c^n   n > = 0\}$	d)	$\{ww \mid w \in \{a, b, c\}^*\}$
10)	PDA accept the language marker input symbol.	of pa	llindrome without the middle
	a) May	b)	Can
	c) May not	d)	Can not
11)	Productions in CNF are		
	a) $A \rightarrow \alpha, B \rightarrow C$	b)	$A \rightarrow \alpha, A \rightarrow BC$
	c) $A \rightarrow \alpha, A \rightarrow BC, A \rightarrow \Lambda$	d)	None
12)	Productions in CFGs are of the form		•
	a) $A \to \alpha, \alpha \in (V \cup \Sigma)^*$	b)	$A \rightarrow \alpha, \alpha \in V^*$
	c) $A \to \alpha, \alpha \in (V^* \cup \Sigma^*)^*$	ď)	Both a and c
13)	The class of type 1 grammars corres	pond	s to
-	a) PDA	b)	Linear bounded automata
	c) Finite automata	ď)	
14)	$CFG S \rightarrow AB   AS, A \rightarrow a   aA, B \rightarrow b \text{ ger}$ a) (ab)*		es the language a(ab)*b
	c) aa*b <sup>+</sup>	d)	aa*b
	-,	-,	

Seat	
No.	

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# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

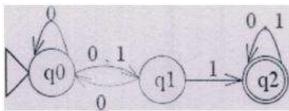
**Instructions:** 1) All questions are compulsory.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

### Q.2 Attempt any three of the following questions.

12

- a) Write the regular expression for the following languages:
  - 1) The language of all strings of length 5 or less over  $\Sigma = \{a, b\}$ .
  - 2) The language of all strings of length 5 or more over  $\Sigma = \{a,b\}$ .
  - 3) The language of all strings of length exact 5 over  $\Sigma = \{a,b\}$ .
  - 4) The language of all strings of odd length over  $\Sigma = \{a,b\}$ .
- b) Give the deterministic finite automata accepting the following language over  $\Sigma = \{0,1\}$ 
  - 1) Number of 1's is multiple of 4.
  - 2) Number of 1's is not multiple of 4.
- c) Define  $\wedge$  closure for NFA- $\wedge$  with example.
- d) Construct finite automata equivalent to the following regular sets.
  - 1) ba +  $(a + bb) a^* b$
  - 2) (b + ba + bba) \* a
- e) Convert the follow NFA to DFA.



Q.3 Consider language L1 where each string ends with 00 and language L2 where each string ends with 11 over  $\Sigma = \{0,1\}$ , construct finite automata for L1 U L2, L1 – L2, L2 - L1.

80

OR

Define non-recursive definition of  $\delta^*$  for DFA, NFA and NFA-  $\wedge$  with example.

Q.4 Given CFG G. find CFG G' in Chomsky normal form.

80

 $S \rightarrow ABA$ 

 $A \rightarrow aA \mid A$ 

 $B \rightarrow bB \mid A$ 

Q.5 Solve any three.

- 12
- a) Define PDA, and explain the condition of acceptance by empty stack.
- **b)** State and explain the pumping Lemma for CFL's.
- c) Design a TM that compute the function  $f(x) = x \mod 2$ .
- d) Explain the following w.r.t. TM
  - 1) Multi-tape Turing Machine.
  - 2) Multi-track Turing Machine.
- e) Design a DPDA accept a Strings with More a's than b's over an alphabet  $\Sigma = \{a, b\}$

Set R

**Q.6** Show that the Language  $L=\{a^n\ b^nc^n|n>=0\}$  is a non context free language.

Design a TM to accept a language  $L = \{x \ \epsilon \{a,b\}^* \ \big| \ x \ \text{should end with aba} \}$ 

### Q.7 Write a short note on.

80

- a) Universal TM.
- **b)** Deterministic Push down automata (DPDA) with example.

Seat No.	Set	S

		Computer Science THEORY OF (	e and	Engineering
		e: Saturday, 23-11-2019		Max. Marks: 70
Time	e: 02:3	80 PM To 05:30 PM		
Instr	ructio	book.		be solved in first 30 minutes in answer
		2) Figures to the right indicate	full marl	KS.
		MCQ/Objective	Type (	Questions
Dura	tion: (	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	ose the correct alternatives from Universal TM is more powerful th a) Tape movement is confined to b) It has not finite state control c) It has the capability to remensymbols d) None	an FA b to one d	ecause
	2)	Pumping lemma is generally used a) Given grammar is regular b) Given grammar is non regular c) Given regular expressions and None	ar	
	3)	Which is the most powerful langual a) TM c) PDA	age acc b) d)	eptor? FA All
	4)	Which of the following languages a) $\{wcw^{R}   w \epsilon \{a, b\}^*\}$ c) $\{a^n b^n c^n   n > = 0\}$	b)	,b,c} is accepted by DPDA? {ww <sup>R</sup>   w ε {a, b, c}*} {ww   w ∈ {a, b, c}*}
	5)	PDA accept the languation marker input symbol.  a) May c) May not	age of page b) d)	alindrome without the middle Can Can not
	6)	Productions in CNF are a) $A \rightarrow \alpha, B \rightarrow C$ c) $A \rightarrow \alpha, A \rightarrow BC, A \rightarrow \Lambda$	 b) d)	$A \rightarrow \alpha, A \rightarrow BC$ None
	7)	Productions in CFGs are of the for a) $A \rightarrow \alpha, \alpha \in (V \cup \Sigma)^*$ c) $A \rightarrow \alpha, \alpha \in (V^* \cup \Sigma^*)^*$	orm b) d)	
	8)	The class of type 1 grammars coaa) PDA c) Finite automata	rrespond b) d)	ds to Linear bounded automata Turing machine

## Set S

9)	$CFG S \rightarrow AB   AS, A \rightarrow a   aA, B \rightarrow b \text{ ger}$	nerate	s the language
	a) (ab)*	b)	a(ab)*b
	c) $aa*b^+$	d)	aa*b
10)	The language accepted by finite auto	omata	is
	a) Nonregular	b)	Regular
	c) Both a and b	d)	None
11)	Definition of $\delta$ for NFA- $\Lambda$ is a) $\delta$ : QX $\Sigma \to Q$ c) $\delta$ : QX( $\Sigma U\{\Lambda\}$ ) $\to 2^Q$	 b) d)	$\delta: QX\Sigma \to 2^Q$ None of above
12)	$\delta^*$ for NFA is a) $\delta^*$ (q, $\Lambda$ ) = q c) $\delta^*$ (q, $\Lambda$ ) = $\Lambda$ ({q})	•	$\delta^* (q, \Lambda) = \{q\}$ None of above
13)	Which is not a part of the mechanica	l diag	ram of Turing machine?
	a) Input tape	b)	Finite control
	c) Stack	d)	Read-write head
14)	PDA is the machine format of a) Type 0 language c) Type 2 language	,	Type 1 language Type 3 language

Seat	
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# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science and Engineering THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019

Max. Marks: 56

Time: 02:30 PM To 05:30 PM

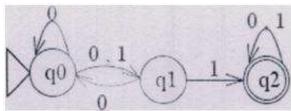
**Instructions:** 1) All questions are compulsory.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

### Q.2 Attempt any three of the following questions.

12

- a) Write the regular expression for the following languages:
  - 1) The language of all strings of length 5 or less over  $\Sigma = \{a, b\}$ .
  - 2) The language of all strings of length 5 or more over  $\Sigma = \{a,b\}$ .
  - 3) The language of all strings of length exact 5 over  $\Sigma = \{a,b\}$ .
  - 4) The language of all strings of odd length over  $\Sigma = \{a,b\}$ .
- b) Give the deterministic finite automata accepting the following language over  $\Sigma = \{0,1\}$ 
  - 1) Number of 1's is multiple of 4.
  - 2) Number of 1's is not multiple of 4.
- c) Define  $\wedge$  closure for NFA- $\wedge$  with example.
- d) Construct finite automata equivalent to the following regular sets.
  - 1) ba +  $(a + bb) a^* b$
  - 2) (b + ba + bba) \* a
- e) Convert the follow NFA to DFA.



Q.3 Consider language L1 where each string ends with 00 and language L2 where each string ends with 11 over  $\Sigma = \{0,1\}$ , construct finite automata for L1 U L2, L1 – L2, L2 - L1.

80

OR

Define non-recursive definition of  $\delta^*$  for DFA, NFA and NFA-  $\wedge$  with example.

**Q.4** Given CFG G. find CFG G' in Chomsky normal form.

80

- $S \rightarrow ABA$
- $A \rightarrow aA \mid A$
- $B \rightarrow bB \mid A$
- Q.5 Solve any three.

12

- a) Define PDA, and explain the condition of acceptance by empty stack.
- **b)** State and explain the pumping Lemma for CFL's.
- c) Design a TM that compute the function  $f(x) = x \mod 2$ .
- d) Explain the following w.r.t. TM
  - 1) Multi-tape Turing Machine.
  - 2) Multi-track Turing Machine.
- e) Design a DPDA accept a Strings with More a's than b's over an alphabet  $\Sigma = \{a, b\}$

Set S

**Q.6** Show that the Language  $L=\{a^n\ b^nc^n|n>=0\}$  is a non context free language.

Design a TM to accept a language  $L = \{x \epsilon \{a, b\}^* \mid x \text{ should end with aba} \}$ 

Q.7 Write a short note on.

80

- a) Universal TM.
- **b)** Deterministic Push down automata (DPDA) with example.

Seat	Sat	D
No.	Set	

## S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		COMPUTER SCIENC	E & E	ENGINEERING
Day	& Dat	<b>MICROPRO</b> te: Monday, 25-11-2019	CES	Max. Marks: 70
Time	e: 02:3	30 PM To 05:30 PM		
Insti	ructio	ons: 1) Q. No.1 is compulsory and she book.	ould b	e solved in first 30 Minutes in answer
		Figures to right indicate full management	arks.	
		MCQ/Objective T	ype	Questions
Dura	ation: 3	30 Minutes	•	Marks: 14
Q.1	<b>Cho</b> 1)	Pose the correct alternatives from to Total number of T- States required a) 10	•	
		c) 4	ď)	6
	2)	The number of address lines requir	ed to	address a memory of size 32 K is
		a) 15 lines c) 18 lines	b) d)	16 lines 14 lines
	3)	What is the addressing mode used a) Indirect c) Indexed	in ins b) d)	truction LDA 1050H? Direct Immediate
	4)	Which microprocessor pins are use transfer  a) Reset and Ready	b)	Ready and Wait
	<b>-</b> \	c) HOLD and HLDA	d)	None of these
	5)	<ul><li>register deals with sequenci</li><li>a) Stack pointer</li><li>c) Flag</li></ul>	ng the b) d)	Accumulator Program Counter
	6)	To put 8085 microprocessor in wait a) Lower HOLD Input c) Raise HOLD Input	state b) d)	Lower READY Input Raise READY Input
	7)	<ul><li>DAA : Decimal Adjust Accumulator</li><li>a) 1 byte instruction</li><li>c) 3 byte instruction</li></ul>	is a _ b) d)	2 byte instruction 4 byte instruction
	8)	In 8086 -Microprocessor, following interrupts?  a) NMI c) Type 255	has th b) d)	ne highest priority among all the  DIV 0  overflow
	9)	The first processor with an inbuilt flatal 80386 c) 80286	,	

## Set P

10)	<ul> <li>The segments in 80386 real mode at a) overlapped</li> <li>b) non-overlapped</li> <li>c) either overlapped or non-overlapped</li> <li>d) none of the mentioned</li> </ul>		<u> </u>
11)	In cascaded mode, the number of ve a) 4 c) 16	ctore b) d)	d interrupts provided by 8259 is 8 64
12)	Which interrupt has highest priority? a) INTR c) RST 6.5	b) d)	TRAP RST 5.5
13)	In 8257 (DMA), each of the four char a) a pair of two 8-bit registers c) one 16-bit register		
14)	In real addressing mode, the 80286 a a) 16 MB c) 2 MB	addre b) d)	sses a physical memory of  8 MB 1 MB

Seat	Sat	В
No.	Set	L

### S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019 **COMPUTER SCIENCE & ENGINEERING MICROPROCESSORS**

Day & Date: Monday, 25-11-2019 Max. Marks: 56 Time: 02.30 PM To 05.30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Q.2 Attempt any Three. 12 Draw and explain 8085 clock circuit. Draw Memory Write machine cycle. b) Explain following instructions of 8085 with Example: c) 1) XTHL 2) RLC Describe operation of Ready, TRAP, INTR and HOLD pins of 8085 d) microprocessor. Q.3 Attempt any two. 16 Write assembly language program for arranging 10 numbers in descending order. Also explain the instructions used in program. Explain various addressing modes of 8085 with suitable example. b) Draw and explain internal architecture of 8085. Section - II Q.4 Attempt any four. 12 Explain Hardware and Software Interrupts of microprocessor. Explain with neat diagram 8255 PPI. b) Explain 8257 DMA controller. Differentiate 80286 and 80386 microprocessors. d) Q.5 Attempt any two. 16 Define the term Interrupt. What are the types of Interrupts? Explain in detail types of interrupts. Draw and explain 8251 USARY is detail. b)

Draw and explain 8259 programmable interrupt controller.

c)

Seat	Set	
No.	Set	Q

		COMPUTER SCIEN  MICROPRO	CE & E	NGINEERING
•		e: Monday, 25-11-2019 0 PM To 05:30 PM		Max. Marks: 70
Instr	ructio	ns: 1) Q. No.1 is compulsory and s book. 2) Figures to right indicate full		e solved in first 30 Minutes in answer
		MCQ/Objective		Questions
Dura	tion: 3	30 Minutes	. ypo 、	Marks: 14
Q.1	<b>Cho</b> (1)	ose the correct alternatives from In 8086 -Microprocessor, followin interrupts? a) NMI	g has th b)	e highest priority among all the DIV 0
	2)	<ul><li>c) Type 255</li><li>The first processor with an inbuilt</li><li>a) 80386</li><li>c) 80286</li></ul>	d) floating b) d)	overflow point unit is 80486 8086
	3)	The segments in 80386 real mod a) overlapped b) non-overlapped c) either overlapped or non-ove d) none of the mentioned		
	4)	In cascaded mode, the number of a) 4 c) 16	f vectore b) d)	ed interrupts provided by 8259 is  8 64
	5)	Which interrupt has highest priori a) INTR c) RST 6.5	ty? b) d)	TRAP RST 5.5
	6)	In 8257 (DMA), each of the four of a) a pair of two 8-bit registers c) one 16-bit register	b)	a pair of two 16-bit registers
	7)	In real addressing mode, the 802 a) 16 MB c) 2 MB	86 addre b) d)	esses a physical memory of  8 MB 1 MB
	8)	Total number of T- States require a) 10 c) 4	ed for LX b) d)	I Rp, 16 bit data are 5 6
	9)	The number of address lines requ	uired to a	address a memory of size 32 K is
		a) 15 lines c) 18 lines	b) d)	16 lines 14 lines

Set Q

10)	<ul><li>a) Indirect</li><li>b) Indexed</li></ul>	n insti b) d)	ruction LDA 1050H? Direct Immediate
11)	Which microprocessor pins are used transfer	I to re	quest and acknowledge a DMA
	<ul><li>a) Reset and Ready</li><li>c) HOLD and HLDA</li></ul>	b) d)	Ready and Wait None of these
12)	a) Stack pointer c) Flag	g the b) d)	execution of instructions. Accumulator Program Counter
13)	To put 8085 microprocessor in wait sa) Lower HOLD Input c) Raise HOLD Input		Lower READY Input Raise READY Input
14)	<ul><li>DAA : Decimal Adjust Accumulator i</li><li>a) 1 byte instruction</li><li>c) 3 byte instruction</li></ul>		2 byte instruction 4 byte instruction

Seat	Set	
No.	Set	Q

## S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019 **COMPUTER SCIENCE & ENGINEERING**

**MICROPROCESSORS** Day & Date: Monday, 25-11-2019 Max. Marks: 56 Time: 02.30 PM To 05.30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Q.2 Attempt any Three. 12 Draw and explain 8085 clock circuit. Draw Memory Write machine cycle. b) Explain following instructions of 8085 with Example: c) 1) XTHL 2) RLC Describe operation of Ready, TRAP, INTR and HOLD pins of 8085 d) microprocessor. Q.3 Attempt any two. 16 Write assembly language program for arranging 10 numbers in descending order. Also explain the instructions used in program. Explain various addressing modes of 8085 with suitable example. b) Draw and explain internal architecture of 8085. Section - II Q.4 Attempt any four. 12 Explain Hardware and Software Interrupts of microprocessor. Explain with neat diagram 8255 PPI. b) Explain 8257 DMA controller. Differentiate 80286 and 80386 microprocessors. d) Q.5 Attempt any two. 16 Define the term Interrupt. What are the types of Interrupts? Explain in detail types of interrupts. Draw and explain 8251 USARY is detail. b)

Draw and explain 8259 programmable interrupt controller.

c)

Seat No.	Set	R
140.		

		S.E. (Part - II) (Old) (CGPA) Exa COMPUTER SCIENCE & MICROPROCE	& El	NGINEERING
•		e: Monday, 25-11-2019 30 PM To 05:30 PM		Max. Marks: 70
Instr	uctio	<b>ns:</b> 1) Q. No.1 is compulsory and should book.	d be	solved in first 30 Minutes in answer
		2) Figures to right indicate full marks	S.	
<b>.</b>		MCQ/Objective Typ	e Q	
		30 Minutes		Marks: 14
Q.1	<b>Choo</b> 1)	ose the correct alternatives from the control register deals with sequencing to a) Stack pointer by c) Flag	the e	
	2)	,	)	 Lower READY Input Raise READY Input
	3)	, -	)	2 byte instruction 4 byte instruction
	4)	,	o)	highest priority among all the DIV 0 overflow
	5)	The first processor with an inbuilt floati a) 80386 b c) 80286 d	)	ooint unit is 80486 8086
	6)	The segments in 80386 real mode are a) overlapped b) non-overlapped c) either overlapped or non-overlapped none of the mentioned		
	7)	•	)	I interrupts provided by 8259 is  8 64
	8)	Which interrupt has highest priority? a) INTR b c) RST 6.5 d	,	TRAP RST 5.5
	9)	, .	)	nas a pair of two 16-bit registers one 8-bit register
	10)	In real addressing mode, the 80286 ad a) 16 MB b		sses a physical memory of  8 MB

ď)

2 MB

1 MB

Set R

11)	Total number of T-States required to	or LXI	Rp, 16 bit data are
	a) 10	b)	5
	c) 4	ď)	6
12)	The number of address lines require	d to a	ddress a memory of size 32 K is
	a) 15 lines	b)	16 lines
	c) 18 lines	d)	14 lines
13)	What is the addressing mode used in		
	a) Indirect	b)	Direct
	c) Indexed	d)	Immediate
14)	Which microprocessor pins are used transfer	l to re	quest and acknowledge a DMA
	a) Reset and Ready	b)	Ready and Wait
	c) HOLD and HLDA	ď)	None of these

Seat	Sat	В
No.	Set	K

## S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019 **COMPUTER SCIENCE & ENGINEERING**

**MICROPROCESSORS** Day & Date: Monday, 25-11-2019 Max. Marks: 56 Time: 02.30 PM To 05.30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Q.2 Attempt any Three. 12 Draw and explain 8085 clock circuit. Draw Memory Write machine cycle. b) Explain following instructions of 8085 with Example: c) 1) XTHL 2) RLC Describe operation of Ready, TRAP, INTR and HOLD pins of 8085 d) microprocessor. Q.3 Attempt any two. 16 Write assembly language program for arranging 10 numbers in descending order. Also explain the instructions used in program. Explain various addressing modes of 8085 with suitable example. b) Draw and explain internal architecture of 8085. Section - II Q.4 Attempt any four. 12 Explain Hardware and Software Interrupts of microprocessor. Explain with neat diagram 8255 PPI. b) Explain 8257 DMA controller. Differentiate 80286 and 80386 microprocessors. d) Q.5 Attempt any two. 16 Define the term Interrupt. What are the types of Interrupts? Explain in detail types of interrupts. Draw and explain 8251 USARY is detail. b)

Draw and explain 8259 programmable interrupt controller.

c)

Seat	Set	9
No.	Set	7

# S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		J.L	COMPUTER SCIENCE MICROPROC	& E	NGINEERING	
•			onday, 25-11-2019 // To 05:30 PM		Max. Marks: 70	0
Instr	uctio		) Q. No.1 is compulsory and sho book. 2) Figures to right indicate full ma		e solved in first 30 Minutes in answer	
		_	MCQ/Objective Ty		Questions	
Dura	tion: 3	0 Mi		pc ·	Marks: 1	4
Q.1	<b>Choo</b> 1)		the correct alternatives from the segments in 80386 real mode a overlapped non-overlapped either overlapped or non-overlapped none of the mentioned	re	tions and rewrite the sentence. 14	4
	2)	a)	•	ectore b) d)	ed interrupts provided by 8259 is 8 64	
	3)	Wh a) c)	ich interrupt has highest priority? INTR RST 6.5	b) d)	TRAP RST 5.5	
	4)	a)	3257 (DMA), each of the four char a pair of two 8-bit registers one 16-bit register	nnels b) d)	has a pair of two 16-bit registers one 8-bit register	
	5)	In r a) c)	eal addressing mode, the 80286 16 MB 2 MB	addre b) d)	esses a physical memory of  8 MB 1 MB	
	6)	Tot a) c)	al number of T- States required fo 10 4	or LX b) d)	I Rp, 16 bit data are 5 6	
	7)	The	e number of address lines require	d to a	address a memory of size 32 K is	
		a) c)	15 lines 18 lines	b) d)	16 lines 14 lines	
	8)	Wh a) c)	at is the addressing mode used in Indirect Indexed	n inst b) d)	ruction LDA 1050H? Direct Immediate	
	9)		ich microprocessor pins are used nsfer Reset and Ready HOLD and HLDA	to reb)	equest and acknowledge a DMA  Ready and Wait  None of these	

## Set S

10)	register deals with sequen	cing the	execution of instructions.
	a) Stack pointer	b)	Accumulator
	c) Flag	ď)	Program Counter
11)	To put 8085 microprocessor in wa	ait state	
	a) Lower HOLD Input	b)	Lower READY Input
	c) Raise HOLD Input	d)	Raise READY Input
12)	DAA : Decimal Adjust Accumulate	or is a _	
	<ul><li>a) 1 byte instruction</li></ul>	b)	2 byte instruction
	c) 3 byte instruction	d)	4 byte instruction
13)	In 8086 -Microprocessor, following interrupts?	g has the	e highest priority among all the
	a) NMI	b)	DIV 0
	c) Type 255	ď)	overflow
14)	The first processor with an inbuilt	floating	point unit is
	a) 80386	b)	80486
	c) 80286	۹)	8086

Seat	Set	9
No.	Set	3

# S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		COMPUTER SCIENCE & ENGINEERING MICROPROCESSORS	10
•		te: Monday, 25-11-2019 30 PM To 05.30 PM	Max. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section - I	
Q.2 Q.3	a) b) c) d)	Draw and explain 8085 clock circuit. Draw Memory Write machine cycle. Explain following instructions of 8085 with Example:  1) XTHL  2) RLC Describe operation of Ready, TRAP, INTR and HOLD pins of 808 microprocessor.  Empt any two. Write assembly language program for arranging 10 numbers in de order. Also explain the instructions used in program. Explain various addressing modes of 8085 with suitable example. Draw and explain internal architecture of 8085.	16 escending
		Section - II	
Q.4	Atte a) b) c) d)	empt any four. Explain Hardware and Software Interrupts of microprocessor. Explain with neat diagram 8255 PPI. Explain 8257 DMA controller. Differentiate 80286 and 80386 microprocessors.	12
Q.5	Atte	empt any two.  Define the term Interrupt. What are the types of Interrupts? Explaidetail types of interrupts.  Draw and explain 8251 USARY is detail.  Draw and explain 8259 programmable interrupt controller.	<b>16</b> n in

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		S.E	• • •	Old) (CGPA) E outer Science DATA STRU	& E		)19
•			ıesday, 26-11-20 И То 05:30 РМ	)19		ī	Max. Marks: 70
Instr	uction	<b>1s:</b> 1	I) Q. No. 1 is con Book.	npulsory and sh	ould b	e solved in first 30 minu	utes in answer
		2	2) Figures to the	right indicate ful	l mark	KS.	
			MCC	Q/Objective T	уре (	Questions	
Dura	tion: 3	0 M		-	•		Marks: 14
Q.1	sent	ence	э.		-	tions and rewrite the	14
	1)	The a) c)	e postfix form of A AB*CD/+ ABCD*/+	A* B+C/D is	 b) d)	A*BCD/+ None	
	2)	_	AVL B	ode is connected	d to n b) d)	ext leaf node Binary Search Tree B+	
	3)			-		placed by their correspondanced by their correspondence of the binary tree Binary threaded Tree	•
	4)		e data structure r Queue Array	required to evalu	ate a b) d)	postfix expression is Stack linked-list	
	5)	In E		arch of Graph, w	hich c	of the following data stru	ıcture is
		,	Stack Linked List		b) d)	Queue None of the above	
	6)	In a a) b) c) d)	there is no begi Components ar	re all linked toge inning and no en re arranged hiera	id. archic	n some sequential manr ally in the list is permitted.	ner.
	7)		ed list than by si Deleting a node Searching of ar Inverting a node		in giv r a giv with g	ven item given location	y doubly
	8)		e pre-order and p ne output. The tr Three nodes One node			a Binary Tree generate  m  Two nodes  Any number of nodes	s the

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9)	In order to get the contents of a Bin one has to traverse it in		-
	<ul><li>a) pre-order</li><li>c) post order</li></ul>	b) d)	in-order not possible
10)	Consider a B+-tree in which the ma What is the minimum number of key a) 1 c) 3		
11)	Inorder to get the information stored one should traverse it in which of th a) left, root, right c) right, root, left		•
12)	The number of edges in a simple, n a) n*(n-2) c) n*(n-1)/2	b)	ex, complete graph is n*(n-1) n*(n-1)*(n-2)
13)	For an undirected graph with n vertidegree of each vertex is equal to a) 2n	b)	(2n-1)/2
14)	c) 2e The preorder traversal sequence of 25, 23, 39, 35, 42. Which one of the sequence of the same tree? a) 10, 20, 15, 23, 25, 35, 42, 39, 35, 15, 10, 25, 23, 20, 42, 35, 39, 36, 15, 20, 10, 23, 25, 42, 35, 39, 36, 15, 10, 23, 25, 20, 35, 42, 39, 36	e follow 80 80 80	

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# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering DATA STRUCTURES	
•		te: Tuesday, 26-11-2019 Max. Mark 30 PM To 05:30 PM	s: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	Atto a) b) c) d) e)	empt any four questions.  Explain stack with its operation. List out application of stack.  Evaluate the following postfix expression 2 3 1 * + 9 -  WAP to implement stack using linked list.  Explain priority queue.  Create a binary search tree of following sequence.  50,30,60,38,35,55,22,59,94,13,98	12
Q.3	Atto a) b)	empt any one questions.  What is Threaded- Binary Tree? Explain with example.  1) Left-in Threaded Binary Tree  2) Right-in Threaded Binary Tree  3) Fully Threaded Binary Tree Explain doubly linked list with insertion and deletion operation.	08
Q.4		w to convert infix expression into postfix expression. Convert following infix ression into postfix (A+B)/(C-D).	80
		Section – II	
Q.5	Atto a) b) c)	empt any four questions.  Define the following terms  1) Graph  2) Cyclic graph  3) Isolated node  Write a note on topological sorting.  Explain AVL tree.	12
	d)	Construct B-tree of order 5	
	e)	10,40,30,35,20,15,50,28,25,5,60,9,12  How to represent a graph using adjacency matrix and adjacency list.	
Q.6	•	ve any one question:  Explain Single and Double rotation of AVL tree with example.  Explain Dijkstra's algorithm with example.	80
Q.7	Exp	plain graph traversal methods with example.	08

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		S.E. (Part – II) (Old) (CGPA) E Computer Science DATA STRU	& E	ingineering	
•		e: Tuesday, 26-11-2019 0 PM To 05:30 PM			Marks: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory and sho Book.	ould k	pe solved in first 30 minutes	in answer
		2) Figures to the right indicate ful	mar	KS.	
Dura	tion. 3	MCQ/Objective Ty	ype	Questions	Marks: 14
Q.1	Cho	0 Minutes  ose the correct alternatives from th	1е ор	tions and rewrite the	14
	sent 1)	ence. The pre-order and post order travers same output. The tree can have ma a) Three nodes c) One node		· · · · · · · · · · · · · · · · · · ·	÷
	2)	In order to get the contents of a Bina one has to traverse it in  a) pre-order c) post order	ary se b) d)	earch tree in ascending orde in-order not possible	r,
	3)	Consider a B+-tree in which the max What is the minimum number of key a) 1 c) 3			is 5.
	4)	Inorder to get the information stored one should traverse it in which of the a) left, root, right c) right, root, left			r,
	5)	The number of edges in a simple, not a) n*(n-2) c) n*(n-1)/2	b)	ex, complete graph is n*(n-1) n*(n-1)*(n-2)	
	6)	For an undirected graph with n verti degree of each vertex is equal to a) 2n c) 2e	ces a b) d)	nd e edges, the sum of the (2n-1)/2 e2/2	
	7)	The preorder traversal sequence of 25, 23, 39, 35, 42. Which one of the sequence of the same tree?  a) 10, 20, 15, 23, 25, 35, 42, 39, 3 b) 15, 10, 25, 23, 20, 42, 35, 39, 3 c) 15, 20, 10, 23, 25, 42, 35, 39, 3 d) 15,10, 23, 25, 20, 35, 42, 39, 30	follo 0 0 0		

## Set Q

8)	The a) c)		 b) d)	A*BCD/+ None
9)		AVL B	l to ne b) d)	ext leaf node Binary Search Tree B+
10)		Tree, all the null pointers a eads that point back to their inord Binary tree B+ Tree		
11)	The a) c)	e data structure required to evalua queue array	ate a <sub>l</sub> b) d)	postfix expression is Stack Iinked-list
12)	use a)	Breadth First Search of Graph, whed? Stack Linked List	b) d)	f the following data structure is  Queue  None of the above
13)	In a a) b) c) d)	a circular linked list Components are all linked toget there is no beginning and no end Components are arranged hiera Forward and backward traversa	d. rchica	ally
14)		ich of the following operations is ed list than by singly linked list? Deleting a node whose location Searching of an unsorted list for Inverting a node after the node of Traversing a list to process each	in give a give	en en item iven location

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## S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DATA STRUCTURES** Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any four questions. 12 Q.2 Explain stack with its operation. List out application of stack. Evaluate the following postfix expression 2 3 1 \* + 9 b) c) WAP to implement stack using linked list. Explain priority queue. d) Create a binary search tree of following sequence. 50,30,60,38,35,55,22,59,94,13,98 80 Q.3 Attempt any one questions. What is Threaded- Binary Tree? Explain with example. 1) Left-in Threaded Binary Tree 2) Right-in Threaded Binary Tree 3) Fully Threaded Binary Tree Explain doubly linked list with insertion and deletion operation. How to convert infix expression into postfix expression. Convert following infix Q.4 80 expression into postfix (A+B)/(C-D). Section - II Q.5 Attempt any four questions. 12 Define the following terms 1) Graph 2) Cyclic graph 3) Isolated node b) Write a note on topological sorting. Explain AVL tree. c) d) Construct B-tree of order 5 10,40,30,35,20,15,50,28,25,5,60,9,12 How to represent a graph using adjacency matrix and adjacency list. Solve any one question: 80 Explain Single and Double rotation of AVL tree with example. Explain Dijkstra's algorithm with example. b) Q.7 Explain graph traversal methods with example. 80

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		S.E. (Part – II) (Old) (CGPA Computer Scie DATA ST	nce & E	ngineering	9
•		e: Tuesday, 26-11-2019 30 PM To 05:30 PM		Ma	x. Marks: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory and Book.			s in answer
		2) Figures to the right indicate			
Dura	tion: 3	MCQ/Objective 30 Minutes	e rype (	Luestions	Marks: 14
Q.1		ose the correct alternatives fro	m the op	tions and rewrite the	14
	sent 1)	ence. In Breadth First Search of Graptoused? a) Stack c) Linked List	h, which c b) d)	of the following data structor Queue None of the above	ure is
	2)	In a circular linked list  a) Components are all linked the state of the stat	ogether ir o end. hierarchic	n some sequential manner ally	·.
	3)	Which of the following operation linked list than by singly linked list a) Deleting a node whose located by Searching of an unsorted list c) Inverting a node after the notation of the contraction of the	ist? ition in giv st for a giv ode with g	ven ven item given location	loubly
	4)	The pre-order and post order tra same output. The tree can have a) Three nodes c) One node		•	he
	5)	In order to get the contents of a one has to traverse it in  a) pre-order c) post order	Binary se b) d)	earch tree in ascending ord in-order not possible	der,
	6)	Consider a B+-tree in which the What is the minimum number of a) 1 c) 3		,	e is 5.
	7)	Inorder to get the information stone should traverse it in which ca) left, root, right c) right, root, left		_	der,

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8)	ine number of edges in a simple, n		
	a) n*(n-2) c) n*(n-1)/2	b) d)	n*(n-1) n*(n-1)*(n-2)
9)	For an undirected graph with n verti degree of each vertex is equal to	•	, , , ,
	a) 2n c) 2e	b) d)	(2n-1)/2 e2/2
10)	The preorder traversal sequence of 25, 23, 39, 35, 42. Which one of the sequence of the same tree?  a) 10, 20, 15, 23, 25, 35, 42, 39, 35, 15, 10, 25, 23, 20, 42, 35, 39, 35, 15, 20, 10, 23, 25, 42, 35, 39, 36, 15, 10, 23, 25, 20, 35, 42, 39, 36	follov 0 0 0	
11)	The postfix form of A* B+C/D is a) AB*CD/+ c) ABCD*/+	 b) d)	A*BCD/+ None
12)	In tree leaf node is connected a) AVL c) B	d to n b) d)	_
13)	In Tree, all the null pointers a threads that point back to their inorda) Binary tree c) B+ Tree		placed by their corresponding ccessor in the binary tree. B-Tree Binary threaded Tree
14)	The data structure required to evaluate a) queue c) array	ate a b) d)	postfix expression is Stack Iinked-list

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## S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

**DATA STRUCTURES** Day & Date: Tuesday, 26-11-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Attempt any four questions. 12 Q.2 Explain stack with its operation. List out application of stack. Evaluate the following postfix expression 2 3 1 \* + 9 b) c) WAP to implement stack using linked list. Explain priority queue. d) Create a binary search tree of following sequence. 50,30,60,38,35,55,22,59,94,13,98 80 Q.3 Attempt any one questions. What is Threaded- Binary Tree? Explain with example. 1) Left-in Threaded Binary Tree 2) Right-in Threaded Binary Tree 3) Fully Threaded Binary Tree Explain doubly linked list with insertion and deletion operation. How to convert infix expression into postfix expression. Convert following infix Q.4 80 expression into postfix (A+B)/(C-D). Section - II Q.5 Attempt any four questions. 12 Define the following terms 1) Graph 2) Cyclic graph 3) Isolated node b) Write a note on topological sorting. Explain AVL tree. c) d) Construct B-tree of order 5 10,40,30,35,20,15,50,28,25,5,60,9,12 How to represent a graph using adjacency matrix and adjacency list. Solve any one question: 80 Explain Single and Double rotation of AVL tree with example. Explain Dijkstra's algorithm with example. b) Q.7 Explain graph traversal methods with example. 80

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# S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Scienc DATA STRI		_	
•		e: Tuesday, 26-11-2019 0 PM To 05:30 PM		M	ax. Marks: 70
Instr	uction	ns: 1) Q. No. 1 is compulsory and sh	ould b	e solved in first 30 minut	es in answer
		Book. 2) Figures to the right indicate fu	ll marl	KS.	
		MCQ/Objective T			
Dura	ition: 3	30 Minutes	,,,,		Marks: 14
Q.1		ose the correct alternatives from tence.  Consider a B+-tree in which the ma	aximur	n number of keys in a no	<b>14</b> de is 5.
		What is the minimum number of ke a) 1 c) 3	ys in a b) d)	any non-root node? 2 4	
	2)	Inorder to get the information store one should traverse it in which of the a) left, root, right c) right, root, left			rder,
	3)	The number of edges in a simple, r a) n*(n-2) c) n*(n-1)/2	n-verte b) d)	ex, complete graph is n*(n-1) n*(n-1)*(n-2)	
	4)	For an undirected graph with n vert degree of each vertex is equal to a) 2n c) 2e	ices a b) d)	nd e edges, the sum of the (2n-1)/2 e2/2	ne
	5)	The preorder traversal sequence of 25, 23, 39, 35, 42. Which one of the sequence of the same tree?  a) 10, 20, 15, 23, 25, 35, 42, 39, 35, 10, 15, 10, 25, 23, 20, 42, 35, 39, 35, 20, 15, 20, 10, 23, 25, 42, 35, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 35, 42, 39, 35, 30, 30, 30, 30, 30, 30, 30, 30, 30, 30	e follo 30 30 30		
	6)	The postfix form of A* B+C/D is a) AB*CD/+ c) ABCD*/+	 b) d)	A*BCD/+ None	
	7)	In tree leaf node is connected a) AVL c) B	ed to n b) d)	ext leaf node Binary Search Tree B+	
	8)	In Tree, all the null pointers threads that point back to their inor a) Binary tree	der su		•

ď)

c) B+ Tree

Binary threaded Tree

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9)	The a) c)	data structure required to evalua queue array	ate a ¡ b) d)	postfix expression is Stack Iinked-Iist
10)	In B use	Breadth First Search of Graph, wh d?	nich of	f the following data structure is
	,	Stack Linked List	b) d)	Queue None of the above
11)	a) b)	circular linked list Components are all linked togethere is no beginning and no endomponents are arranged hiera. Forward and backward traversal	d. rchica	ally
12)	linke a) b)	ich of the following operations is ped list than by singly linked list? Deleting a node whose location Searching of an unsorted list for Inverting a node after the node was a list to process each	in give a give	en en item iven location
13)	sam	e pre-order and post order travers ne output. The tree can have max Three nodes One node		, ,
14)	one a)	rder to get the contents of a Bina has to traverse it in  pre-order	b)	in-order
	c)	post order	d)	not possible

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# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DATA STRUCTURES

		DATA STRUCTURES	
•		te: Tuesday, 26-11-2019 Max. Marks 30 PM To 05:30 PM	s: 56
Instr	uctic	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	Atte a) b) c) d) e)	Explain stack with its operation. List out application of stack.  Evaluate the following postfix expression 2 3 1 * + 9 -  WAP to implement stack using linked list.  Explain priority queue.  Create a binary search tree of following sequence.  50,30,60,38,35,55,22,59,94,13,98	12
Q.3	Atte a) b)	empt any one questions.  What is Threaded- Binary Tree? Explain with example.  1) Left-in Threaded Binary Tree  2) Right-in Threaded Binary Tree  3) Fully Threaded Binary Tree Explain doubly linked list with insertion and deletion operation.	08
Q.4		v to convert infix expression into postfix expression. Convert following infix ression into postfix (A+B)/(C-D).	80
		Section – II	
Q.5	Atte a) b) c) d)	Define the following terms  1) Graph 2) Cyclic graph 3) Isolated node Write a note on topological sorting. Explain AVL tree. Construct B-tree of order 5 10,40,30,35,20,15,50,28,25,5,60,9,12 How to represent a graph using adjacency matrix and adjacency list.	12
Q.6	-	ve any one question: Explain Single and Double rotation of AVL tree with example. Explain Dijkstra's algorithm with example.	80
Q.7	Ехр	lain graph traversal methods with example.	08

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No.	Set	

		S.I	•	Old) (CGPA) Inputer Science DATA COMM	e & E	nginee		2019	
•			′ednesday, 27-′ M To 05:30 PM	11-2019				Max. Mark	s: 70
Inst	ructio	ns:	1) Q. No. 1 is c book.	ompulsory and sl	hould l	oe solved	I in first 30 m	inutes in an	swer
			2) Figures to the	ne right indicate f	ull mai	rks.			
			ľ	ICQ/Objective T	ype Q	uestions	3		
Dura	tion: (	30 M	linutes					Mark	ks: 14
Q.1	<b>Cho</b> 1)			ernatives from t ransfer are the fu	-		layer.	e sentence.	14
	2)	Wh a) c)	ich of the trans UDP FTP	port layer protoco	ol is co b) d)	nnectionl TCP NVT	ess?		
	3)	a) c)	protocol is ι ARP RARP	used for mapping	physic b) d)	cal addre OSPF SMTP	sses to logic	al address.	
	4)	a) c)	protocol is t CSMA SMTP	used for sending	mail. b) d)	CDMA OSPF			
	5)	bac	ck a confirming h the sender ar Cannot talk a can receive a Can send or r		ender. Jultane at a tin	. In full du ously	_		
	6)	ma a) c)	have a sing chines on the n Point to point Unicast	le communicatior etwork.	n chan b) d)	nel that is broadca None o	ast	all the	
	7)		is an agre nmunication is t Protocol Internet	eement between to proceed.	the cor b) d)	mmunica algorith None o	m	n how	
	8)	Wh a) c)	ich one of the for Framing Flow control	ollowing task is n	ot don b) d)	Error co	•		

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9)		layer is split into a SAR sunchronous Transfer Mode.	ıb lay	er and CS sub layer in
	a) Î	AAL ATM	b) d)	Physical None of these
	,		,	
10)		ch of the following is required to c Transmission medium Communication hardware	b)	· · · · · · · · · · · · · · · · · · ·
11)	the b	error detection code in which, code oits to be checked by a predeterm Cyclic redundancy check Hamming code	nined b)	
12)	fram	Data link layer takes the data from the second seco		·
	,	Network layer		Physical layer
	C)	Transport layer	d)	Application layer
13)		E 802.5 is known as Ethernet Token Ring	b) d)	Token Bus DQDB
14)	a) c)	is a loss of energy as the sigr Attenuation Distortion	nal pro b) d)	opagates outwards. Noise None of these

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# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DATA COMMUNICATION

		DATA COMMUNICATION	
		e: Wednesday, 27-11-2019 O PM To 05:30 PM	Max. Marks: 56
Inst	uctio	ns: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section - I	
Q.2	a) ( b) E c) (	npt any three of the following questions. Compare OSI and TCP models. Explain different Data Link Layer design issues. Uses of Computer Network. Explain Simplex Stop-and-Wait ARQ Protocol.	12
	-		
Q.3	a) E	npt any one of the following questions.  Explain Cyclic Redundancy Check method with a suitable examp  Explain Go-back-N protocol with diagram.	<b>08</b> le.
Q.4	Expla	in in detail about OSI reference layer.	08
		Section - II	
Q.5	<ul><li>a) E</li><li>b) E</li><li>c) V</li></ul>	Inpt any three of the following questions  Explain ALOHA and it's types in detail.  Explain shortest path routing algorithm with diagram.  What is Variable Length Blocks in Classless Addressing?  Explain CSMA/CD with diagram.	12
Q.6	a) E	npt any one. Explain IEEE std. 802.5. Explain its Frame Format in detail. Explain minimum any two routing algorithms.	08
Q.7	Expla	nin IPv4 in detail.	08

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## S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Scien DATA COMI	ce & E	ngineering
•		te: Wednesday, 27-11-2019 30 PM To 05:30 PM		Max. Marks: 70
Inst	ructio	bns: 1) Q. No. 1 is compulsory and book.  2) Figures to the right indicate		be solved in first 30 minutes in answer ks.
		MCQ/Objective		
Dura	ation: 3	30 Minutes		Marks: 14
Q.1	<b>Cho</b> 1)	which one of the following task is a) Framing c) Flow control	•	
	2)	The layer is split into a SAI Asynchronous Transfer Mode. a) AAL c) ATM	R sub lay b) d)	ver and CS sub layer in  Physical  None of these
	3)	Which of the following is required a) Transmission medium c) Communication hardware	to comm b) d)	nunicate between two computers? Protocol All of these
	4)	An error detection code in which, the bits to be checked by a predera) Cyclic redundancy check c) Hamming code		
	5)	The Data link layer takes the data frames for transmission.  a) Network layer  c) Transport layer	b) d)	and encapsulate them into Physical layer Application layer
	6)	IEEE 802.5 is known as a) Ethernet c) Token Ring	b) d)	Token Bus DQDB
	7)	<ul><li>is a loss of energy as the</li><li>a) Attenuation</li><li>c) Distortion</li></ul>	signal pı b) d)	ropagates outwards. Noise None of these
	8)	File transfer, mail transfer are the a) Application c) Transport	function b) d)	of layer. DLL session
	9)	Which of the transport layer proto a) UDP c) FTP	col is cor b) d)	nnectionless? TCP NVT

Set Q

10)	a) c)	protocol is used for mapping p ARP RARP	hysic b) d)	al addresses to logical address. OSPF SMTP
11)	a) c)	protocol is used for sending m CSMA SMTP	ail. b) d)	CDMA OSPF
12)	bac both a) b)	term 'duplex' refers to the ability k a confirming message to the se the sender and receiver. Cannot talk at once can receive and send data simu Can send or receive data one at Can do one way transmission or	nder. Itaneo : a tim	In full duplex data transmission, ously
13)	mad a) c)	have a single communication chines on the network.  Point to point  Unicast	chanr b) d)	nel that is shared by all the broadcast None of these
14)		is an agreement between th nmunication is to proceed. Protocol Internet	e con b) d)	nmunicating parties on how algorithm None of these

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## S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DATA COMMUNICATION

		DATA COMMUNICATION	
•		ate: Wednesday, 27-11-2019 :30 PM To 05:30 PM	Max. Marks: 56
Inst	ructi	ions: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section - I	
Q.2	a)	empt any three of the following questions.  Compare OSI and TCP models.  Explain different Data Link Layer design issues.  Uses of Computer Network.  Explain Simplex Stop-and-Wait ARQ Protocol.	12
Q.3	Att a) b)	empt any one of the following questions.  Explain Cyclic Redundancy Check method with a suitable examp Explain Go-back-N protocol with diagram.	<b>08</b> le.
Q.4	Ex	plain in detail about OSI reference layer.	08
		Section - II	
Q.5	a)	empt any three of the following questions  Explain ALOHA and it's types in detail.  Explain shortest path routing algorithm with diagram.  What is Variable Length Blocks in Classless Addressing?  Explain CSMA/CD with diagram.	12
Q.6	Atta)	empt any one.  Explain IEEE std. 802.5. Explain its Frame Format in detail.  Explain minimum any two routing algorithms.	08
Q.7	Ex	olain IPv4 in detail.	08

Seat	Sat	D
No.	Set	K

		S.E	Computer	SGPA) Exam Science & E COMMUNIC		
-			ednesday, 27-11-2019 VI To 05:30 PM		Max. Marks	s: 70
Inst	ructio	ns:	1) Q. No. 1 is compulso book.	ry and should b	e solved in first 30 minutes in ans	wer
			<ol><li>Figures to the right in</li></ol>	ndicate full mar	ks.	
			MCQ/Obj	ective Type Q	uestions	
Dura	ation: (	30 M	inutes		Marks	s: 14
Q.1	<b>Cho</b> 1)	The bac	e term 'duplex' refers to	the ability of the to the sender. er. data simultaned ata one at a tim		14
	2)	mac a) c)	have a single comm chines on the network. Point to point Unicast	unication chanr b) d)	nel that is shared by all the broadcast None of these	
	3)		is an agreement b nmunication is to procee Protocol Internet		nmunicating parties on how algorithm None of these	
	4)	Wh a) c)	ich one of the following Framing Flow control	task is not done b) d)	e by data link layer? Error control Channel control	
	5)		e layer is split into vnchronous Transfer Mo AAL ATM	•	er and CS sub layer in Physical None of these	
	6)	Wh a) c)	ich of the following is red Transmission medium Communication hardw	b)	unicate between two computers? Protocol All of these	
	7)		error detection code in volits to be checked by a Cyclic redundancy che Hamming code	predetermined	emainder resulting from dividing primary number. Checksum none of these	

Set R

8)	The Data link layer takes the data frames for transmission.	from	and encapsulate them into
	a) Network layer	b)	Physical layer
	c) Transport layer	ď)	Application layer
9)	IEEE 802.5 is known as		
	a) Ethernet	b)	Token Bus
	c) Token Ring	d)	DQDB
10)	is a loss of energy as the s	signal p	ropagates outwards.
	a) Attenuation	b)	Noise
	c) Distortion	d)	None of these
11)	File transfer, mail transfer are the t	unction	of layer.
	a) Application	b)	DLL
	c) Transport	d)	session
12)	Which of the transport layer protoc	ol is co	nnectionless?
	a) UDP	b)	TCP
	c) FTP	d)	NVT
13)	protocol is used for mapping	g physic	cal addresses to logical address.
	a) ARP	b)	OSPF
	c) RARP	ď)	SMTP
14)	protocol is used for sending	mail.	
	a) CSMA	b)	CDMA
	c) SMTP	ď	OSPF

No.	Seat No.	Set	R
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# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DATA COMMUNICATION

		DATA COMMUNICATION	
Day Time	Max. Marks: 56		
Inst	ructi	<ul><li>ons: 1) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li></ul>	
		Section - I	
Q.2	a) b) c)	Explain different Data Link Layer design issues. Uses of Computer Network.	12
	d)	Explain Simplex Stop-and-Wait ARQ Protocol.	
Q.3	Atte a) b)	empt any one of the following questions.  Explain Cyclic Redundancy Check method with a suitable examp  Explain Go-back-N protocol with diagram.	<b>08</b> le.
Q.4	Exp	plain in detail about OSI reference layer.	08
		Section - II	
Q.5	a)	empt any three of the following questions  Explain ALOHA and it's types in detail.  Explain shortest path routing algorithm with diagram.  What is Variable Length Blocks in Classless Addressing?  Explain CSMA/CD with diagram.	12
Q.6	Atte a) b)	empt any one. Explain IEEE std. 802.5. Explain its Frame Format in detail. Explain minimum any two routing algorithms.	08
Q.7	Exp	olain IPv4 in detail.	08

Seat	Set	9
No.	Set	3

## S.E. (Part - II) (Old) (CGPA) Examination Nov/Dec-2019

		0.12	(· a. ·	Compute	r Science A COMMU	& E	ngineering	
•			ednesday // To 05:3	y, 27-11-201 0 PM	9		Max. Marks: 7	70
Inst	ructio		book.	•	•		pe solved in first 30 minutes in answe	эr
			2) Figure	es to the right				
_			. ,	MCQ/O	bjective Ty	pe Q		
			inutes			_	Marks:	
Q.1	1)		ich of the Transmi		required to o		tions and rewrite the sentence. Thunicate between two computers? Protocol All of these	14
	2)		bits to be	checked by edundancy c	a predeterr	nined	remainder resulting from dividing primary number. Checksum none of these	
	3)			ansmission. Layer	the data fro	m b) d)	and encapsulate them into Physical layer Application layer	
	4)		E 802.5 i Etherne Token R		·	b) d)	Token Bus DQDB	
	5)	a) c)	is a l Attenua Distortio	tion	y as the sig	nal pı b) d)	ropagates outwards. Noise None of these	
	6)	File a) c)	transfer, Applicat Transpo		r are the fun	ction b) d)	of layer. DLL session	
	7)	Wh a) c)	ich of the UDP FTP	transport lay	er protocol	is coi b) d)	nnectionless? TCP NVT	
	8)	a) c)	protoc ARP RARP	col is used fo	r mapping p	hysic b) d)	cal addresses to logical address. OSPF SMTP	
	9)	a) c)	protoc CSMA SMTP	col is used fo	r sending m	ail. b) d)	CDMA OSPF	

Set S

10)	The term 'duplex' refers to the abilit back a confirming message to the so both the sender and receiver.  a) Cannot talk at once b) can receive and send data simulation control of the sender and send data simulation.  c) Can send or receive data one sender and one sender and one way transmission of the sender.	ender ultane at a tir	. In full duplex data transmission, cously
11)	have a single communication machines on the network.  a) Point to point c) Unicast	•	broadcast
12)	A is an agreement between to communication is to proceed.  a) Protocol c) Internet	the cor b) d)	
13)	Which one of the following task is n a) Framing c) Flow control		e by data link layer? Error control Channel control
14)	The layer is split into a SAR Asynchronous Transfer Mode.  a) AAL c) ATM	sub la b) d)	yer and CS sub layer in  Physical  None of these

	_	
Seat	Set	C
No.	Set	3

# S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DATA COMMUNICATION

		DATA COMMUNICATION	
Day Time	Max. Marks: 56		
Inst	ructi	ions: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section - I	
Q.2	a) b)	empt any three of the following questions.  Compare OSI and TCP models.  Explain different Data Link Layer design issues.  Uses of Computer Network.  Explain Simplex Stop-and-Wait ARQ Protocol.	12
Q.3	Att a) b)	empt any one of the following questions.  Explain Cyclic Redundancy Check method with a suitable examp Explain Go-back-N protocol with diagram.	<b>08</b> lle.
Q.4	Ex	plain in detail about OSI reference layer.	80
		Section - II	
Q.5	Att a) b) c) d)	empt any three of the following questions  Explain ALOHA and it's types in detail.  Explain shortest path routing algorithm with diagram.  What is Variable Length Blocks in Classless Addressing?  Explain CSMA/CD with diagram.	12
Q.6	Att a) b)	empt any one. Explain IEEE std. 802.5. Explain its Frame Format in detail. Explain minimum any two routing algorithms.	08
Q.7	Ex	olain IPv4 in detail.	08

	T	ī	
Seat		Cat	Ъ
		Set	<b>P</b>
No.			

		Computer Science & Engineering  OPERATING SYSTEM CONCEPTS	
•		e: Friday, 06-12-2019 Max. Marks: 780 PM To 05:30 PM	70
Instr	uctio	<b>ns:</b> 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answebook.	эr
		2) Figures to the right indicate full marks.	
		MCQ/Objective Type Questions	
Dura	tion: 3	30 Minutes Marks: 1	14
Q.1	<b>Cho</b> 1)	ose the correct alternatives from the options and rewrite the sentence.  The Process Control Block is  a) Process type variable b) Data Structure	14
		c) a secondary storage section d) a Block in memory	
	2)	What is a long-term scheduler?  a) It selects which process has to be brought into the ready queue  b) It selects which process has to be executed next and allocates CPU  c) It selects which process to remove from memory by swapping  d) None of these	
	3)	When several processes access the same data concurrently and the outcome of the execution depends on the particular order in which the access takes place, is called  a) dynamic condition b) race condition  c) essential condition d) critical condition	
	4)	With only one process can execute at a time; mean while all other process are waiting for the processor. With more than one process can be running simultaneously each on a different processor.  a) Multiprocessing, Multiprogramming b) Multiprogramming, Uniprocessing c) Multiprogramming, Multiprocessing d) Uniprogramming, Multiprocessing	
	5)	Semaphore is a/an to solve the critical section problem.  a) hardware for a system b) special program for a system c) integer variable d) None of these	
	6)	The most optimal scheduling algorithm is  a) FCFS - First come First served  b) SJF - Shortest Job First  c) RR - Round Robin  d) None of these	
	7)	'Aging' is a) keeping track of cache contents	

keeping track of what pages are currently residing in memory

keeping track of how many times a given page is referenced

increasing the priority of jobs to ensure termination in a finite time

b)

c)

d)

Set P

8)	One way to ensure that the circular wait condition never holds is to  a) Impose a total ordering of all resource types and to determine					
	b)	whether one precedes another to never let a process acquire re				
	c) d)	processes to let a process wait for only one All of these	e res	source at a time		
9)	a) b) c)	other resources no resource can be forcibly rem	sou	rces while awaiting assignment of		
10)	a) b) c)	all of the mentioned circular wait condition can be pr defining a linear ordering of rescusing thread using pipes all of the mentioned				
11)	d) In F	IFO page replacement algorithm	whe	en a page must be replaced		
	a) c)	oldest page is chosen random page is chosen	b) d)	newest page is chosen none of the mentioned		
12)	The a) c)	address of a page table in mem stack pointer page register	-	s pointed by page table base register program counter		
13) 14)	<ul> <li>A process is thrashing if.</li> <li>a) it is spending more time paging than executing</li> <li>b) it is spending less time paging than executing</li> <li>c) page fault occurs</li> <li>d) swapping can not take place</li> </ul>					
	a) c)	 polling driver	b) d)	interrupt controlling		

Seat	Sat	D
No.	Set	

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering OPERATING SYSTEM CONCEPTS

Day & Date: Friday, 06-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Solve any three.

12

- a) Differentiate between Batch operating system and multi-programmed batch operating systems.
- **b)** Define inter-process communication. Explain the reasons for using such environment.
- c) Describe Pre-emptive and Non-preemptive scheduling algorithms.
- d) What is operating system? Explain its functions.
- e) List and explain different scheduling criteria.

#### Q.3 Solve any two.

16

a) Consider the following set of processes with arrival time and burst time in milliseconds as given below.

P No.	BT	Priority
1	10	3
2	1	1
3	2	3
4	1	4
5	5	2

- Draw Gantt Chart illustrating the execution of processes using Preemptive Priority scheduling (smaller number represents higher priority).
- 2) Calculate average waiting time for the above scheduling algorithm.
- 3) Calculate average Turn around for the above time scheduling algorithm.
- **b)** Describe bounded buffer producer-consumer problem. Provide its solution using semaphore.
- **c)** What is critical section? Provide two-process solution using Algorithm 1, Algorithm 2, Algorithm 3.

#### Section - II

#### Q.4 Solve any Three.

12

- a) How will you prevent deadlock? Explain.
- **b)** Explain Contiguous memory allocation with an example.
- c) Explain the steps for page fault handling.
- d) Define:
  - 1) Memory management Unit
  - 2) TLB
  - 3) Page and frame
  - 4) Pager or Lazy Swapper

Set P

### Q.5 Attempt any two.

16

- a) Explain page replacement policies with suitable example. (Use frame size at least 3)
- **b)** Explain Banker's algorithm with suitable example.
- c) What are the responsibilities of DMA Controller and the advantages of DMA? Explain the steps process to perform DMA transfer.

Seat	Sat	
No.	Set	¥

		Т.І	E. (Part – I) (Old) (CGPA) Computer Scien OPERATING SY:	ice &	Engineering	
-			iday, 06-12-2019 И То 05:30 РМ		Max. Marks: 7	0
Insti	ructio	ns: ′	<ol> <li>Q. No. 1 is compulsory and book.</li> </ol>	should	d be solved in first 30 minutes in answe	r
		2	2) Figures to the right indicate	full ma	rks.	
			MCQ/Objective	Туре	Questions	
Dura	tion:	30 M	inutes		Marks: 1	4
Q.1	<b>Chc</b> 1)			ar wait resour er in th e resou	e ordering. urces that are held by other	4
	2)	Wha) b) c) d)	mutual exclusion	d resou	red for deadlock to be possible?  Irces while awaiting assignment of  d from a process holding it	
	3)	The a) b) c) d)	e circular wait condition can be defining a linear ordering of a using thread using pipes all of the mentioned			
	4)	In F	FIFO page replacement algorit	hm wh	en a page must be replaced	
		a) c)	oldest page is chosen random page is chosen	b) d)	. •	
	5)	The a) c)	e address of a page table in m stack pointer page register	emory b) d)	is pointed by page table base register program counter	
	6)	A p a) b) c) d)	rocess is thrashing if. it is spending more time pag it is spending less time pagir page fault occurs swapping can not take place	ng than	<u> </u>	

Set Q

7)	The	hardware mechanism that allow	ıs a	device to notify the CPU is called
8)	c)	polling driver Process Control Block is	b) d)	interrupt controlling
O,	a)	Process type variable a secondary storage section	b)	Data Structure a Block in memory
9)	a) b)	It selects which process has to It selects which process to rem	be e	executed next and allocates CPU
10)	outo acco a)	en several processes access the come of the execution depends of ess takes place, is called dynamic condition essential condition	on th  b)	race condition
11)	prod	cess are waiting for the processor be running simultaneously each Multiprocessing, Multiprogramn Multiprogramming, Uniprocessi	or. Wor. on on one one one one one one one one o	·
12)	a)	naphore is a/an to solve hardware for a system integer variable	b)	
13)		most optimal scheduling algorit FCFS - First come First served SJF - Shortest Job First RR - Round Robin None of these	hm i	S
14)	'Agi a) b) c) d)	ng' is  keeping track of cache contents keeping track of what pages are keeping track of how many time increasing the priority of jobs to	e cu es a	given page is referenced

Seat	Sot	
No.	Set	Q

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering OPERATING SYSTEM CONCEPTS

Day & Date: Friday, 06-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Solve any three.

12

- a) Differentiate between Batch operating system and multi-programmed batch operating systems.
- **b)** Define inter-process communication. Explain the reasons for using such environment.
- c) Describe Pre-emptive and Non-preemptive scheduling algorithms.
- d) What is operating system? Explain its functions.
- e) List and explain different scheduling criteria.

#### Q.3 Solve any two.

16

a) Consider the following set of processes with arrival time and burst time in milliseconds as given below.

P No.	BT	Priority
1	10	3
2	1	1
3	2	3
4	1	4
5	5	2

- 1) Draw Gantt Chart illustrating the execution of processes using Preemptive Priority scheduling (smaller number represents higher priority).
- 2) Calculate average waiting time for the above scheduling algorithm.
- 3) Calculate average Turn around for the above time scheduling algorithm.
- **b)** Describe bounded buffer producer-consumer problem. Provide its solution using semaphore.
- **c)** What is critical section? Provide two-process solution using Algorithm 1, Algorithm 2, Algorithm 3.

#### Section - II

### Q.4 Solve any Three.

12

- a) How will you prevent deadlock? Explain.
- **b)** Explain Contiguous memory allocation with an example.
- c) Explain the steps for page fault handling.
- d) Define:
  - 1) Memory management Unit
  - 2) TLB
  - 3) Page and frame
  - 4) Pager or Lazy Swapper

Set Q

16

#### Q.5 Attempt any two.

- Explain page replacement policies with suitable example. (Use frame size at least 3)
- **b)** Explain Banker's algorithm with suitable example.
- c) What are the responsibilities of DMA Controller and the advantages of DMA? Explain the steps process to perform DMA transfer.

	,	
Seat	Sat	D
No.	Set	K

## T.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering OPERATING SYSTEM CONCEPTS
•		: Friday, 06-12-2019 Max. Marks: 7 PM To 05:30 PM
Insti	uctio	<ul><li>s: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answe book.</li><li>2) Figures to the right indicate full marks.</li></ul>
		MCQ/Objective Type Questions
Dura	tion: 3	) Minutes Marks: 1
Q.1	<b>Cho</b> 1)	se the correct alternatives from the options and rewrite the sentence.  Semaphore is a/an to solve the critical section problem.  a) hardware for a system b) special program for a system c) integer variable d) None of these
	2)	The most optimal scheduling algorithm is  a) FCFS - First come First served  b) SJF - Shortest Job First  c) RR - Round Robin  d) None of these
	3)	Aging' is  a) keeping track of cache contents  b) keeping track of what pages are currently residing in memory  c) keeping track of how many times a given page is referenced  d) increasing the priority of jobs to ensure termination in a finite time
	4)	One way to ensure that the circular wait condition never holds is to  a) Impose a total ordering of all resource types and to determine whether one precedes another in the ordering. b) to never let a process acquire resources that are held by other processes c) to let a process wait for only one resource at a time d) All of these
	5)	Which of the following condition is required for deadlock to be possible?  a) mutual exclusion b) a process may hold allocated resources while awaiting assignment of other resources c) no resource can be forcibly removed from a process holding it d) all of the mentioned
	6)	The circular wait condition can be prevented by  a) defining a linear ordering of resources types  b) using thread  c) using pipes  d) all of the mentioned

Set R

7)	In FIFO page replacement algorithm when a page must be replaced				
	a) c)	oldest page is chosen random page is chosen	b) d)	newest page is chosen none of the mentioned	
8)	The a) c)	address of a page table in mem stack pointer page register	b)	is pointed by page table base register program counter	
9)	a) b) c) d)	page fault occurs swapping can not take place	than		
ŕ		 polling driver	b) d)	interrupt controlling	
11)	a)	Process Control Block is Process type variable a secondary storage section	b)	Data Structure a Block in memory	
12)	Wha a) b) c) d)		be e	executed next and allocates CPU	
13)	outo acc a)	en several processes access the come of the execution depends of the execution depends of the execution depends of the execution depends of the execution essential condition		race condition	
14)	prod	•	or. Wor. on one of the	te at a time; mean while all other /ith more than one process a different processor.	

Seat	Sot	В
No.	Set	K

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering OPERATING SYSTEM CONCEPTS

Day & Date: Friday, 06-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Solve any three.

12

- a) Differentiate between Batch operating system and multi-programmed batch operating systems.
- **b)** Define inter-process communication. Explain the reasons for using such environment.
- c) Describe Pre-emptive and Non-preemptive scheduling algorithms.
- d) What is operating system? Explain its functions.
- e) List and explain different scheduling criteria.

#### Q.3 Solve any two.

16

a) Consider the following set of processes with arrival time and burst time in milliseconds as given below.

P No.	BT	Priority
1	10	3
2	1	1
3	2	3
4	1	4
5	5	2

- 1) Draw Gantt Chart illustrating the execution of processes using Preemptive Priority scheduling (smaller number represents higher priority).
- 2) Calculate average waiting time for the above scheduling algorithm.
- 3) Calculate average Turn around for the above time scheduling algorithm.
- **b)** Describe bounded buffer producer-consumer problem. Provide its solution using semaphore.
- **c)** What is critical section? Provide two-process solution using Algorithm 1, Algorithm 2, Algorithm 3.

#### Section - II

### Q.4 Solve any Three.

12

- a) How will you prevent deadlock? Explain.
- **b)** Explain Contiguous memory allocation with an example.
- c) Explain the steps for page fault handling.
- d) Define:
  - 1) Memory management Unit
  - 2) TLB
  - 3) Page and frame
  - 4) Pager or Lazy Swapper

Set R

#### Q.5 Attempt any two.

16

- a) Explain page replacement policies with suitable example. (Use frame size at least 3)
- **b)** Explain Banker's algorithm with suitable example.
- c) What are the responsibilities of DMA Controller and the advantages of DMA? Explain the steps process to perform DMA transfer.

Seat	Set	0
No.	Set	<b>)</b>

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

			Computer Science OPERATING SYST		
			iday, 06-12-2019 1 To 05:30 PM		Max. Marks: 70
Insti	uctio	<b>ns:</b> 1	) Q. No. 1 is compulsory and sh book.	oulo	d be solved in first 30 minutes in answer
		2	<ol><li>Figures to the right indicate ful</li></ol>	l ma	rks.
			MCQ/Objective T	уре	Questions
Dura	ition: 3	80 Mi	nutes		Marks: 14
Q.1	<b>Cho</b> 1)		the correct alternatives from the circular wait condition can be prodefining a linear ordering of rest using thread using pipes all of the mentioned	eve	
	2)	In F	TFO page replacement algorithm	n wh	en a page must be replaced
		a) c)	oldest page is chosen random page is chosen		newest page is chosen none of the mentioned
	3)	The a) c)	address of a page table in mem stack pointer page register	b)	is pointed by page table base register program counter
	<ul><li>4)</li><li>5)</li></ul>	a) b) c) d)		han	
		a) c)	 polling driver	b) d)	interrupt controlling
	6)	The a) c)	Process Control Block is Process type variable a secondary storage section	 b) d)	Data Structure a Block in memory
	7)	Wha a) b) c) d)	at is a long-term scheduler? It selects which process has to It selects which process has to It selects which process to rem None of these	be e	executed next and allocates CPU

Set S

8)	out	en several processes access the come of the execution depends of ess takes place, is called dynamic condition essential condition	n th  b)	
9)	With	n only one process can ex	ecur. Won a ning ng	te at a time; mean while all other ith more than one process
10)	a)	naphore is a/an to solve hardware for a system integer variable	b)	critical section problem. special program for a system None of these
11)	a) b) c)	most optimal scheduling algorith FCFS - First come First served SJF - Shortest Job First RR - Round Robin None of these	nm is	S
12)	'Agi a) b) c) d)	ng' is  keeping track of cache contents keeping track of what pages are keeping track of how many time increasing the priority of jobs to	cur s a	given page is referenced
13)	a) b)	way to ensure that the circular way to ensure that the circular way to ensure to never let a process acquire reprocesses to let a process wait for only one All of these	sour in th esou	ce types and to determine e ordering.  Irces that are held by other
14)	Whi a) b) c) d)	ich of the following condition is remutual exclusion a process may hold allocated reother resources no resource can be forcibly remall of the mentioned	sou	rces while awaiting assignment of

Seat	Sat	6
No.	Set	S

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering OPERATING SYSTEM CONCEPTS

Day & Date: Friday, 06-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Solve any three.

12

- a) Differentiate between Batch operating system and multi-programmed batch operating systems.
- **b)** Define inter-process communication. Explain the reasons for using such environment.
- c) Describe Pre-emptive and Non-preemptive scheduling algorithms.
- d) What is operating system? Explain its functions.
- e) List and explain different scheduling criteria.

#### Q.3 Solve any two.

16

a) Consider the following set of processes with arrival time and burst time in milliseconds as given below.

P No.	BT	Priority
1	10	3
2	1	1
3	2	3
4	1	4
5	5	2

- 1) Draw Gantt Chart illustrating the execution of processes using Preemptive Priority scheduling (smaller number represents higher priority).
- 2) Calculate average waiting time for the above scheduling algorithm.
- 3) Calculate average Turn around for the above time scheduling algorithm.
- **b)** Describe bounded buffer producer-consumer problem. Provide its solution using semaphore.
- **c)** What is critical section? Provide two-process solution using Algorithm 1, Algorithm 2, Algorithm 3.

#### Section - II

### Q.4 Solve any Three.

12

- a) How will you prevent deadlock? Explain.
- **b)** Explain Contiguous memory allocation with an example.
- c) Explain the steps for page fault handling.
- d) Define:
  - 1) Memory management Unit
  - 2) TLB
  - 3) Page and frame
  - 4) Pager or Lazy Swapper

Set S

### Q.5 Attempt any two.

- Explain page replacement policies with suitable example. (Use frame size at least 3)
- **b)** Explain Banker's algorithm with suitable example.
- c) What are the responsibilities of DMA Controller and the advantages of DMA? Explain the steps process to perform DMA transfer.

16

Seat	Sat	D
No.	Set	L

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering SYSTEM PROGRAMMING

Day & Date: Monday, 09-12-2019 Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.

2) Figures to the right indicate full marks.

### MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

#### Q.1 Choose the correct alternatives from the options and rewrite the sentence.

- Which of the following statement is TRUE?
  - a) Natural languages are formal languages
    - b) Formal languages are both natural & PL s
    - c) PLs are formal languages
    - d) None of above
- Which of the following statement is NOT TRUE?
  - a) Binding time is the time at which a binding is performed.
  - b) Language implementation time is the time when language translator is designed.
  - c) Binding is association of one program with another program.
  - d) None of above
- 3) Which one of the following is a operator grammar \_\_\_\_\_.
  - a) A ::= CD + E |a

- b)  $A := CAD \mid C+D$
- c) A := C + D | C \* D | a
- d) None of above
- 4) Consider the following assembly code?

START 101

READ N

PRINT N

N DS 01

What is equivalent machine code?

- a) 101) + 09 0, 103
  - 102) + 10 0, 103

103)

- b) 101) + 08 0 103
  - 102) + 100, 103

103)

- c) 101) + 090, 104
  - 102) + 110,103

103)

- d) 101) + 07 0, 103
  - 102) + 100,103

103)

Set P

5)	Cor	nsider the follow START MOVER ADD MOVEM STOP	ing asser 100 AREG, : AREG, I AREG, (	='5' B	е		
	B C	DC DS END	'8' 1				
		e content of litera	al table fo	r above	cod	e will be	
	a)	Literal_Table_	_Pointer	Litera = '5'	ıl	Address 106	
		2					
	b)	Literal_Table_	_Pointer	Litera	ıl	Address	
		2		= '5'		105	
	c)	Literal_Table_ 1 2	Pointer	Litera = '5'	ıl	Address 104	
	d)	None of above			l l		1
6)	,	nsider the macro	dofinitio	n			
	IN M( A[ M(	OVER &RE DD &RF	EM-VAL= EG, &MEI REG, &IN EG, &INC	M_VAL ICR_VAI		L=,®=A	REG
	Call of this macro can be  a) INCR_D MEM_VAL=A, INCR_VAL=B, REG=AREG b) INCR_D INCR_VAL=B, MEM_VAL=A c) INCR_D INCR_VAL=B, MEM_VAL=A, REG=BREG d) All of these						
7)	The a) c)	e statement used model stateme pre-processors	nt .		ary b) d)	conditiona	I statement s statement
8)	Ove a) c)	erlays are used t Reduce execut Reduce memor	ion time		b) d)		ode nking requirement
9)	The a) b) c)	e register descrip Name Address of CPI Addressability					

d) None of the above

Set P

10)	In basic block							
ŕ	a)	Loops are included						
	b)	b) Control can be transferred from any part of program						
	c)	First statement is destination of	a trar	sfer of control statement				
	d)	All of the above						
11)		anslated origin and linked origin a formed by	are di	fferent, then relocation is				
	a)	Linker	b)	Loader				
	c)	Translator	d)	All of these				
12)	In I	oaders track or each segments a	ssign	ed address is maintained by				
	a)	 Initial PLA	b)	PLA				
	,		•	None of the above				
13)	In a	absolute loading scheme relocation	n doi	ne by				
	a)	•	b)	Linker				
	c)	Loader	d)	Assembler				
14)	Bin	ary symbolic subroutine loader is	exan	nple of				
	a)	Absolute loader	b)	Compile-and-go loader				
	c)	Relocating loader	d)	Direct linking loader				

Seat	Set	D
No.	Set	

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering  SYSTEM PROGRAMMING	
•		e: Monday, 09-12-2019 Max. Marks: 0 PM To 05:30 PM	56
Instru	uctio	ns: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
Q.2	Solva) b) c)	What is lexical & semantic expansion? Explain with example, how macro & subroutine differ?  Define positional and keyword parameter with example.  Explain assembler directives START, END, ORIGIN, EQU, and LTORG with example for each.  Explain different types of assembly language statement.	12
Q.3	e)	Explain in detail front end of toy compiler with the help of examples.	08
ų.s	a) b)	Discuss pass-I of Two pass assembler. Write an algorithm & display the content of different data structure after pass-I.  List and explain advanced macro facilities.	Uo
Q.4	Expl	ain in detail fundamental language processing activities.	80
Q.5	Solv a) b)	List PL features which contribute to aspects of compilation and explain in brief.  Define and Explain following control flow concepts  1) Predecessors and successors	12
	c) d) e)	<ol> <li>Paths</li> <li>Ancestors and descendants</li> <li>Dominators and post-dominators</li> <li>Describe program execution steps in detail with proper schematic</li> <li>What is overlay structured program? Explain linking of overlays with example.</li> <li>Discuss general loading scheme with advantages and disadvantages.</li> </ol>	
Q.6	Solv a) b)	Explain global common sub expression elimination with the help of data flow analysis.  Define and Explain following concepts used in linking.  1) EXTRN and ENTRY statements 2) Binary program 3) Object module with example	80
Q.7	Expl	ain design of Direct linking loader.	80

Seat	Set	
No.	Set	Q

		T.E	E. (Part – I) (Old) (CGPA) E Computer Science SYSTEM PROC	& E	ngineering			
			onday, 09-12-2019 // To 05:30 PM		Max. Marks: 70			
Insti	uctio		book.		pe solved in first 30 minutes in answer			
		2	) Figures to the right indicate full	mark	S.			
D	dian. O	O NA	MCQ/Objective Ty	ype (				
	ition: 3				Marks: 14			
Q.1	<b>Cho</b> (1)	Ov	the correct alternatives from the correct alternatives from the erlays are used to  Reduce execution time  Reduce memory requirement	b)	tions and rewrite the sentence. 14  Reduce code  Reduce linking requirement			
	2)	a) b)	e register descriptor has the fields Name Address of CPU register or mer Addressability None of the above	s	<u> </u>			
	3)	a)						
	4)	If translated origin and linked origin are different, then relocation is performed by						
		,	Linker Translator	b) d)	Loader All of these			
	5)	In I	oaders track or each segments a	ssign	ed address is maintained by			
		a) c)	 Initial PLA External Symbol table	b) d)	PLA None of the above			
	6)	In a a) c)	absolute loading scheme relocation Programmer Loader	on do b) d)	ne by Linker Assembler			
	7)	Bin a) c)	ary symbolic subroutine loader is Absolute loader Relocating loader	exar b) d)	nple of Compile-and-go loader Direct linking loader			
	8)	Wha) b) c) d)	nich of the following statement is Natural languages are formal la Formal languages are both natu PLs are formal languages None of above	ngua	ges			

Set | Q

- 9) Which of the following statement is NOT TRUE?
  - Binding time is the time at which a binding is performed.
  - b) Language implementation time is the time when language translator is designed.
  - Binding is association of one program with another program. c)
  - d) None of above
- 10) Which one of the following is a operator grammar \_
  - a) A := CD + E | a |

- $A ::= CAD \mid C+D$ b)
- c) A := C + D | C \* D | a
- None of above d)
- 11) Consider the following assembly code?

START 101

READ Ν

PRINT Ν

Ν DS 01

What is equivalent machine code?

101) + 090, 103

$$102) + 100, 103$$

103)

101) + 080 103b)

$$102) + 100, 103$$

103)

101) + 090, 104c)

$$102) + 110,103$$

103)

101) + 070, 103d)

$$102) + 100,103$$

103)

12) Consider the following assembly code

**START** 

100

1

MOVER AREG, ='5'

ADD

AREG, B

MOVEM

AREG, C

STOP

В

'8' DC

C DS

**END** 

The content of literal table for above code will be \_\_\_\_

a)

Literal_Table_Pointer	Literal	Address
1	= '5'	106
2		

- b) Literal\_Table\_Pointer Literal Address = '5' 1 105 2
- Literal Table Pointer Literal c) Address = '5' 1 104 2
- d) None of above

Set Q

13) Consider the macro definition.

MACRO

INCR\_D &MEM-VAL=,&INCR\_VAL=,&REG=AREG

MOVER &REG, &MEM\_VAL ADD &RREG, &INCR\_VAL MOVEM &REG, &INCR\_VAL

**MEND** 

Call of this macro can be \_\_\_\_\_

- a) INCR\_D MEM\_VAL=A, INCR\_VAL=B, REG=AREG
- b) INCR\_D INCR\_VAL=B, MEM\_VAL=A
- c) INCR\_D INCR\_VAL=B, MEM\_VAL=A, REG=BREG
- d) All of these
- 14) The statement used to perform auxiliary function is \_\_\_\_\_
  - a) model statement
- b) conditional statement
- c) pre-processor statement
- d) prototypes statement

Seat	Set	^
No.	Set	3

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering SYSTEM PROGRAMMING		
•		e: Monday, 09-12-2019 Max. Marks: 80 PM To 05:30 PM	56	
Instr	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicate full marks.</li></ul>		
Q.2	Solva) b) c) d) e)	What is lexical & semantic expansion? Explain with example, how macro & subroutine differ?  Define positional and keyword parameter with example.  Explain assembler directives START, END, ORIGIN, EQU, and LTORG with example for each.  Explain different types of assembly language statement.  Explain in detail front end of toy compiler with the help of examples.	12	
Q.3	Solva)	ve any one Discuss pass-I of Two pass assembler. Write an algorithm & display the content of different data structure after pass-I. List and explain advanced macro facilities.	80	
Q.4	•	plain in detail fundamental language processing activities.		
Q.5	a) b) c) d)	List PL features which contribute to aspects of compilation and explain in brief.  Define and Explain following control flow concepts  1) Predecessors and successors  2) Paths  3) Ancestors and descendants  4) Dominators and post-dominators  Describe program execution steps in detail with proper schematic  What is overlay structured program? Explain linking of overlays with example.  Discuss general loading scheme with advantages and disadvantages.	12	
Q.6	a) b)	Explain global common sub expression elimination with the help of data flow analysis.  Define and Explain following concepts used in linking.  1) EXTRN and ENTRY statements 2) Binary program 3) Object module with example	80	
Q.7	Exp	Explain design of Direct linking loader.		

Seat	Set	R
No.	Jet l	11

# T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering SYSTEM PROGRAMMING

Day & Date: Monday, 09-12-2019 Max. Marks: 70

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer

book.

2) Figures to the right indicate full marks.

### MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

#### Q.1 Choose the correct alternatives from the options and rewrite the sentence. 14

1) Consider the following assembly code

START 100 MOVER AREG, ='5' ADD AREG, B MOVEM AREG, C

STOP

B DC '8' C DS 1

**END** 

The content of literal table for above code will be \_\_\_\_\_\_.

a)

Literal_Table_Pointer	Literal	Address
1	= '5'	106
2		

b)	Literal_Table_Pointer	Literal	Address
	1	= '5'	105
	2		

c)	Literal_Table_Pointer	Literal	Address
	1	= '5'	104
	2		

- d) None of above
- 2) Consider the macro definition.

**MACRO** 

INCR\_D &MEM-VAL=,&INCR\_VAL=,&REG=AREG

MOVER &REG, &MEM\_VAL ADD &RREG, &INCR\_VAL MOVEM &REG, &INCR\_VAL

MEND

Call of this macro can be \_\_\_\_\_

- a) INCR\_D MEM\_VAL=A, INCR\_VAL=B, REG=AREG
- b) INCR\_D INCR\_VAL=B, MEM\_VAL=A
- c) INCR\_D INCR\_VAL=B, MEM\_VAL=A, REG=BREG
- d) All of these

Set R

3)	a)	e statement used to perform auxil model statement pre-processor statement	iary fu b) d)	conditional statement
4)	Ove a) c)	erlays are used to  Reduce execution time  Reduce memory requirement	b) d)	Reduce code Reduce linking requirement
5)	a) b) c)			
6)	a) b)	casic block  Loops are included  Control can be transferred from  First statement is destination of  All of the above		. •
7)	per	anslated origin and linked origin a formed by		
	,	Linker Translator	b) d)	Loader All of these
8)	In lo	oaders track or each segments as	ssigne	ed address is maintained by
	,	 Initial PLA External Symbol table	b) d)	PLA None of the above
9)	a)	absolute loading scheme relocation Programmer Loader	on dor b) d)	ne by Linker Assembler
10)		ary symbolic subroutine loader is Absolute loader Relocating loader		
11)	Wh a) b) c) d)	ich of the following statement is T Natural languages are formal lar Formal languages are both natu PLs are formal languages None of above	nguag	jes
12)	Wh a) b) c) d)	S	a bin s the	nding is performed. time when language translator
13)	a)	ich one of the following is a opera  A ::= CD + E  a  A ::= C + D   C * D   a	ator gi b) d)	rammar A ::= CAD  C+D None of above

Set R

14) Consider the following assembly code?

START 101 READ Ν PRINT Ν

01 What is equivalent machine code?

a) 101) + 09 0, 103 102) + 100, 103103)

DS

Ν

- 101) + 08 0, 103 b) 102) + 10 0, 103 103)
- 101) + 09 0, 104 c) 102) + 11 0,103 103)
- 101) + 07 0, 103 d) 102) + 10 0,103 103)

Seat	Set	D
No.	Set	N

# T.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering SYSTEM PROGRAMMING	
-		e: Monday, 09-12-2019 Max. Marks: 60 PM To 05:30 PM	56
Instru	uctio	ns: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
Q.2	Solv	ve any three.	12
	a)	What is lexical & semantic expansion? Explain with example, how macro & subroutine differ?	
	b)	Define positional and keyword parameter with example.	
	c)	Explain assembler directives START, END, ORIGIN, EQU, and LTORG with example for each.	
	d)	Explain different types of assembly language statement.	
	e)	Explain in detail front end of toy compiler with the help of examples.	
Q.3	Solv	ve any one	80
<b>Q.</b> 5	a)	Discuss pass-I of Two pass assembler. Write an algorithm & display the content of different data structure after pass-I.	00
	b)	List and explain advanced macro facilities.	
Q.4	Expl	ain in detail fundamental language processing activities.	80
Q.5	Solv	ve any three	12
4.0	a)	List PL features which contribute to aspects of compilation and explain in brief.	-
	b)	Define and Explain following control flow concepts	
		1) Predecessors and successors	
		2) Paths	
		3) Ancestors and descendants	
		4) Dominators and post-dominators	
	c) d)	Describe program execution steps in detail with proper schematic What is overlay structured program? Explain linking of overlays with	
	e)	example.  Discuss general loading scheme with advantages and disadvantages.	
0.6	-		Λο.
Q.6	a)	re any one  Explain global common sub expression elimination with the help of data flow analysis.	80
	b)	Define and Explain following concepts used in linking.	
	-	1) EXTRN and ENTRY statements	
		2) Binary program	
		Object module with example	
Q.7	Expl	ain design of Direct linking loader.	80

Seat	Sat	6
No.	Set	3

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering**

SYSTEM PROGRAMMING Day & Date: Monday, 09-12-2019 Max. Marks: 70 Time: 02:30 PM To 05:30 PM **Instructions:** 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book. 2) Figures to the right indicate full marks. MCQ/Objective Type Questions **Duration: 30 Minutes** Marks: 14 Q.1 Choose the correct alternatives from the options and rewrite the sentence. In basic block 1) a) Loops are included b) Control can be transferred from any part of program c) First statement is destination of a transfer of control statement d) All of the above 2) If translated origin and linked origin are different, then relocation is performed by \_\_\_\_\_. a) Linker b) Loader c) Translator All of these d) 3) In loaders track or each segments assigned address is maintained by Initial PLA b) PLA a) c) External Symbol table None of the above d) 4) In absolute loading scheme relocation done by . . a) Programmer Linker b) c) Loader d) Assembler 5) Binary symbolic subroutine loader is example of \_ a) Absolute loader b) Compile-and-go loader c) Relocating loader Direct linking loader d) 6) Which of the following statement is TRUE? a) Natural languages are formal languages b) Formal languages are both natural & PL s c) PLs are formal languages d) None of above 7) Which of the following statement is NOT TRUE? a) Binding time is the time at which a binding is performed. b) Language implementation time is the time when language translator

Binding is association of one program with another program.

is designed.

d) None of above

Set S

- 8) Which one of the following is a operator grammar \_
  - a)  $A := CD + E \mid a$

- A ::= CAD | C+Db)
- c) A := C + D | C \* D | a
- d) None of above
- 9) Consider the following assembly code?

START 101

READ Ν

**PRINT** Ν

Ν DS 01

What is equivalent machine code?

101) + 090, 103

103)

101) + 080 103b)

$$102) + 100, 103$$

103)

101) + 09 0, 104

103)

101) + 07 0, 103 d)

103)

10) Consider the following assembly code

> START 100

AREG, ='5' MOVER

ADD

AREG, B MOVEM AREG, C

**STOP** 

- В DC
- '8'
- C DS 1

**END** 

The content of literal table for above code will be \_\_\_\_\_\_.

a)

Literal_Table_Pointer	Literal	Address
1	= '5'	106
2		

- Literal\_Table\_Pointer Literal Address b) = '5' 105 1 2
- Literal\_Table\_Pointer c) Literal Address = '5' 104 1
- d) None of above

Set S

11)	Consider the macro definition.			
	MOVER &F	MEM-VAL=,&INCR REG, &MEM_VAL RREG, &INCR_VA REG, &INCR_VAL	.L	_=,®=AREG
	Call of this macro a) INCR_D MEM b) INCR_D INCR c) INCR_D INCR d) All of these	/I_VAL=A, INCR_\ R_VAL=B, MEM_\	/AL=	A
12)	The statement use a) model statem c) pre-processor	ent	b)	unction is conditional statement prototypes statement
13)	Overlays are used a) Reduce execuc) Reduce memory	ution time	,	Reduce code Reduce linking requirement
14)	The register description of th	· PU register or mer /		

Seat	Set	6
No.	Set	<b>7</b>

# T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering SYSTEM PROGRAMMING	
•		e: Monday, 09-12-2019 Max. Marks: 60 PM To 05:30 PM	56
Instr	uctio	ns: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
Q.2	Solv	ve any three.	12
	a)	What is lexical & semantic expansion? Explain with example, how macro & subroutine differ?	
	b)	Define positional and keyword parameter with example.	
	c)	Explain assembler directives START, END, ORIGIN, EQU, and LTORG with example for each.	
	d)	Explain different types of assembly language statement.	
	e)	Explain in detail front end of toy compiler with the help of examples.	
Q.3	Solv	ve any one	08
4.0	a)	Discuss pass-I of Two pass assembler. Write an algorithm & display the content of different data structure after pass-I.	
	b)	List and explain advanced macro facilities.	
<b>Q.4</b>	Expl	ain in detail fundamental language processing activities.	80
Q.5	Solv	ve any three	12
	a)	List PL features which contribute to aspects of compilation and explain in brief.	
	b)	Define and Explain following control flow concepts	
		Predecessors and successors	
		2) Paths	
		3) Ancestors and descendants	
		4) Dominators and post-dominators	
	c) d)	Describe program execution steps in detail with proper schematic What is overlay structured program? Explain linking of overlays with example.	
	e)	Discuss general loading scheme with advantages and disadvantages.	
Q.6	-	ve any one	80
4.0	a)	Explain global common sub expression elimination with the help of data flow analysis.	••
	b)	Define and Explain following concepts used in linking.	
		1) EXTRN and ENTRY statements	
		<ul><li>2) Binary program</li><li>3) Object module with example</li></ul>	
Q.7	Fynl	ain design of Direct linking loader.	08
×.1	$-\lambda \rho_1$	an acoign of birot liming loader.	90

Seat	Sat	D
No.	Set	L

		T.E. (Pa		-		nation Nov/Dec-2019
			Computer So			_
			sday, 11-12-2019 05:30 PM			Max. Marks: 70
Instr	uction	boo	ok.			e solved in first 30 minutes in answer
		2) Figi	ures to the right indi			
Dura	tion: 3	0 Minutes	MCQ/Objec	tive ly	pe c	<b>Questions</b> Marks: 14
Q.1				from the	e ont	ions and rewrite the sentence. 14
<b></b>	1)	The port a) Well	s ranging from 1,024		•	re called ports. Registered None of these
	2)	<ul><li>a) proc</li><li>b) host</li><li>c) end-</li></ul>	the following functi- ess-to-process com- to-host communica- to-end reliable data- e of the choices are	municati ition delivery		P perform?
	3)	<ul><li>a) delive</li><li>b) a trace</li><li>c) A he</li></ul>	e IP layer of a receivery is complete insport layer protocoleader is added are of the choices are	ol takes o		eives a datagram,
	4)	TCP slid a) Pack c) Byte		orie	ented b) d)	l. Segment None of the choices are correct
	5)	a) Max	the size of the send imum mum	window	is the b) d)	e of rwnd and cwnd. Sum of None of the choices are correct
	6)	a) Flow	the following does control r control	UDP gua	arante b) d)	ee? connection-oriented delivery None of these
	7)	exponen a) Con	algorithm the tially until it reaches gestion avoidance attach			ngestion window increases  Congestion detection  None of the choices are correct
	8)	a) Tran	I segment called a p mer goes off. Ismission palive	orobe is s	sent b b) d)	oy a sending TCP when the  Persistence  None of these
	9)	,	ion in a computer is	stored in	, )	byte order.

b)

d)

Network

None of these

a) Hostc) Server

Set P

10)	An interface is a set of do two entities.	esigned t	o facilitate interaction between
	a) Programs	b)	Instructions
	c) Rules	d)	None of these
11)	If DHCP client and server are on intermediary called a	different	networks, there is a need for an
	a) Second client	b)	Primary server
	c) Relay agent	ď)	None of these
12)	<ul><li>NVT uses two sets of characters</li><li>a) Sending; receiving</li><li>c) Data; control</li></ul>	b)	and one for  Request; reply  None of these
13)	To distinguish data from control of characters is preceded by a special ICA c) AIC		•
14)	After sending the DHCPDISCOV state.	ER mess	sage, the client goes to the
	a) Selecting	b)	Init
	c) Requesting	ď)	None of these

Seat	Set	D
No.	Set	

		T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-26 Computer Science & Engineering COMPUTER NETWORKS	019	
•		e: Wednesday, 11-12-2019 0 PM To 05:30 PM	Max. Marks: 56	j
Instr	uctio	<ul><li>ns: 1) All questions are compulsory.</li><li>2) Figures to the right indicates full marks.</li></ul>		
		Section – I		
Q.2	Ans a) b) c) d) e)	wer any THREE from the following questions.  Explain what is DHCP and DHCP packet format and operations Explain the concept of connection oriented concurrent server.  Explain three-way handshaking in TCP connection.  Describe DNS Query and DNS response message in detail.  Describe following system calls.  1) Bind  2) Accept  3) Listen  4) Connect	12 of DHCP?	•
Q.3	Ansa a) b) c)	wer any TWO from the following questions.  What is DHCP? What is need of it? Explain concept of DHCP wire transition diagram.  Draw TCP segment format. Explain each field in detail.  What is congestion window? Explain all congestion control policies by TCP.		,
		Section – II		
Q.4	a) b) c) d)	wer any THREE from the following questions.  Explain different OPTIONS provided by TELNET.  Explain Out of Band Signaling and Escape characters concept of List out in detail the 3 steps of FTP file transfer.  Describe the following.  1) Label  2) Domain Name  3) Domain  4) Zone  5) Root Server  Write a note on TFTP.	<b>12</b> f TELNET.	<u>.</u>
0.5	e)		40	
Q.5	a) b)	wer any TWO from the following questions.  Explain the architecture of Email along with neat diagrams of all Explain all file systems of windows NT or Windows 2000.  Describe Hypertext Transfer Protocol (HTTP)	16 scenarios.	)

Seat	Set	
No.	Set	Q

		T.E	Computer	CGPA) Exam Science & E PUTER NETV	•	
			ednesday, 11-12-2019 /I To 05:30 PM	1	Max. M	arks: 70
Instr	uction		l) Q. No. 1 is compulso book. 2) Figures to the right in	•	be solved in first 30 minutes in a	answer
		2		ective Type		
Dura	tion: 3	o Mi		conve Type		arks: 14
Q.1	<b>Choo</b> 1)	A s				ce. 14
	2)		ormation in a computer Host Server	is stored in b) d)	•	
	3)	two	interface is a set of entities. Programs Rules	designed b) d)	d to facilitate interaction betweer Instructions None of these	ı
	4)	inte a)	HCP client and server ermediary called a Second client Relay agent		nt networks, there is a need for a Primary server None of these	an
	5)		T uses two sets of cha Sending; receiving Data; control		or and one for  Request; reply  None of these	
	6)		•		ers, each sequence of control trol character called IAC None of these	
	7)	Afte star a) c)		DISCOVER mes b) d)	ssage, the client goes to the Init None of these	_
	8)	The a) c)	e ports ranging from 1, Well-known Dynamic	024 to 49,151 a b) d)	are called ports. Registered None of these	

Set Q

9)	<ul> <li>Which of the following functions does UDP perform?</li> <li>a) process-to-process communication</li> <li>b) host-to-host communication</li> <li>c) end-to-end reliable data delivery</li> <li>d) None of the choices are correct</li> </ul>					
10)	a) b) c)	en the IP layer of a receiving host delivery is complete a transport layer protocol takes of A header is added none of the choices are correct		ives a datagram,		
11)		P sliding windows are orice  Packet		Segment		
	c)	Byte	d)	None of the choices are correct		
12)	In T a) c)	CP, the size of the send window Maximum Minimum		e of rwnd and cwnd. Sum of None of the choices are correct		
13)		ich of the following does UDP gua Flow control Error control		ee? connection-oriented delivery None of these		
14)	exp	he algorithm the size of the onentially until it reaches a thresh	nold.	_		
	a) c)	Congestion avoidance Slow start	d)	Congestion detection  None of the choices are correct		
	$\sim$	Cion ciait	$\mathbf{a}_{j}$	113113 31 1110 01101000 1110 0011001		

Seat	Set	
No.	Set	Q

# T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science & Engineering  COMPUTER NETWORKS	
•		te: Wednesday, 11-12-2019 Max. Ma 30 PM To 05:30 PM	arks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
		Section – I	
Q.2	Ans a) b) c) d) e)	Explain what is DHCP and DHCP packet format and operations of DHCP Explain the concept of connection oriented concurrent server.  Explain three-way handshaking in TCP connection.  Describe DNS Query and DNS response message in detail.  Describe following system calls.  1) Bind  2) Accept  3) Listen  4) Connect	<b>12</b> ??
Q.3	Ans a) b) c)	wer any TWO from the following questions.  What is DHCP? What is need of it? Explain concept of DHCP with transition diagram.  Draw TCP segment format. Explain each field in detail.  What is congestion window? Explain all congestion control policies used by TCP.	16
		Section – II	
Q.4	Ans a) b) c) d)	Explain different OPTIONS provided by TELNET.  Explain Out of Band Signaling and Escape characters concept of TELNE List out in detail the 3 steps of FTP file transfer.  Describe the following.  1) Label 2) Domain Name 3) Domain 4) Zone 5) Root Server Write a note on TFTP.	<b>12</b> T.
Q.5	Ans a) b) c)	swer any TWO from the following questions.  Explain the architecture of Email along with neat diagrams of all scenario  Explain all file systems of windows NT or Windows 2000.  Describe Hypertext Transfer Protocol (HTTP).	<b>16</b> s.

Seat	Set	D
No.	Set	K

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER NETWORKS

Day & Date: Wednesday, 11-12-2019	Max. Marks: 70
Time: 02:30 PM To 05:30 PM	

•		e: Wednesday, 11-12-2019 0 PM To 05:30 PM		Max. Marks	3: 70
Instr	uction	ns: 1) Q. No. 1 is compulsory and sho			wer
		2) Figures to the right indicates fu	ıll ma	rks.	
		MCQ/Objective Ty	ype (		
Dura	tion: 3	0 Minutes		Marks	3: 14
Q.1	<b>Cho</b> (1)	ose the correct alternatives from the In TCP, the size of the send window	is th	e of rwnd and cwnd.	14
		<ul><li>a) Maximum</li><li>c) Minimum</li></ul>	b) d)	Sum of None of the choices are correct	
	2)	<ul><li>Which of the following does UDP gu</li><li>a) Flow control</li><li>c) Error control</li></ul>	arant b) d)	tee? connection-oriented delivery None of these	
	3)	In the algorithm the size of texponentially until it reaches a thresta) Congestion avoidance c) Slow start	hold.	<u> </u>	
	4)	A special segment called a probe is timer goes off. a) Transmission c) Keepalive	sent b) d)	by a sending TCP when the  Persistence  None of these	
	5)	Information in a computer is stored i a) Host c) Server	n b) d)	byte order. Network None of these	
	6)	An interface is a set of design two entities.  a) Programs c) Rules	gned b) d)	to facilitate interaction between Instructions None of these	
	7)	If DHCP client and server are on diffintermediary called a  a) Second client c) Relay agent	ferent b) d)	Primary server None of these	
	8)	<ul><li>NVT uses two sets of characters, or</li><li>a) Sending; receiving</li><li>c) Data; control</li></ul>	ne for b) d)	and one for Request; reply None of these	
	9)	To distinguish data from control cha characters is preceded by a special a) ICA c) AIC	contr b)		

Set R

10)	After sending the DHCPDISCOVER state.  a) Selecting c) Requesting	b)	Init  None of these
11)	The ports ranging from 1,024 to 49,7 a) Well-known c) Dynamic	151 aı b) d)	Registered
12)	<ul> <li>Which of the following functions does</li> <li>a) process-to-process communication</li> <li>b) host-to-host communication</li> <li>c) end-to-end reliable data delivery</li> <li>d) None of the choices are correct</li> </ul>	tion	P perform?
13)	<ul> <li>When the IP layer of a receiving hose</li> <li>a) delivery is complete</li> <li>b) a transport layer protocol takes</li> <li>c) A header is added</li> <li>d) none of the choices are correct</li> </ul>		eives a datagram,
14)	TCP sliding windows are ori a) Packet c) Byte		Segment

Seat		
No.	Set	R

		Computer Science & Engineering	119
		COMPUTER NETWORKS	
•		te: Wednesday, 11-12-2019 30 PM To 05:30 PM	Max. Marks: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicates full marks.	
		Section – I	
Q.2	Ans a) b) c) d) e)	Explain what is DHCP and DHCP packet format and operations of Explain the concept of connection oriented concurrent server. Explain three-way handshaking in TCP connection. Describe DNS Query and DNS response message in detail. Describe following system calls.  1) Bind 2) Accept 3) Listen 4) Connect	12 of DHCP?
Q.3	Ans a) b) c)	wer any TWO from the following questions.  What is DHCP? What is need of it? Explain concept of DHCP with transition diagram.  Draw TCP segment format. Explain each field in detail.  What is congestion window? Explain all congestion control policies by TCP.	
		Section – II	
Q.4	a) b) c) d)	Explain different OPTIONS provided by TELNET.  Explain Out of Band Signaling and Escape characters concept of List out in detail the 3 steps of FTP file transfer.  Describe the following.  1) Label  2) Domain Name  3) Domain  4) Zone  5) Root Server	TELNET.
	e)	Write a note on TFTP.	
Q.5	Ans a) b) c)	<ul> <li>wer any TWO from the following questions.</li> <li>Explain the architecture of Email along with neat diagrams of all sexplain all file systems of windows NT or Windows 2000.</li> <li>Describe Hypertext Transfer Protocol (HTTP).</li> </ul>	16 scenarios.

Seat	Set	6
No.	Set	3

# T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering COMPUTER NETWORKS

COMPUTER NETWORKS					
•	Day & Date: Wednesday, 11-12-2019 Max. Marks: 70 Fime: 02:30 PM To 05:30 PM				
Instr	nstructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer book.				
		2) Figures to the right indicates full	mar	ks.	
		MCQ/Objective Ty	pe (	Questions	
Dura	tion: 3	0 Minutes	•	Marks: 14	
Q.1	<b>Choo</b> 1)	An interface is a set of design two entities.  a) Programs	-		
		c) Rules	d)	None of these	
	2)	If DHCP client and server are on different intermediary called a  a) Second client c) Relay agent	,		
	3)	NVT uses two sets of characters, one a) Sending; receiving c) Data; control	e for b) d)		
	4)	To distinguish data from control characters is preceded by a special of a) ICA c) AIC		•	
	5)	After sending the DHCPDISCOVER r state.  a) Selecting c) Requesting	mess b) d)	sage, the client goes to the Init None of these	
	6)	The ports ranging from 1,024 to 49,15 a) Well-known c) Dynamic		re called ports. Registered None of these	
	7)	Which of the following functions does a) process-to-process communication b) host-to-host communication c) end-to-end reliable data delivery d) None of the choices are correct		P perform?	
	8)	<ul> <li>When the IP layer of a receiving host</li> <li>a) delivery is complete</li> <li>b) a transport layer protocol takes o</li> <li>c) A header is added</li> <li>d) none of the choices are correct</li> </ul>		eives a datagram,	

## Set S

9)	TCP sliding windows are orie		
	a) Packet	b)	Segment
	c) Byte	d)	None of the choices are correct
10)	In TCP, the size of the send window a) Maximum c) Minimum	is the b) d)	e of rwnd and cwnd. Sum of None of the choices are correct
11)	Which of the following does UDP gua a) Flow control c) Error control	arante b) d)	ee? connection-oriented delivery None of these
12)	In the algorithm the size of the exponentially until it reaches a threshally also congestion avoidance c) Slow start	nold.	ngestion window increases  Congestion detection  None of the choices are correct
13)	A special segment called a probe is segment called a probe is segment called a probe is segment.  a) Transmission c) Keepalive	sent k b) d)	oy a sending TCP when the Persistence None of these
14)	Information in a computer is stored in a) Host c) Server	n b) d)	byte order. Network None of these

Seat	Set	6
No.	Set	3

		Computer Science & Engineering	J19	
		COMPUTER NETWORKS		
-		re: Wednesday, 11-12-2019 80 PM To 05:30 PM	Max. Marks: 5	56
Instr	uctio	ns: 1) All questions are compulsory. 2) Figures to the right indicates full marks.		
		Section – I		
Q.2	Ans a) b) c) d) e)	Explain what is DHCP and DHCP packet format and operations of Explain the concept of connection oriented concurrent server. Explain three-way handshaking in TCP connection. Describe DNS Query and DNS response message in detail. Describe following system calls.  1) Bind 2) Accept 3) Listen 4) Connect		12
Q.3	Ans a) b) c)	wer any TWO from the following questions.  What is DHCP? What is need of it? Explain concept of DHCP wit transition diagram.  Draw TCP segment format. Explain each field in detail.  What is congestion window? Explain all congestion control policie by TCP.	:h	16
		Section – II		
Q.4	Ans a) b) c) d)	Explain different OPTIONS provided by TELNET.  Explain Out of Band Signaling and Escape characters concept of List out in detail the 3 steps of FTP file transfer.  Describe the following.  1) Label  2) Domain Name  3) Domain  4) Zone  5) Root Server  Write a note on TFTP.		12
Q.5	Ans a) b) c)	ewer any TWO from the following questions.  Explain the architecture of Email along with neat diagrams of all security Explain all file systems of windows NT or Windows 2000.  Describe Hypertext Transfer Protocol (HTTP).		16

Set No.			Set	Р	1
	TE (Dort	I) (Old) (CGPA) Examination Nov/Doc 2010			-

# T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science DESIGN & ANALYSI		
•		te: Friday,13-12-2019 30 PM To 05:30 PM		Max. Marks: 70
Inst	uctio	• •	nould	be solved in first 30 minutes in answer
		book. 2) Figures to the right indicate ful	l mark	S.
		MCQ/Objective T		
Dura	ition: 3	30 Minutes		Marks: 14
Q.1	Cho	oose the correct alternatives from t	he op	tions and rewrite the sentence. 14
	1)	Big Omega stands for  a) f(n)<=g(n) c) f(n)==g(n)	b) d)	f(n)>=g(n) None
	2)	What is the time complexity for followards:  For(i:=0 to n)  For(j:=0 to n)  Python=java;  a) O(n2)	owing	pseudocode? O(n3)
		c) O(n)	ď)	None
	3)	Recurrence relations for finding Ma	x and	Min using divide and conquer
		is a) T(n)=T(n/2)+b, b is constant c) T(n)=T(n/2)+logn		T(n)=2T(n/2)+b, b is constant $T(n)=T(n/2)+n$
	4)	The Time complexity of Binary sear method	ch is	using divide and conquer
		a) O(logn) c) O(nlogn)	b) d)	O(n) None
	5)	Using Greedy method, an object i is solution sector Xi.	s place	ed into the knapsack, the value of
		a) 0 or 1 c) 0 and 1	b) d)	0< = xi<= 1 None
	6)	While solving job sequencing proble completes in unit.		
		a) 1 c) 3	b) d)	2 None
	7)	In an optimal storage on tape proble ordering of program is	em if(l	1,l2,l3)=(5,10,3) then the optimal
		a) 1,2,3 c) 3,1,2	b) d)	1,3,2 3,2,1

## Set P

8)	The correct matching for the following	• .
	A. All pair shortest path	Greedy Method
	B. Prims algorithm	2. Dynamic Programming
	C. Quick sort	3. Backtracking
	D. Hamilton Cycle	4. Divide and Conquer
	a) A-3, B-2, C-4, D-1	b) A-4, B-3, C-1, D-2
	c) A-2, B-1, C-4, D-3	d) None
9)	In flow shop scheduling OFT stands	s for
,	a) Optimal Find Time	b) Organized Finish Time
	c) Optimal Finish Time	d) None
10)	Dynamic programming works on pri	nciple of
,	a) optimality	b) feasible solutions
	c) constraint	d) None
11)	In NXN Queens's problems, the cor	nstraints are "No Two queens are
	placed" at	
	a) Same row	b) Same column
	c) Same diagonal	d) All of the above
12)	Graph coloring problem is which typ	e of algorithm design strategy.
	a) Dynamic Programming	b) Greedy Method
	c) Backtracking	d) None
13)	Hamiltonian Circuit problem belongs	s to which of the class?
	a) P	b) NP
	c) Linear	d) None of the mentioned
14)	The hardest of NP problems can be	
•	a) NP-complete	b) NP-hard
	c) P	d) None of the mentioned

Seat	
No.	

Set

P

# T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DESIGN & ANALYSIS OF ALGORITHM

Day & Date: Friday,13-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Solve any three questions.

a) Write a note on Asymptotic Notations with example.

- **b)** Explain time and space complexity with suitable example.
- c) Prove that time complexity of Binary search is O(logn).
- d) Find an optimal solution to knapsack problem using greedy method. M=20, n=3 (p1.....p3)={25,24,15} and (w1......w3)={18,15,10}

## Q.3 Solve any one question.

08

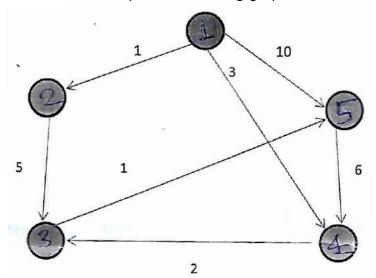
12

Sort the following elements using Quick Sort.

45, 36, 15, 92, 35, 71, 20

#### OR

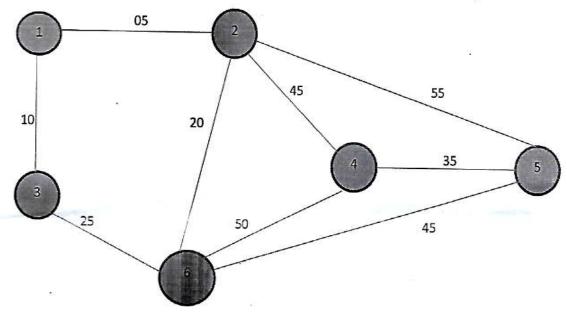
Find the single source shortest path of following graph. Take vertex 1 as vertex.



Set P

**Q.4** Find minimum weight /cost spanning tree using Kruskal algorithm.

80

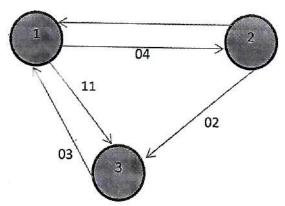


Section - II

#### Q.5 Solve any three questions.

12

- Solve 0/1 Knapsack problem using dynamic programming. M=8, n=4 profit={1,2,5,6} and weight={2,3,4,5}
- **b)** Find all pair shortest path using dynamic programming.



- c) Explain Hamiltonian Cycle with suitable example.
- d) Write brief note on P, NP, NP -complete and NP Hard problems.

#### Q.6 Solve any one.

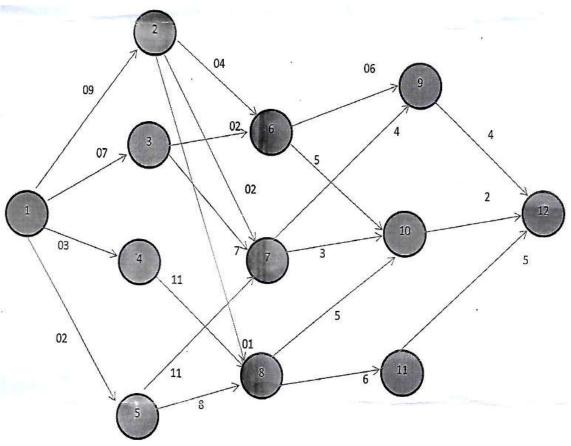
80

Given W[1:6]={5,10,12,13,15,18}, m=30 and n=6. Find all possible subsets of w that sum to m. Draw the portion of the state space tree that is generated.

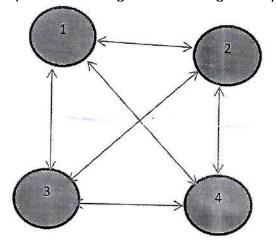
OR

Set P

Find minimum cost path from s to t multistage graph using forward approach.



Q.7 Consider the following directed graph and edge length are given by matrix. Find optimal tour length of travelling sales person problem.



Γ0	10	15	207
5	0	9	10
6	13	0	12
LΩ	Ω	9	n J

Set	Set	
No.	Set	Q

	T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DESIGN & ANALYSIS OF ALGORITHM				
		e: Friday,13-12-2019 Max. Marks: 70 30 PM To 05:30 PM	)		
Instr	uctio	ns: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answe	r		
		book. 2) Figures to the right indicate full marks.			
		MCQ/Objective Type Questions			
Dura	tion: 3	30 Minutes Marks: 14	1		
<b>Q.1</b>		The correct alternatives from the options and rewrite the sentence.  E. All pair shortest path F. Prims algorithm G. Quick sort H. Hamilton Cycle A-3, B-2, C-4, D-1 C) A-2, B-1, C-4, D-3  Marks: Text algorithm and rewrite the sentence.  5. Greedy Method 6. Dynamic Programming 7. Backtracking 8. Divide and Conquer 8. A-4, B-3, C-1, D-2 9. A-4, B-3, C-1, D-2 9. A-4, B-3, C-1, D-2 9. A-6, B-1, C-4, D-3 9. A-7			
	2)	In flow shop scheduling OFT stands for  a) Optimal Find Time b) Organized Finish Time c) Optimal Finish Time d) None			
	3)	Dynamic programming works on principle of  a) optimality b) feasible solutions c) constraint d) None			
	4)	In NXN Queens's problems, the constraints are "No Two queens are placed" at  a) Same row b) Same column c) Same diagonal d) All of the above			
	5)	Graph coloring problem is which type of algorithm design strategy.  a) Dynamic Programming b) Greedy Method  c) Backtracking d) None			
	6)	Hamiltonian Circuit problem belongs to which of the class?  a) P  b) NP  c) Linear  d) None of the mentioned			
	7)	The hardest of NP problems can be a) NP-complete b) NP-hard c) P d) None of the mentioned			
	8)	Big Omega stands for  a) $f(n) <= g(n)$			

Set Q

9)	What is the time complexity for follow For(i:=0 to n) For(j:=0 to n)	ving p	eseudocode?
	Python=java; a) O(n2)	b)	O(n3)
	c) O(n)	d)	None
10)	Recurrence relations for finding Max is	and l	Min using divide and conquer
	<ul><li>a) T(n)=T(n/2)+b, b is constant</li><li>c) T(n)=T(n/2)+logn</li></ul>	,	T(n)=2T(n/2)+b, b is constant $T(n)=T(n/2)+n$
11)	The Time complexity of Binary searc method	h is u	ising divide and conquer
	a) O(logn)	b)	O(n)
	c) O(nlogn)	d)	None
12)	Using Greedy method, an object i is solution sector Xi.	place	ed into the knapsack, the value of
	a) 0 or 1	b)	0 < = xi < = 1
	c) 0 and 1	d)	None
13)	While solving job sequencing problem completes in unit.	m usi	ng greedy method, each job
	a) 1	b)	2
	c) 3	d)	None
14)	In an optimal storage on tape problem ordering of program is	m if(l	1,l2,l3)=(5,10,3) then the optimal
	a) 1,2,3	b)	1,3,2
	c) 3,1,2	d)	3,2,1

Seat	Sat	
No.	Set	Q

# T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DESIGN & ANALYSIS OF ALGORITHM

Day & Date: Friday,13-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Solve any three questions.

a) Write a note on Asymptotic Notations with example.

- **b)** Explain time and space complexity with suitable example.
- c) Prove that time complexity of Binary search is O(logn).
- d) Find an optimal solution to knapsack problem using greedy method. M=20, n=3

 $(p1....p3)={25,24,15}$  and  $(w1....w3)={18,15,10}$ 

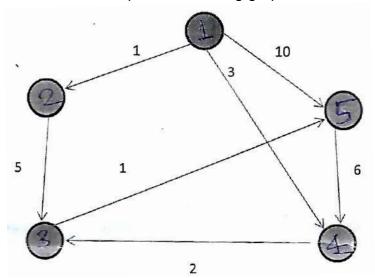
#### Q.3 Solve any one question.

Sort the following elements using Quick Sort.

45, 36, 15, 92, 35, 71, 20

#### OR

Find the single source shortest path of following graph. Take vertex 1 as vertex.



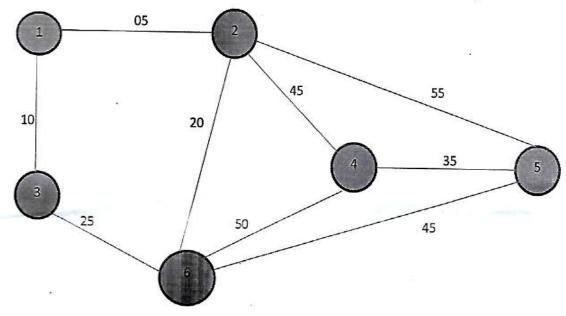
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80

Set Q

**Q.4** Find minimum weight /cost spanning tree using Kruskal algorithm.

80

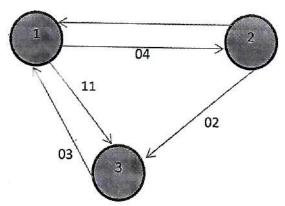


Section - II

#### Q.5 Solve any three questions.

12

- Solve 0/1 Knapsack problem using dynamic programming. M=8, n=4 profit={1,2,5,6} and weight={2,3,4,5}
- **b)** Find all pair shortest path using dynamic programming.



- c) Explain Hamiltonian Cycle with suitable example.
- d) Write brief note on P, NP, NP -complete and NP Hard problems.

#### Q.6 Solve any one.

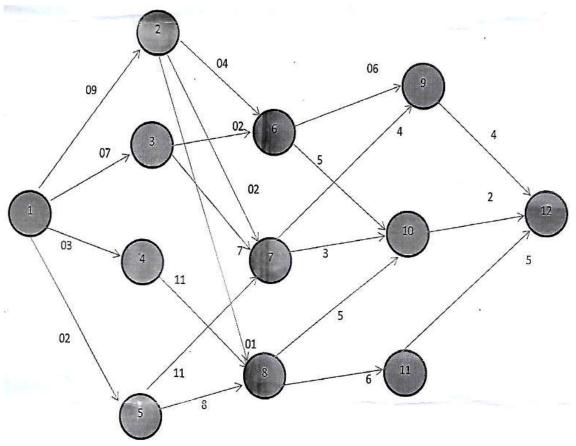
80

Given W[1:6]={5,10,12,13,15,18}, m=30 and n=6. Find all possible subsets of w that sum to m. Draw the portion of the state space tree that is generated.

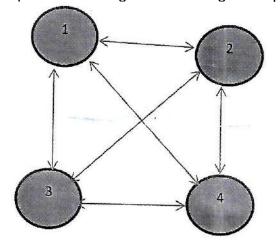
OR

Set Q

Find minimum cost path from s to t multistage graph using forward approach.



Q.7 Consider the following directed graph and edge length are given by matrix. Find optimal tour length of travelling sales person problem.



Γ0	10	15	207
5	0	9	10
6	13	0	12
LΩ	Ω	9	n J

Set No. Set R	?
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		Computer Science	e & Engineering	
Day	& Dat	<b>DESIGN &amp; ANALYS</b> e: Friday,13-12-2019	<b>15 OF ALGORITHM</b> Max. Mark	ks: 70
		0 PM To 05:30 PM		
Instr	uctio	· · · · · · · · · · · · · · · · · · ·	hould be solved in first 30 minutes in ar	nswer
		book. 2) Figures to the right indicate for	ll marks.	
		MCQ/Objective	ype Questions	
Dura	tion: 3	30 Minutes	Mark	ks: 14
Q.1	<b>Cho</b> 1)		the options and rewrite the sentence is placed into the knapsack, the value of	
		a) 0 or 1 c) 0 and 1	b) 0< = xi<= 1 d) None	
	2)	While solving job sequencing prob completes in unit. a) 1 c) 3	em using greedy method, each job b) 2 d) None	
	3)	In an optimal storage on tape probordering of program is  a) 1,2,3 c) 3,1,2	lem if(I1,I2,I3)=(5,10,3) then the optimal b) 1,3,2 d) 3,2,1	
	4)	The correct matching for the follow I. All pair shortest path J. Prims algorithm K. Quick sort L. Hamilton Cycle a) A-3, B-2, C-4, D-1 c) A-2, B-1, C-4, D-3	ing pairs is  9. Greedy Method  10. Dynamic Programming  11. Backtracking  12. Divide and Conquer  b) A-4, B-3, C-1, D-2  d) None	
	5)	In flow shop scheduling OFT standa) Optimal Find Time c) Optimal Finish Time	s for b) Organized Finish Time d) None	
	6)	Dynamic programming works on page 2 a) optimality c) constraint	rinciple of b) feasible solutions d) None	
	7)	In NXN Queens's problems, the conclusion placed at  a) Same row c) Same diagonal	nstraints are "No Two queens are b) Same column d) All of the above	
	8)	Graph coloring problem is which to a) Dynamic Programming c) Backtracking	pe of algorithm design strategy. b) Greedy Method d) None	

Set R

9)	Hamiltonian Circuit problem belongs	to wh	nich of the class?
	a) P	b)	NP
	c) Linear	d)	None of the mentioned
10)	The hardest of NP problems can be		_ <del>.</del>
	a) NP-complete	b)	NP-hard
	c) P	d)	None of the mentioned
11)	Big Omega stands for		
	a) $f(n) \le g(n)$	b)	f(n) >= g(n)
	c) $f(n)==g(n)$	d)	None
12)	What is the time complexity for follow For(i:=0 to n) For(j:=0 to n) Python=java; a) O(n2)	ving p	oseudocode? O(n3)
	c) O(n)	ď)	None
13)	Recurrence relations for finding Max is  a) T(n)=T(n/2)+b, b is constant c) T(n)=T(n/2)+logn	b)	
14)	The Time complexity of Binary search method	h is ι	ising divide and conquer
	a) O(logn)	b)	O(n)
	c) O(nlogn)	d)	None
	-, - ( 3 )	ω,	

12

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No.	Set	K

# T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DESIGN & ANALYSIS OF ALGORITHM

Day & Date: Friday,13-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Solve any three questions.

a) Write a note on Asymptotic Notations with example.

- b) Explain time and space complexity with suitable example.
- c) Prove that time complexity of Binary search is O(logn).
- d) Find an optimal solution to knapsack problem using greedy method. M=20, n=3

 $(p1....p3)={25,24,15}$  and  $(w1....w3)={18,15,10}$ 

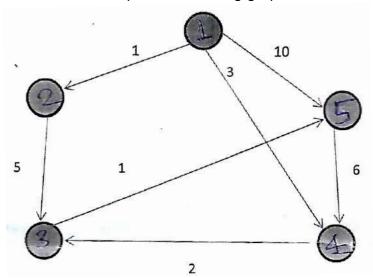
#### Q.3 Solve any one question.

Sort the following elements using Quick Sort.

45, 36, 15, 92, 35, 71, 20

#### OR

Find the single source shortest path of following graph. Take vertex 1 as vertex.

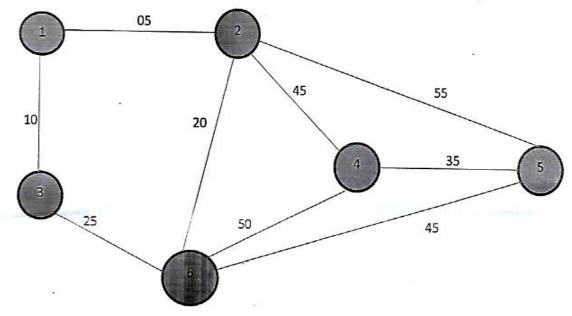


Page **13** of **20** 

Set R

Q.4 Find minimum weight /cost spanning tree using Kruskal algorithm.

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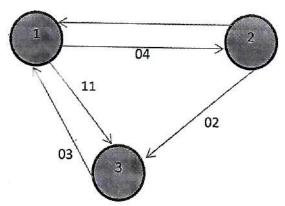


Section - II

#### Q.5 Solve any three questions.

12

- Solve 0/1 Knapsack problem using dynamic programming.M=8, n=4 profit={1,2,5,6} and weight={2,3,4,5}
- **b)** Find all pair shortest path using dynamic programming.



- c) Explain Hamiltonian Cycle with suitable example.
- d) Write brief note on P, NP, NP -complete and NP Hard problems.

#### Q.6 Solve any one.

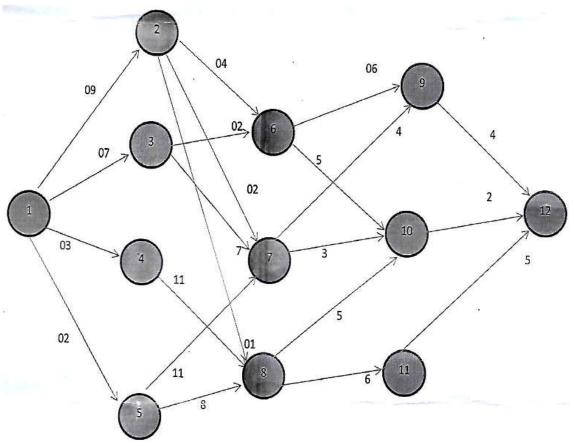
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Given W[1:6]={5,10,12,13,15,18}, m=30 and n=6. Find all possible subsets of w that sum to m. Draw the portion of the state space tree that is generated.

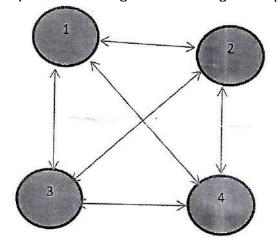
OR

Set R

Find minimum cost path from s to t multistage graph using forward approach.



Q.7 Consider the following directed graph and edge length are given by matrix. Find optimal tour length of travelling sales person problem.



Γ0	10	15	201
5 6	0	9	10
6	13	0	12
LΩ	Ω	9	L۸

Set	Set	0
No.	Set	3

# T.E. (Part - I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science DESIGN & ANALYS	ce & E	ngineering			
•		te: Friday,13-12-2019 BO PM To 05:30 PM		Max. Marks: 70			
Insti	ructio	· · · · · · · · · · · · · · · · · · ·	should	be solved in first 30 minutes in answer			
		book. 2) Figures to the right indicate fu	ıll mark	S.			
		MCQ/Objective	Type C	uestions			
Dura	tion:	30 Minutes		Marks: 14			
Q.1	<b>Cho</b>	Choose the correct alternatives from the options and rewrite the sentence. 14  1) Dynamic programming works on principle of					
	.,	a) optimality     c) constraint	b) d)	feasible solutions None			
	2)	In NXN Queens's problems, the constraints are "No Two queens are placed" at					
		a) Same row c) Same diagonal	b) d)	Same column All of the above			
	3)	Graph coloring problem is which ty a) Dynamic Programming c) Backtracking	/pe of a b) d)	algorithm design strategy. Greedy Method None			
	4)	Hamiltonian Circuit problem belon a) P c) Linear	gs to w b) d)	hich of the class? NP None of the mentioned			
	5)	The hardest of NP problems can base a) NP-complete c) P	b) d)	 NP-hard None of the mentioned			
	6)	Big Omega stands for  a) f(n)<=g(n) c) f(n)==g(n)	b) d)	f(n)>=g(n) None			
	7)	What is the time complexity for fol For(i:=0 to n) For(j:=0 to n) Python=java; a) O(n2) c) O(n)	lowing   b) d)	O(n3) None			
	8)	Recurrence relations for finding Max and Min using divide and conquer is  a) T(n)=T(n/2)+b, b is constant b) T(n)=2T(n/2)+b, b is constant					
	9)	c) T(n)=T(n/2)+logn d) T(n)=T(n/2)+n  The Time complexity of Binary search is using divide and conquer method					

b)

ď)

O(n) None

a) O(logn) c) O(nlogn)

Set S

Using Greedy method, an object i is solution sector Xi.	place	ed into the knapsack, the value of
a) 0 or 1	b)	0 < = xi < = 1
c) 0 and 1	d)	None
	m us	ing greedy method, each job
	b)	2
c) 3	d)	_ None
In an optimal storage on tape proble ordering of program is	m if(l	1,l2,l3)=(5,10,3) then the optimal
a) 1,2,3	b)	1,3,2
c) 3,1,2	ď)	3,2,1
The correct matching for the followin	g pai	irs is
M. All pair shortest path		13. Greedy Method
N. Prims algorithm		14. Dynamic Programming
O. Quick sort		15. Backtracking
P. Hamilton Cycle		16. Divide and Conquer
a) A-3, B-2, C-4, D-1	b)	A-4, B-3, C-1, D-2
c) A-2, B-1, C-4, D-3	ď)	None
In flow shop scheduling OFT stands	for _	
<ul> <li>a) Optimal Find Time</li> </ul>	b)	Organized Finish Time
c) Optimal Finish Time	d)	None
	solution sector Xi. a) 0 or 1 c) 0 and 1 While solving job sequencing problet completes in unit. a) 1 c) 3 In an optimal storage on tape problet ordering of program is a) 1,2,3 c) 3,1,2 The correct matching for the following M. All pair shortest path N. Prims algorithm O. Quick sort P. Hamilton Cycle a) A-3, B-2, C-4, D-1 c) A-2, B-1, C-4, D-3 In flow shop scheduling OFT stands a) Optimal Find Time	a) 0 or 1 b) c) 0 and 1 d)  While solving job sequencing problem us completes in unit. a) 1 b) c) 3 d)  In an optimal storage on tape problem if(I ordering of program is a) 1,2,3 b) c) 3,1,2 d)  The correct matching for the following parm M. All pair shortest path N. Prims algorithm O. Quick sort P. Hamilton Cycle a) A-3, B-2, C-4, D-1 b) c) A-2, B-1, C-4, D-3 d)  In flow shop scheduling OFT stands for _a) Optimal Find Time b)

Seat No.

Set

S

## T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering DESIGN & ANALYSIS OF ALGORITHM

Day & Date: Friday,13-12-2019 Max. Marks: 56

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions are compulsory.

2) Figure to the right indicates full marks.

#### Section - I

#### Q.2 Solve any three questions.

12

- a) Write a note on Asymptotic Notations with example.
- **b)** Explain time and space complexity with suitable example.
- c) Prove that time complexity of Binary search is O(logn).
- d) Find an optimal solution to knapsack problem using greedy method. M=20, n=3 (p1.....p3)={25,24,15} and (w1......w3)={18,15,10}

#### Q.3 Solve any one question.

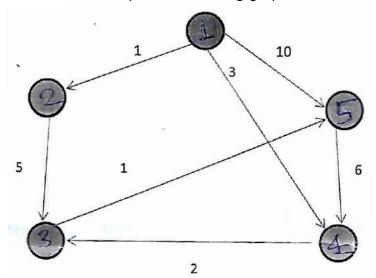
80

Sort the following elements using Quick Sort.

45, 36, 15, 92, 35, 71, 20

#### OR

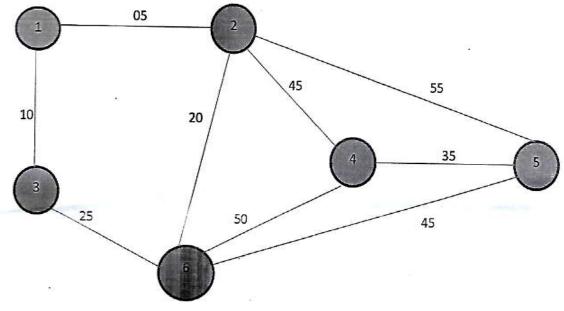
Find the single source shortest path of following graph. Take vertex 1 as vertex.



Set S

**Q.4** Find minimum weight /cost spanning tree using Kruskal algorithm.

80

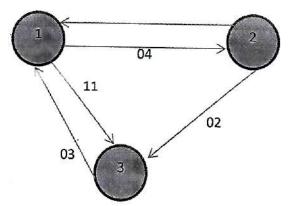


Section - II

#### Q.5 Solve any three questions.

12

- Solve 0/1 Knapsack problem using dynamic programming.M=8, n=4 profit={1,2,5,6} and weight={2,3,4,5}
- **b)** Find all pair shortest path using dynamic programming.



- c) Explain Hamiltonian Cycle with suitable example.
- d) Write brief note on P, NP, NP -complete and NP Hard problems.

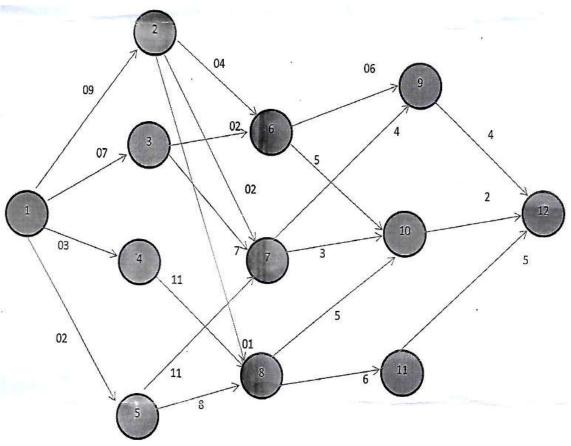
#### Q.6 Solve any one.

80

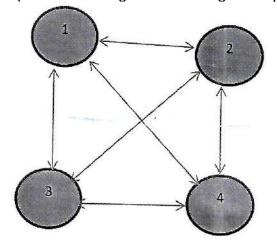
Given W[1:6]={5,10,12,13,15,18}, m=30 and n=6. Find all possible subsets of w that sum to m. Draw the portion of the state space tree that is generated.

OR

Find minimum cost path from s to t multistage graph using forward approach.



Q.7 Consider the following directed graph and edge length are given by matrix. Find optimal tour length of travelling sales person problem.



Γ0	10	15	207
5 6	0	9	10 12
6	13	0	12
Lα	8	9	οJ

Seat	Sat	D
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# T.F. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019

		Computer Science	2 & E	ngineering	
•		e: Monday, 16-12-2019 0 PM To 05:30 PM	.OAI	Max. Ma	arks: 70
Insti	uctio	ns: 1) Q. No. 1 is compulsory and sh book.			answer
		<ol> <li>Figures to the right indicate full MCQ/Objective T</li> </ol>			
Dura	ition: 3	30 Minutes	ype		arks: 14
Q.1	<b>Cho</b> (1)	ose the correct alternatives from the In Analytical Engine computing ALU a) Store c) Mill	•		14
	2)	register keeps the track of in a) AR (Address Register) c) PC (Program Counter)	b)	ions stored in memory. IR (Index Register) AC (Accumulator)	
	3)	How many bits are used in single p representation? a) 32 c) 64	recision b) d)	on floating point format  16 36	
	4)	What is the width of exponent field a) 23 bit c) 11 bit	in sing b) d)	gle precision format? 52 bit 8 bit	
	5)	Ferrite cores becoming the dominal generation.  a) First c) Third	nt tecl b) d)	nnology for main memories in  Second  None of these	
	6)	PLA in hardwired control unit designal Parallel Architecture c) Programmable Logic Arrays	n stan b) d)	ds for Parallel Loop Array Parallel Loop Architecture	
	7)	Specify the operation that transfer value a) Store c) SET	vord f b) d)	rom processor to memory Load Transfer	
	8)	The access efficiency of the two leva) 1/r+(1-r)H c) r/r+(1-r)H	vel me b) d)	emories is given by 1/r-(1+r)H r/r-(1+r)H	

Set P

9)	Mei a) b) c) d)	mory management is mainly imple main-secondary memory hierarc Cache-secondary memory hiera Cache-main memory hierarchy None	hy	ted by hardware in case of
10)	Wh a) c)	ich of the following is the shared r UMA COMA	memo b) d)	ory multiprocessor model? NUMA All
11)	to r a)	•	write,	curring before j. If instruction j tries then the hazard is of type WAW Structural Hazard
12)	eac a) b)	w does the processor in loosely co ch other? Through shared memory Through I/O Through message transfer syste None	·	d system communicate with
13)	a)	e usual BUS structure used to con Star BUS structure Single BUS structure		Multiple BUS structure
14)		e method of synchronizing the pro device sends a signal when it is r Exceptions Interrupts		is

Seat	Sat	D
No.	Set	

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 **Computer Science & Engineering COMPUTER ORGANIZATION** Day & Date: Monday, 16-12-2019 Max. Marks: 56 Time: 02:30 PM To 05:30 PM **Instructions:** 1) All questions are compulsory. 2) Figures to the right indicate full marks. Section - I Solve any three. 12 a) Write note on bus hierarchical architecture. **b)** Differentiate RISC and CISC. c) Draw and explain the hardwired control unit organization. **d)** Explain how ripple carry adder work? Write drawbacks of ripple carry adder. e) Perform (-9\*-4) by using booth's algorithm. Q.3 Solve any two. 16 a) What is the addressing mode? Explain the different types addressing mode with example. b) Explain Booth's algorithm with example and hardware implementation of Booth's algorithm. c) Explain ISA architecture. d) Perform 29/3 using restoring algorithm and 24/8 using non-restoring algorithm. Section - II Solve any three. 12 a) Write a short note on Interleaved Memory. **b)** Draw and explain Generic Vector Architecture. c) Write a short note on Data Hazard in Pipelining. d) Draw & explain Selector I/O Channel Architecture. Q.5 Solve any two. 16 a) Draw & Explain Tightly Coupled & Loosely Coupled Multiprocessor Architecture. **b)** What is DMA? Explain with neat diagram DMA Controller. c) What is Cache Coherency? Explain any three techniques to maintain

coherency.

Seat	Set	
No.	Set	Q

		T.E. (Part – I) (Old) (CGPA) Exa Computer Science & COMPUTER ORGA	Eng	<b>jineering</b>
•		e: Monday, 16-12-2019 O PM To 05:30 PM		Max. Marks: 70
Instr	ructio	hs: 1) Q. No. 1 is compulsory and shoul book.		solved in first 30 minutes in answer
		2) Figures to the right indicate full m		voctions
Dura	ation: (	MCQ/Objective Typ 0 Minutes	t <b>Q</b> u	Marks: 14
Q.1	<b>Cho</b> 1)	The access efficiency of the two level o	nemo ) 1,	
	2)	Memory management is mainly implema) main-secondary memory hierarchy b) Cache-secondary memory hierarchy c) Cache-main memory hierarchy d) None	,	d by hardware in case of
	3)	Which of the following is the shared me a) UMA b c) COMA	) Ň	IUMA
	4)	Consider two instructions i and j, with i to read a source before instruction i wr a) RAW b c) WAR	te, th )	•
	5)	How does the processor in loosely couleach other?  a) Through shared memory b) Through I/O c) Through message transfer system d) None	pled	system communicate with
	6)	,	) M	e I/O devices is fultiple BUS structure lode to Node BUS structure
	7)	The method of synchronizing the proceed the device sends a signal when it is read a) Exceptions by the control of the device sends a signal when it is read a) Exceptions by the control of the device sends a signal when it is read a) Exceptions by the control of	ady is ) S	
	8)	In Analytical Engine computing ALU's a) Store b c) Mill	) (	alled as Operations cards Iill and Store

Set Q

9)		register keeps the track of ins	tructi	ons stored in memory.
,	a)	AR (Address Register)	b)	IR (Index Register)
	c)	PC (Program Counter)		
10)		w many bits are used in single preresentation?	ecisio	n floating point format
	a) c)	32 64	b) d)	16 36
11)	Wh a) c)	at is the width of exponent field in 23 bit 11 bit	n sing b) d)	le precision format? 52 bit 8 bit
12)	Fer	rite cores becoming the dominangerite generation.	t tech	nology for main memories in
	a) c)	•	b) d)	Second None of these
13)	PL/ a) c)	A in hardwired control unit design Parallel Architecture Programmable Logic Arrays	b)	Parallel Loop Array
14)	Spe a) c)	ecify the operation that transfer w Store SET	ord fr b) d)	om processor to memory Load Transfer

Seat	Set	O
No.		G

		T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019 Computer Science & Engineering	
		COMPUTER ORGANIZATION	
		te: Monday, 16-12-2019 Max. Marks: 30 PM To 05:30 PM	56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	a) b) c) d)	Write note on bus hierarchical architecture.  Differentiate RISC and CISC.  Draw and explain the hardwired control unit organization.  Explain how ripple carry adder work? Write drawbacks of ripple carry adder.	12
Q.3		Perform (-9*-4) by using booth's algorithm. <b>(ve any two.</b> What is the addressing mode? Explain the different types addressing mode with example.  Explain Booth's algorithm with example and hardware implementation of	16
	•	Booth's algorithm.  Explain ISA architecture.	
		Section – II	
Q.4	a) b)	ve any three. Write a short note on Interleaved Memory. Draw and explain Generic Vector Architecture. Write a short note on Data Hazard in Pipelining. Draw & explain Selector I/O Channel Architecture.	12
Q.5	a)	ve any two.  Draw & Explain Tightly Coupled & Loosely Coupled Multiprocessor  Architecture.	16
	c)	What is DMA? Explain with neat diagram DMA Controller. What is Cache Coherency? Explain any three techniques to maintain coherency.	

No. Set R
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		Computer Science COMPUTER OR	& E	<b>Engineering</b>
		te: Monday, 16-12-2019 30 PM To 05:30 PM		Max. Marks: 70
Insti	ructio	bns: 1) Q. No. 1 is compulsory and sho book. 2) Figures to the right indicate full		be solved in first 30 minutes in answer
		MCQ/Objective Ty		
Dura	ation: 3	30 Minutes	, 60	Marks: 14
Q.1	<b>Cho</b> 1)	Pose the correct alternatives from the Ferrite cores becoming the dominar generation.		
		a) First c) Third	b) d)	Second None of these
	2)	PLA in hardwired control unit design a) Parallel Architecture c) Programmable Logic Arrays	star b) d)	
	3)	Specify the operation that transfer water a) Store c) SET	ord f b) d)	rom processor to memory Load Transfer
	4)	The access efficiency of the two leveral 1/r+(1-r)H c) r/r+(1-r)H	el me b) d)	emories is given by 1/r-(1+r)H r/r-(1+r)H
	5)	Memory management is mainly imp a) main-secondary memory hierard b) Cache-secondary memory hierard c) Cache-main memory hierarchy d) None	chy	·
	6)	Which of the following is the shared a) UMA c) COMA	mem b) d)	nory multiprocessor model? NUMA All
	7)	Consider two instructions i and j, wit to read a source before instruction i a) RAW c) WAR		, ,
	8)	How does the processor in loosely of each other?  a) Through shared memory b) Through I/O c) Through message transfer systed) None	·	ed system communicate with

Set R

9)	The a) c)	e usual BUS structure used to cor Star BUS structure Single BUS structure	b)	the I/O devices is  Multiple BUS structure  Node to Node BUS structure
10)		e method of synchronizing the pro device sends a signal when it is a Exceptions Interrupts	eady	
11)	In A a) c)	Analytical Engine computing ALU' Store Mill		called as Operations cards Mill and Store
12)		register keeps the track of ins AR (Address Register) PC (Program Counter)	b)	IR (Index Register)
13)		w many bits are used in single pre resentation? 32 64	ecisio b) d)	n floating point format 16 36
14)	Wh a) c)	at is the width of exponent field in 23 bit 11 bit	sing b) d)	le precision format? 52 bit 8 bit

Seat	Cat	П
No.	Set	K

		T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019	
		Computer Science & Engineering COMPUTER ORGANIZATION	
-		ate: Monday, 16-12-2019 Max. Marks 30 PM To 05:30 PM	: 56
Instr	uctio	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	a) b) c)	Write note on bus hierarchical architecture.  Differentiate RISC and CISC.  Draw and explain the hardwired control unit organization.  Explain how ripple carry adder work? Write drawbacks of ripple carry adder.  Perform (-9*-4) by using booth's algorithm.	12
Q.3	a) b)	What is the addressing mode? Explain the different types addressing mode with example.  Explain Booth's algorithm with example and hardware implementation of Booth's algorithm.  Explain ISA architecture.  Perform 29/3 using restoring algorithm and 24/8 using non-restoring algorithm.	16
		Section – II	
Q.4	a)	Write a short note on Interleaved Memory. Draw and explain Generic Vector Architecture. Write a short note on Data Hazard in Pipelining. Draw & explain Selector I/O Channel Architecture.	12
Q.5	a)	Draw & Explain Tightly Coupled & Loosely Coupled Multiprocessor Architecture. What is DMA? Explain with neat diagram DMA Controller. What is Cache Coherency? Explain any three techniques to maintain coherency.	16

Seat	Set	9
No.	Set	3

		T.E. (Part – I) (Old) (CGPA) E: Computer Science COMPUTER OR	& E	ngineering	
-		e: Monday, 16-12-2019 0 PM To 05:30 PM		Max. Marks:	: 70
Instr	uctio	ns: 1) Q. No. 1 is compulsory and sho book.			/er
		2) Figures to the right indicate full			
Dura	tion: 2	MCQ/Objective Ty 30 Minutes	/pe	<b>Questions</b> Marks	. 11
Dura <b>Q.1</b>					. 14 14
Q. I	1)	ose the correct alternatives from the Which of the following is the shared a) UMA c) COMA	-		14
	2)	Consider two instructions i and j, wit to read a source before instruction i a) RAW c) WAR			
	3)	How does the processor in loosely of each other?  a) Through shared memory b) Through I/O c) Through message transfer systed) None	·	ed system communicate with	
	4)	The usual BUS structure used to co a) Star BUS structure c) Single BUS structure	nnect b) d)	the I/O devices is  Multiple BUS structure  Node to Node BUS structure	
	5)	The method of synchronizing the prothe device sends a signal when it is a) Exceptions c) Interrupts			
	6)	In Analytical Engine computing ALU a) Store c) Mill	's are b) d)	called as Operations cards Mill and Store	
	7)	<ul><li>register keeps the track of instal</li><li>a) AR (Address Register)</li><li>c) PC (Program Counter)</li></ul>	struct b) d)	ions stored in memory. IR (Index Register) AC (Accumulator)	
	8)	How many bits are used in single pr representation? a) 32 c) 64	ecisio b) d)	on floating point format 16 36	

Set S

9)	What is the width of	exponent field in	sing	le precision format?
•	a) 23 bit	•	b)	52 bit
	c) 11 bit		ď)	8 bit
10)	Ferrite cores becomi generation.	ng the dominant	tech	nology for main memories in
	a) First c) Third		b) d)	Second None of these
11)	PLA in hardwired cor a) Parallel Architec c) Programmable L	ture	b)	ds for Parallel Loop Array Parallel Loop Architecture
12)	Specify the operation a) Store c) SET	n that transfer wo	ord fro b) d)	om processor to memory Load Transfer
13)	The access efficienc a) 1/r+(1-r)H c) r/r+(1-r)H		b)	mories is given by 1/r-(1+r)H r/r-(1+r)H
14)	Memory management a) main-secondary b) Cache-secondary c) Cache-main ment d) None	memory hierarch y memory hierar	าy	ted by hardware in case of

Seat	Set	9
No.	Set	3

		T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019  Computer Science & Engineering	
		COMPUTER ORGANIZATION	
•		ate: Monday, 16-12-2019 Max. Marks 30 PM To 05:30 PM	: 56
Instr	ucti	ons: 1) All questions are compulsory. 2) Figures to the right indicate full marks.	
		Section – I	
Q.2	a) b) c)	Write note on bus hierarchical architecture.  Differentiate RISC and CISC.  Draw and explain the hardwired control unit organization.  Explain how ripple carry adder work? Write drawbacks of ripple carry adder.  Perform (-9*-4) by using booth's algorithm.	12
Q.3	a) b)	What is the addressing mode? Explain the different types addressing mode with example.  Explain Booth's algorithm with example and hardware implementation of Booth's algorithm.  Explain ISA architecture.  Perform 29/3 using restoring algorithm and 24/8 using non-restoring algorithm.	16
		Section – II	
Q.4		Ive any three. Write a short note on Interleaved Memory. Draw and explain Generic Vector Architecture. Write a short note on Data Hazard in Pipelining. Draw & explain Selector I/O Channel Architecture.	12
Q.5	a)	Ive any two.  Draw & Explain Tightly Coupled & Loosely Coupled Multiprocessor Architecture.  What is DMA? Explain with neat diagram DMA Controller.  What is Cache Coherency? Explain any three techniques to maintain coherency.	16

Seat	Set	D
No.	Set	L

	S.E. (Part – II) (Old) E Computer Scie FORMAL SYS	ence & Er	ngineering
•	e: Thursday, 28-11-2019 0 PM To 05:30 PM		Max. Marks: 100
Instruction	<ul><li>s: 1) Q. No. 1 is compulsory and book.</li><li>2) Figures to the right indication of the suitable data if not be a suitable data if not be a suitable data.</li></ul>	te full marks	e solved in first 30 minutes in answers.
D. matiana C	MCQ/Objectiv	e Type Q	
Duration: 3		414:	Marks: 20
<b>Q.1 Cho</b> (1)	If a language is regular, then it a) FA only c) FA, PDA and TM	is can be re b)	ons and rewrite the sentence. 20 ecognized by  FA and PDA only FA and Tm only
2)	The language $L = \{x   x \text{ has equ} \}$ is a) Not regular c) Finite	b)	of occurrences of 0's and 1's} Equal to $\{0^n, 1^n   n \ge 0\}$ Not Context Free
3)	How many words are there in t expression $(o \cup \land)$ $(1 \cup 0 \ 11)$ a) 3 c) 7	(∧∪1)? b)	e described by the regular  4  None
4)	The $\delta$ function for $NFA - \Lambda$ function $\delta: Q \times (\varepsilon \cup \{\Lambda\} \rightarrow 2^Q)$ c) $\delta: Q \times (\varepsilon \cup \{\Lambda\} \rightarrow Q)$	b)	$\delta: Q \times \varepsilon \to 2^Q$
5)	If the $NFA - \Lambda$ for any $q \leftarrow Q, \delta$ a) $q$ c) $\Lambda (\{q\})$	b)	
6)	The regular expression for the a) $(11 + 110)^*(1 + 0)$ c) $(11 + 110)^* + 10$	b)	= $\{11,110\}^*\{10\}$ is $(11+110)^*10$ $(11110)^*10$
7)	Which of the following string is $(11+110)^*0$ ? a) 1100 c) 110	not describ b) d)	ed by the regular expression  1110  11110

## Set P

8)	The CFG for the language $\{a^n, b^n   n \}$ a) $S \rightarrow abS   \Lambda$		is $S \longrightarrow abS ab$
	c) $S \rightarrow aSb ab$		$S \longrightarrow Sab \mid \Lambda$
9)	If any string in the CFG have more to derivation tree, then CFG is said to a) Ambiguous c) CNF	be b)	ne leftmost or rightmost  Unambiguous Regular
10)	The context- free languages are not a) Union c) Concatenation	t close b)	•
11)	The pumping lemma for regular langa) A language is not regular c) A language is not context-free	b)	A language is regular
12)	The Turing Machine acts as a) A language acceptor c) Both a) and b)		Computable machine None of the above
13)	The input tape of a Turing machine <ul><li>a) Store input symbols</li><li>c) External symbols</li></ul>		Output string
14)	The PDA corresponding to the CFG a) Acceptance by final states c) Both a) and b)		be accept the input string using  Acceptance by empty stock  None of the above
15)	Which of the following is not a CFL? a) $\{a^n, b^n   n \ge 1\}$ c) $\{xx^r   x \in \{a, b\}^*\}$	b)	${a^{i}.b^{j}.c^{k} i>j< k}$ ${a^{n}.b^{n}.c^{m} n \ge 1, m \ge 0}$
16)	The Turing Machine computes the r formula	numeri	ic value (n) by using the
	a) $(q_0, \underline{\Delta} 1^n) \stackrel{*}{\models} (ha, \underline{\Delta} 1^{f(n)})$		
	b) $(q_0, \underline{\Delta} 1^n) \stackrel{T}{\stackrel{*}{\vdash}} (hr, \underline{\Delta} 1^{f(n)})$		
	c) $(q_0, \underline{\Delta} n) \stackrel{*}{\mid} T (ha, \underline{\Delta} f(n))$		
	d) $(q_0, \underline{\Delta} 1^n) \stackrel{*}{\mid T \mid} (ha, \underline{\Delta})$		
17)	Which of the following machine is machine in machine is machine in machine is machine in machine is machine in machine in machine is machine in	nore po b) d)	owerful? PDA Linear bounded Automata

Set P

- 18) For the universal TM, the non-halting states of TM  $T_1$  are encoded as \_\_\_\_\_.
  - a)  $s(q_i) = 0^{i+1}$

b)  $e(q_i) = 0^{i+2}$ 

c)  $s(q_i) = 0^i$ 

- d)  $s(q_i) = 0^{i+2}$
- 19) Which of the following machine uses the stack as its memory?
  - a) DFA

b) PDA

c) TM

- d) Nondeterministic TM
- 20) The PDA can accept \_\_\_\_\_.
  - a) Any context-free language
  - b) Only regular language
  - c) Context-free and context-sensitive language
  - d) All a above

Seat	Sat	P	
No.	Set		

# S.E. (Part – II) (Old) Examination Nov/Dec-2019 Computer Science & Engineering FORMAL SYSTEM & AUTOMATA

Day & Date: Thursday, 28-11-2019

Max. Marks: 80

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions from section-I & II are compulsory.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

#### Section - I

#### Q.2 Attempt any four.

20

- a) Define  $\delta^*$  for NFA and NFA  $\Lambda$  with example.
- b) Find regular expression corresponding to language of string that consist of substring 101 over  $\Sigma = \{0,1\}^*$  construct FA for above language.
- c) If  $L_1$  and  $L_2$  are regular languages, then prove  $L_1 \cup L_2$ ,  $L_1 \cap L_2$  and  $L_1 L_2$  are also regular.
- **d)** Find CFG for a regular language  $(abb + b)^* (ab)^* baa$  using union and closure operations of CFL'S
- **e)** What is ambiguity in grammer? How is it removed from CFG algebra expression?

#### Q.3 Answer the Following.

10

- a) Give the steps to simplify the given CFG. Why we have to go for simplification of CFG. Convert the following CFG into CNF.
  - $S \rightarrow bA|aB$
  - $A \rightarrow bAA|aS|a| \land$
  - $B \rightarrow aBB|bS|b| \wedge$

#### OR

**b)** How minimum state FA is obtained from a given FA. Explain with algorithm and example.

#### Q.4 Answer the following.

10

a) State and define the types of grammers and show how their corresponding languages are developed.

Set P

### Section - II

Q.5	Atte a) b)	empt any four. State pumping lemma for CFL. Write short note: Universal Turing Machine	20
	c) d) e)	Define PDA. Develope a PDA to accept the language of palindromes. Explain concept of basic Turing Machine Model. Show that $L = \{a^n. b^n. c^n\}$ is not context free.	
Q.6	Atte a)	mpt the following.  Design a Turing machine to accept palindrome for odd and even length string.  Show an ID for the string 'abbbba' with tape symbol.  OR	10
	b)	Explain different types of variations in TM. What is need of these variations?	
Q.7	Give strin	e a transistion diagram for turning machines. Which deletes a symbol from a a?	10

	T	7	
Seat		Set	0
No.		Set	Q

# S.F. (Part – II) (Old) Examination Nov/Dec-2019

			Computer Science FORMAL SYSTEM	& E	ngineering
•			ursday, 28-11-2019 1 To 05:30 PM		Max. Marks: 100
Instru	ctions	·	book.		be solved in first 30 minutes in answer
			<ul> <li>Figures to the right indicate full</li> <li>Assume suitable data if necess</li> </ul>		.5.
			MCQ/Objective Ty	pe (	Questions
Durati	ion: 30	) Mi	nutes		Marks: 20
	1)	The a)	he correct alternatives from the regular expression for the langu $(11 + 110)^*(1 + 0)$ $(11 + 110)^* + 10$	age <i>f</i>	tions and rewrite the sentence. 20 $f = \{11,110\}^*\{10\}$ is $(11+110)^*10$ $(11110)^*10$
	,	(11 a)	ich of the following string is not de $+110$ )*0? $1100$ $110$	escrib b) d)	ped by the regular expression  1110  11110
		a)	e CFG for the language $\{a^n, b^n   n \}$ $S \longrightarrow abS   \land S \longrightarrow aSb   ab$	b)	is $S \longrightarrow abS ab$ $S \longrightarrow Sab  \land$
	ŕ	deri a)	ny string in the CFG have more the vation tree, then CFG is said to be Ambiguous  CNF		ne leftmost or rightmost  Unambiguous Regular
		The a) c)	context- free languages are not Union Concatenation	close b) d)	ed under the operation of Kleen's Star Inter section and complements
	·		pumping lemma for regular lang A language is not regular A language is not context-free	uage b) d)	is used to prove that, A language is regular A language is context free
		a)	Turing Machine acts as A language acceptor Both a) and b)	b)	Computable machine

## Set Q

8)	<ul><li>The input tape of a Turing machine i</li><li>a) Store input symbols</li><li>c) External symbols</li></ul>	s use b) d)	d to Output string All of above
9)	The PDA corresponding to the CFG a) Acceptance by final states c) Both a) and b)		e accept the input string using Acceptance by empty stock None of the above
10)	Which of the following is not a CFL? a) $\{a^n. b^n   n \ge 1\}$ c) $\{xx^r   x \in \{a, b\}^*\}$		$\{a^{i}.b^{j}.c^{k} i>j< k\}$ $\{a^{n}.b^{n}.c^{m} n\geq 1, m\geq 0\}$
11)	The Turing Machine computes the n formula	umeri	c value (n) by using the
	a) $(q_0, \underline{\Delta} 1^n) \stackrel{*}{\models} (ha, \underline{\Delta} 1^{f(n)})$		
	b) $(q_0, \underline{\Delta} 1^n) \mid \overset{T}{\underline{T}} (hr, \underline{\Delta} 1^{f(n)})$		
	c) $(q_0, \underline{\Delta} n) \stackrel{*}{\mid} T (ha, \underline{\Delta} f(n))$		
	d) $(q_0, \underline{\Delta} 1^n) \mid \underline{} (ha, \underline{\Delta})$		
12)	Which of the following machine is mea) FA c) TM	ore po b) d)	owerful? PDA Linear bounded Automata
13)	For the universal TM, the non- halting a) $s(q_i) = 0^{i+1}$ c) $s(q_i) = 0^i$	b)	
14)	Which of the following machine uses <ul><li>a) DFA</li><li>c) TM</li></ul>	the s b) d)	tack as its memory? PDA Nondeterministic TM
15)	The PDA can accept  a) Any context-free language b) Only regular language c) Context-free and context-sensiti d) All a above	ve lar	nguage
16)	If a language is regular, then it is car a) FA only c) FA, PDA and TM	b)	ecognized by FA and PDA only FA and Tm only
17)	The language $L = \{x   x \text{ has equal nu} \text{ is } \underline{\hspace{1cm}}$	mber	of occurrences of 0's and 1's}
	a) Not regular c) Finite	b) d)	Equal to $\{0^n, 1^n   n \ge 0\}$ Not Context Free

- How many words are there in the language described by the regular expression  $(o \cup \land)$   $(1 \cup 0 11)$   $(\land \cup 1)$ ?
  - a) 3

b) 4

c) 7

- ď) None
- 19) The  $\delta$  function for  $NFA \Lambda$  function for is defined by \_\_\_\_\_.
  a)  $\delta: Q \times (\varepsilon \cup \{\Lambda\} \to 2^Q$  b)  $\delta: Q \times \varepsilon \to 2^Q$ c)  $\delta: Q \times (\varepsilon \cup \{\Lambda\} \to Q$  d)  $\delta: Q \times \{\Lambda\} \to 2^Q$

- If the NFA  $-\Lambda$  for any  $q \leftarrow Q$ ,  $\delta^*(q,\Lambda)$  is equal to \_\_\_\_\_. 20)

b)  $\{q\}$ 

c)  $\wedge (\{q\})$ 

d)  $P \in A$ 

Max. Marks: 80

Seat	Set	
No.	Set	Q

## S.E. (Part – II) (Old) Examination Nov/Dec-2019 Computer Science & Engineering FORMAL SYSTEM & AUTOMATA

Day & Date: Thursday, 28-11-2019

11-2010

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions from section-I & II are compulsory.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

#### Section - I

#### Q.2 Attempt any four.

20

- a) Define  $\delta^*$  for NFA and NFA  $\Lambda$  with example.
- b) Find regular expression corresponding to language of string that consist of substring 101 over  $\Sigma = \{0,1\}^*$  construct FA for above language.
- c) If  $L_1$  and  $L_2$  are regular languages, then prove  $L_1 \cup L_2$ ,  $L_1 \cap L_2$  and  $L_1 L_2$  are also regular.
- **d)** Find CFG for a regular language  $(abb + b)^* (ab)^* baa$  using union and closure operations of CFL'S
- **e)** What is ambiguity in grammer? How is it removed from CFG algebra expression?

#### Q.3 Answer the Following.

10

- a) Give the steps to simplify the given CFG. Why we have to go for simplification of CFG. Convert the following CFG into CNF.
  - $S \rightarrow bA|aB$
  - $A \rightarrow bAA|aS|a| \land$
  - $B \longrightarrow aBB|bS|b| \wedge$

#### OR

b) How minimum state FA is obtained from a given FA. Explain with algorithm and example.

#### Q.4 Answer the following.

10

a) State and define the types of grammers and show how their corresponding languages are developed.

Set Q

#### Section - II

Q.5	Atte a) b)	empt any four. State pumping lemma for CFL. Write short note: Universal Turing Machine	20
	c) d) e)	Define PDA. Develope a PDA to accept the language of palindromes. Explain concept of basic Turing Machine Model. Show that $L = \{a^n, b^n, c^n\}$ is not context free.	
Q.6	Atte a)	empt the following.  Design a Turing machine to accept palindrome for odd and even length string.  Show an ID for the string 'abbbba' with tape symbol.  OR	10
	b)	Explain different types of variations in TM. What is need of these variations?	
Q.7	Give strin	e a transistion diagram for turning machines. Which deletes a symbol from a	10

	_	
Seat	Set	D
No.	Set	N

# S.E. (Part – II) (Old) Examination Nov/Dec-2019

		Computer Science & Engineering FORMAL SYSTEM & AUTOMATA	
		e: Thursday, 28-11-2019 Max. Marks: 10 0 PM To 05:30 PM	00
Instru	uction	<ul> <li>s: 1) Q. No. 1 is compulsory and it should be solved in first 30 minutes in answ book.</li> <li>2) Figures to the right indicate full marks.</li> </ul>	er/
		3) Assume suitable data if necessary.	
Dura	tion: 3	MCQ/Objective Type Questions  Marks:	20
Q.1		ose the correct alternatives from the options and rewrite the sentence.  The pumping lemma for regular language is used to prove that,	20
		<ul><li>a) A language is not regular</li><li>b) A language is regular</li><li>c) A language is not context-free</li><li>d) A language is context free</li></ul>	
	2)	The Turing Machine acts as  a) A language acceptor b) Computable machine c) Both a) and b) d) None of the above	
	3)	The input tape of a Turing machine is used to  a) Store input symbols b) Output string c) External symbols d) All of above	
	4)	The PDA corresponding to the CFG can be accept the input string using a) Acceptance by final states b) Acceptance by empty stock c) Both a) and b) d) None of the above	_•
	5)	Which of the following is not a CFL? a) $\{a^n.b^n n \ge 1\}$ b) $\{a^i.b^j.c^k i > j < k\}$ c) $\{xx^r x \in \{a,b\}^*\}$ d) $\{a^n.b^n.c^m n \ge 1, m \ge 0\}$	
	6)	The Turing Machine computes the numeric value (n) by using the formula	
		a) $(q_0, \underline{\Delta} 1^n) \stackrel{*}{ -} (ha, \underline{\Delta} 1^{f(n)})$ b) $(q_0, \underline{\Delta} 1^n) \stackrel{*}{ -} (hr, \underline{\Delta} 1^{f(n)})$	
		b) $(q_0, \underline{\Delta} 1^n) \stackrel{*}{\boxed{T}} (hr, \underline{\Delta} 1^{f(n)})$ c) $(q_0, \underline{\Delta} n) \stackrel{*}{\boxed{T}} (ha, \underline{\Delta} f(n))$	
		d) $(q_0, \underline{\Delta} 1^n) \stackrel{*}{-T} (ha, \underline{\Delta})$	

Set R

7)		ich of the following machine is mo FA TM	ore po b) d)	
8)	a)	the universal TM, the non- haltin $s(q_i) = 0^{i+1}$ $s(q_i) = 0^i$	b)	es of TM $T_1$ are encoded as $e(q_i) = 0^{i+2}$ $s(q_i) = 0^{i+2}$
19)		ich of the following machine uses DFA TM	the s b) d)	tack as its memory? PDA Nondeterministic TM
10)	a) b)	e PDA can accept Any context-free language Only regular language Context-free and context-sensitinal	ve lan	guage
11)	a)	language is regular, then it is car FA only FA, PDA and TM	b)	ecognized by FA and PDA only FA and Tm only
12)	: _	e language $L = \{x   x \text{ has equal nu} \}$	mber	of occurrences of 0's and 1's}
		Not regular Finite	b) d)	Equal to $\{0^n, 1^n   n \ge 0\}$ Not Context Free
13)	exp a)	w many words are there in the lare ression $(o \cup \land) (1 \cup 0 11) (\land \cup 3 )$		e described by the regular  4  None
14)	a)	e $\delta$ function for $NFA - \Lambda$ function for $0: Q \times (\varepsilon \cup \{\Lambda\} \rightarrow 2^Q)$ $\delta: Q \times (\varepsilon \cup \{\Lambda\} \rightarrow Q)$	b)	defined by $\delta: Q \times \varepsilon \to 2^Q$ $\delta: Q \times \{ \land \} \to 2^Q$
15)	a)	ne $NFA - \Lambda$ for any $q \leftarrow Q$ , $\delta^*(q, \Lambda)$ $q \land (\{q\})$	b)	
16)	a)	e regular expression for the langu $(11 + 110)^*(1 + 0)$ $(11 + 110)^* + 10$	b)	= $\{11,110\}^*\{10\}$ is $(11+110)^*10$ $(11110)^*10$
17)		ich of the following string is not de $+110$ )*0?	escrib	ed by the regular expression
	•	1100 110 110	b) d)	1110 11110

Set R

18)	The CF	G for the I	anguage	$\{a^n, b^n\}$	$ n \ge 1$	is	
	-\ a	7.01.			L- \	0	1 /

a)  $S \rightarrow abS | \Lambda$ 

b)  $S \rightarrow abS|ab$ 

c)  $S \rightarrow aSb|ab$ 

d)  $S \rightarrow Sab \mid \Lambda$ 

19) If any string in the CFG have more than one leftmost or rightmost derivation tree, then CFG is said to be \_\_\_\_\_.

a) Ambiguous

b) Unambiguous

c) CNF

d) Regular

20) The context- free languages are not closed under the operation of \_\_\_\_\_.

a) Union

b) Kleen's Star

c) Concatenation

d) Inter section and complements

Seat	Sat	D
No.	Set	R

# S.E. (Part – II) (Old) Examination Nov/Dec-2019 Computer Science & Engineering FORMAL SYSTEM & AUTOMATA

Day & Date: Thursday, 28-11-2019

Max. Marks: 80

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions from section-I & II are compulsory.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

#### Section - I

#### Q.2 Attempt any four.

20

- a) Define  $\delta^*$  for NFA and NFA  $\wedge$  with example.
- b) Find regular expression corresponding to language of string that consist of substring 101 over  $\Sigma = \{0,1\}^*$  construct FA for above language.
- c) If  $L_1$  and  $L_2$  are regular languages, then prove  $L_1 \cup L_2$ ,  $L_1 \cap L_2$  and  $L_1 L_2$  are also regular.
- **d)** Find CFG for a regular language  $(abb + b)^* (ab)^* baa$  using union and closure operations of CFL'S
- **e)** What is ambiguity in grammer? How is it removed from CFG algebra expression?

#### Q.3 Answer the Following.

10

- a) Give the steps to simplify the given CFG. Why we have to go for simplification of CFG. Convert the following CFG into CNF.
  - $S \rightarrow bA|aB$
  - $A \rightarrow bAA|aS|a| \land$
  - $B \rightarrow aBB|bS|b| \wedge$

#### OR

b) How minimum state FA is obtained from a given FA. Explain with algorithm and example.

#### Q.4 Answer the following.

10

a) State and define the types of grammers and show how their corresponding languages are developed.

Set R

#### Section - II

		occion – n	
Q.5	Atte a) b)	empt any four. State pumping lemma for CFL. Write short note: Universal Turing Machine	20
	c) d) e)	Define PDA. Develope a PDA to accept the language of palindromes. Explain concept of basic Turing Machine Model. Show that $L = \{a^n, b^n, c^n\}$ is not context free.	
Q.6	Atte a)	empt the following.  Design a Turing machine to accept palindrome for odd and even length string.  Show an ID for the string 'abbbba' with tape symbol.  OR	10
	b)	Explain different types of variations in TM. What is need of these variations?	
Q.7	Give strir	e a transistion diagram for turning machines. Which deletes a symbol from a	10

Max. Marks: 100

Seat No.

### S.E. (Part – II) (Old) Examination Nov/Dec-2019 **Computer Science & Engineering FORMAL SYSTEM & AUTOMATA**

Day & Date: Thursday, 28-11-2019	
Time: 02:30 PM To 05:30 PM	

Instructions: 1) Q. No. 1 is compulsory and it should be solved in first 30 minutes in answer book.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

### **MCQ/Objective Type Questions**

**Duration: 30 Minutes** Marks: 20

- Choose the correct alternatives from the options and rewrite the sentence.
  - The Turing Machine computes the numeric value (n) by using the 1) formula

a) 
$$(q_0, \underline{\Delta} \ 1^n)$$
  $\xrightarrow{*}$   $(ha, \underline{\Delta} \ 1^{f(n)})$   
b)  $(q_0, \underline{\Delta} \ 1^n)$   $\xrightarrow{*}$   $(hr, \underline{\Delta} \ 1^{f(n)})$ 

b) 
$$(q_0, \underline{\Delta} 1^n) \stackrel{1}{\stackrel{*}{\overline{T}}} (hr, \underline{\Delta} 1^{f(n)})$$

c) 
$$(q_0, \underline{\Delta} n) \stackrel{*}{\mid} T (ha, \underline{\Delta} f(n))$$

d) 
$$(q_0, \underline{\Delta} 1^n) \stackrel{*}{|_{T}} (ha, \underline{\Delta})$$

- 2) Which of the following machine is more powerful?
  - a) FA

PDA b)

c) TM

- d) Linear bounded Automata
- 3) For the universal TM, the non-halting states of TM  $T_1$  are encoded as \_\_\_\_\_.

a) 
$$s(q_i) = 0^{i+1}$$

 $e(q_i) = 0^{i+2}$ 

c)  $s(q_i) = 0^i$ 

- $s(q_i) = 0^{i+2}$ d)
- Which of the following machine uses the stack as its memory? 4)
  - a) DFA

b) PDA

c) TM

- d) Nondeterministic TM
- 5) The PDA can accept
  - a) Any context-free language
  - b) Only regular language
  - c) Context-free and context-sensitive language
  - d) All a above

## Set S

6)	If a language is regular, then it is car a) FA only c) FA, PDA and TM	be ro b) d)	ecognized by FA and PDA only FA and Tm only	
7)	The language $L = \{x   x \text{ has equal nu} \text{ is } \underline{\hspace{1cm}}$	mber	of occurrences of 0's and 1's}	
	<ul><li>a) Not regular</li><li>c) Finite</li></ul>	b) d)	Equal to $\{0^n, 1^n   n \ge 0\}$ Not Context Free	
8)	How many words are there in the lar expression $(o \cup \land)$ $(1 \cup 0 \ 11)$ $(\land \cup a)$ 3		e described by the regular 4	
	c) 7	ď)	None	
9)	The $\delta$ function for $NFA - \Lambda$ function for $\delta: Q \times (\varepsilon \cup \{\Lambda\} \to 2^Q)$ c) $\delta: Q \times (\varepsilon \cup \{\Lambda\} \to Q)$	b)	defined by $\delta \colon Q \times \varepsilon \to 2^Q$ $\delta \colon Q \times \{\Lambda\} \to 2^Q$	
10)	If the <i>NFA</i> $-\wedge$ for any $q \leftarrow Q, \delta^*(q,\wedge)$	is eq	ual to	
	a) q	p)		
4.41	c) $\land (\{q\})$	,	$P \in A$	
11)	The regular expression for the langua) $(11 + 110)^*(1 + 0)$		= $\{11,110\}^*\{10\}$ is $(11+110)^*10$	
	c) $(11 + 110)(1 + 0)$	•	(11110)*10	
12)	Which of the following string is not described by the regular expression $(11 + 110)^*0$ ?			
	a) 1100	b)	1110	
	c) 110	d)	11110	
13)	The CFG for the language $\{a^n, b^n   n \ge 1\}$ is			
	a) $S \rightarrow abS   \land$ c) $S \rightarrow aSb   ab$	•	$S \to abS ab$ $S \to Sab  \land$	
1 1)	,	,	'	
14)	If any string in the CFG have more than one leftmost or rightmost derivation tree, then CFG is said to be			
	a) Ambiguous	b)	 Unambiguous	
	c) CNF	d)	Regular	
15)	The context- free languages are not		<u>.</u>	
	a) Union	b)	Kleen's Star	
	c) Concatenation	d)	Inter section and complements	
16)	The pumping lemma for regular language is used to prove that,			
	a) A language is not regular	p)	A language is context from	
	c) A language is not context-free	d)	A language is context free	

Set S

17)	The Turing Machine acts as a) A language acceptor c) Both a) and b)	b) d)	Computable machine None of the above
18)	The input tape of a Turing machine a) Store input symbols c) External symbols	is use b) d)	d to Output string All of above
19)	The PDA corresponding to the CFG a) Acceptance by final states c) Both a) and b)		e accept the input string using  Acceptance by empty stock  None of the above
20)	Which of the following is not a CFL? a) $\{a^n, b^n   n \ge 1\}$ c) $\{xx^r   x \in \{a, b\}^*\}$	b)	$\{a^{i}.b^{j}.c^{k} i>j< k\}$ $\{a^{n}.b^{n}.c^{m} n>1,m>0\}$

Max. Marks: 80

Seat	Set	S
No.	Set	3

## S.E. (Part – II) (Old) Examination Nov/Dec-2019 Computer Science & Engineering FORMAL SYSTEM & AUTOMATA

Day & Date: Thursday, 28-11-2019

8-11-2019

Time: 02:30 PM To 05:30 PM

**Instructions:** 1) All questions from section-I & II are compulsory.

- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

#### Section - I

#### Q.2 Attempt any four.

20

- a) Define  $\delta^*$  for NFA and NFA  $\wedge$  with example.
- b) Find regular expression corresponding to language of string that consist of substring 101 over  $\Sigma = \{0,1\}^*$  construct FA for above language.
- c) If  $L_1$  and  $L_2$  are regular languages, then prove  $L_1 \cup L_2$ ,  $L_1 \cap L_2$  and  $L_1 L_2$  are also regular.
- **d)** Find CFG for a regular language  $(abb + b)^* (ab)^* baa$  using union and closure operations of CFL'S
- **e)** What is ambiguity in grammer? How is it removed from CFG algebra expression?

#### Q.3 Answer the Following.

10

- a) Give the steps to simplify the given CFG. Why we have to go for simplification of CFG. Convert the following CFG into CNF.
  - $S \rightarrow bA|aB$
  - $A \rightarrow bAA|aS|a| \land$
  - $B \longrightarrow aBB|bS|b| \wedge$

#### OR

b) How minimum state FA is obtained from a given FA. Explain with algorithm and example.

#### Q.4 Answer the following.

10

a) State and define the types of grammers and show how their corresponding languages are developed.

Set S

### Section - II

Q.5	Atte a) b)	mpt any four. State pumping lemma for CFL. Write short note: Universal Turing Machine	20
	c) d) e)	Define PDA. Develope a PDA to accept the language of palindromes. Explain concept of basic Turing Machine Model. Show that $L = \{a^n. b^n. c^n\}$ is not context free.	
Q.6	Atte a)	mpt the following.  Design a Turing machine to accept palindrome for odd and even length string.  Show an ID for the string 'abbbba' with tape symbol.  OR	10
	b)	Explain different types of variations in TM. What is need of these variations?	
Q.7	Give strin	a transistion diagram for turning machines. Which deletes a symbol from a g?	10