SLR-FM-344

Seat No.	

Set P

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
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.
2) Figures to the right indicate full marks.
3) Use of 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) 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) $\frac{e^{2x}}{12}$

2) The complete solution of $(D^4 + 2D^3 + D^2)y = 0$ is _____.
   a) $y = (C_1 + C_2x + C_3x^2 + C_4x^3)e^{-x}$
   b) $y = (C_1 + C_2x) + (C_3 + C_4x)e^{-x}$
   c) $y = (C_1 + C_2x)e^{x} + (C_3 + C_4x)e^{-x}$
   d) None of these

3) The Laplace transform of $t\cosh t$ is _____.
   a) $\frac{s^2-1}{(s^2+1)^2}$ b) $-\frac{s^2-1}{(s^2+1)^2}$
   c) $\frac{s^2+1}{(s^2-1)^2}$ d) $-\frac{s^2+1}{(s^2-1)^2}$

4) $L^{-1}\left\{\frac{s+s^2}{s^3}\right\} =$ _____.
   a) $t + t^2$ b) $t + 1$
   c) $t^2 + 1$ d) $t^2 - 1$

5) $L^{-1}\left\{\frac{s-4}{(s-4)^2+25}\right\} =$ _____.
   a) $e^{4t}\sin 4t$ b) $e^{-4t}\sin 5t$
   c) $e^{-4t}\cos 4t$ d) $e^{4t}\cos 4t$

6) $Z\{3^k\}, k \geq 0$, is _____.
   a) $\frac{1}{Z-3}$ b) $Z(Z-3)$
   c) $\frac{Z}{Z-3}$ d) None of these

7) The inverse z-transform of $\frac{Z}{Z+a}, |Z| > a, k \geq 0$ is _____.
   a) a^k b) a^{k+1}
   c) $(-a)^{k+1}$ d) $(-a)^k$

8) 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

9) If average arrival rate in a queue is 6 per hour and the average service 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

10) 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

11) 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

12) A continuous random variable has the following probability density function $f(x) = kx(1 - x), 0 \leq x \leq 1$ then $k =$ _____.
   a) 2 b) 3
   c) 5 d) 6

13) 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) $\frac{3\pi^2}{2}$

14) 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) $\frac{4}{\pi}$

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Set **P**

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Information Technology
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.
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Q.2 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 $Z\{e^{-ak}\sin bk\}$

Q.3 Solve any three of the following questions. **09**

a) Solve $(D^3-8)y = x^3+x$

b) Find the inverse Laplace transform of

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

c) Express the following function in terms of unit step function and find Laplace transform $f(t) = \begin{cases}\cos t, & 0<t<\pi \\ \sin t, & t>\pi\end{cases}$.

d) Find Inverse z-transform of $\frac{1}{(Z-5)^3}, |z|>5$.

e) Find the z-transform of $\sin(3k+5)$.

Q.4 Solve any two of the following questions. **10**

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

Q.5 Solve any three of the following questions. **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 $\frac{\pi^2}{8} = \frac{1}{1^2}+\frac{1}{3^2}+\frac{1}{5^2}+\cdots$

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
y:	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. **09**

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

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

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

x:	1	3	5	7	9
y:	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. **10**

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

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

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

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

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.

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Seat No.	

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APPLIED MATHEMATICS – I

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Section – II

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Section – II

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$$\begin{aligned} f(x) &= 0, \quad -5 \leq x < 0 \\ &= 3, \quad 0 < x \leq 5 \end{aligned}$$

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

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

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 No.	

Set **S**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
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.
2) Figures to the right indicate full marks.
3) Use of 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 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 $f(x) = kx(1 - x), 0 \leq x \leq 1$ then $k =$ _____.
   a) 2 b) 3
   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) $y = (C_1 + C_2x + C_3x^2 + C_4x^3)e^{-x}$
   b) $y = (C_1 + C_2x) + (C_3 + C_4x)e^{-x}$
   c) $y = (C_1 + C_2x)e^{x} + (C_3 + C_4x)e^{-x}$
   d) None of these

8) The Laplace transform of $t\cosh t$ is _____.

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

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

9) $L^{-1}\left\{\frac{s+s^2}{s^3}\right\} =$ _____.

a) $t + t^2$ b) $t + 1$

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

10) $L^{-1}\left\{\frac{s-4}{(s-4)^2+25}\right\}$ = _____.

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

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

11) $Z\{3^k\}, k \geq 0$, is _____.

a) $\frac{1}{Z-3}$ b) $Z(Z-3)$

c) $\frac{Z}{Z-3}$ d) None of these

12) The inverse z-transform of $\frac{Z}{Z+a}, |Z| > a, k \geq 0$ is _____.

a) a^k b) a^{k+1}

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

13) 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

14) If average arrival rate in a queue is 6 per hour and the average service 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.	

Set **S**

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

Q.2 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 $Z\{e^{-ak} \sin bk\}$

Q.3 Solve any three of the following questions. **09**

a) Solve $(D^3 - 8)y = x^3 + x$

b) Find the inverse Laplace transform of

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

c) Express the following function in terms of unit step function and find Laplace transform $f(t) = \begin{cases} \cos t\,, & 0 < t < \pi \\ \sin t\,, & t > \pi \end{cases}$.

d) Find Inverse z-transform of $\frac{1}{(Z-5)^3}, |z| > 5$.

e) Find the z-transform of $\sin(3k + 5)$.

Q.4 Solve any two of the following questions. **10**

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

Q.5 Solve any three of the following questions. **09**

a) Find half range sine series for $f(x)$ where

$$f(x) = \begin{cases} x \quad , & 0 < x \leq \frac{\pi}{2} \\ \pi - x, & \frac{\pi}{2} < x < \pi \end{cases}$$

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

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
y:	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. **09**

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

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

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

x:	1	3	5	7	9
y:	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. **10**

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

$$\begin{aligned} f(x) &= 0, \quad -5 \leq x < 0 \\ &= 3, \quad 0 < x \leq 5 \end{aligned}$$

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

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

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 No.	

Set **P**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

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

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

1) The expression 'Q if p' indicates which of the following connectives.
   a) Biconditional b) Conditional
   c) Exclusive OR d) Tautology

2) T→P is equivalent to _____.
   a) P b) T
   c) $\neg P$ d) F

3) PCNF is _____.
   a) Conjunction of elementary product
   b) Conjunction of minterms
   c) Conjunction of maxterms
   d) Disjunction of elementary sum

4) If $S = \{\phi, \{\phi\}, \{\phi, \{\phi\}\}\}$ then what is cardinality of S?
   a) 0 b) 3
   c) 2 d) 4

5) If Let S be the relation from Y to Z and R is the relation from A to B the composition $R \circ S$ is from _____.
   a) A to Z b) Z to B
   c) Y to B d) None of these

6) If the relation R is represented by matrix and if we replace 0 by 1 and 1 by 0 then resultant matrix represents _____.
   a) Complement of R b) Inverse of R
   c) Domain of R d) Range of R

7) Relation matrix of the relation is given below.

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$$

   a) Only reflexive property
   b) Only symmetric property
   c) All properties except Irreflexive
   d) Only antisymmetric property

8) A subset f of A x B is said to be a function from A to B if domain of f is A and first element of order pairs of f _____.
   a) do not repeat b) do not exist
   c) repeat d) members of B

9) A lattice $\mathrm{h}\langle \mathrm{A}, \leq \rangle$ is bounded iff it has _____.
   a) a minimum element b) a maximum element
   c) both d) None

10) A poset $\mathrm{h} < A, \leq >$ is a _____ iff every pair of elements in A have both a meet and a join.
   a) group b) Ring
   c) lattice d) None

11) Abelian group satisfies additional _____ property than group.
   a) transitive b) Inverse
   c) identity d) Commutative

12) A totally ordered set is also called a _____.
   a) ring b) Field
   c) chain d) None

13) A _____ is a complemented distributive lattice.
   a) boolean function b) complete lattice
   c) modular lattice d) boolean expression

14) Every cyclic group is _____.
   a) an abelian group b) may not abelian group
   c) not a group d) None

Seat No.	

Set **P**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figure to the right indicates full marks.
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Section – I

Q.2 Solve any three. **12**

a) Explain Tautological Implication and show that $(\mathrm{P}\wedge\mathrm{Q}) \Rightarrow (\mathrm{P}\rightarrow\mathrm{Q})$.

b) Convert the given formula into prefix and suffix form.
$A \vee ((\neg \mathrm{B}\rightarrow \mathrm{C})\wedge(\neg \mathrm{D}\leftrightarrow \mathrm{E}))$

c) Define equivalence relation and equivalence class along with an example.

d) Define duality law and prove that "If A has dual as A* and B has dual as B* and $A \Leftrightarrow B$ the prove that $A^* \Leftrightarrow B^*$

e) Show that $S \vee R$ is a valid conclusion from the following premises:
$P \vee Q, P \rightarrow R, Q \rightarrow S$

Q.3 Solve any one. **08**

a) Explain the following terms
1) Tautology and contradiction
2) Set inclusion and equality of sets
3) Relative complement of A with respect to B
4) Partition and covering of sets

b) Define minterm, PDNF, maxterm and PCNF and obtain PDNF and PCNF of $(P \wedge Q) \vee (\neg P \wedge Q \wedge R)$ without constructing truth table.

Q.4 Solve the following. **08**

a) Given a set S= {1,2,3,4,5}. Find the equivalence relation on S which generates the partition { {1,2,4},{3},{5}}. Draw graph of the relation.

b) Let A= {4,5,6,7,8}. State whether following are covering or partition along with reason.
1) {{4,5},{6},{7,8,4}}
2) {{4},{7,6},{5}}
3) {{4,5},{7},{6,8}}
4) {{4,5},{5,6},{4,7,8}}

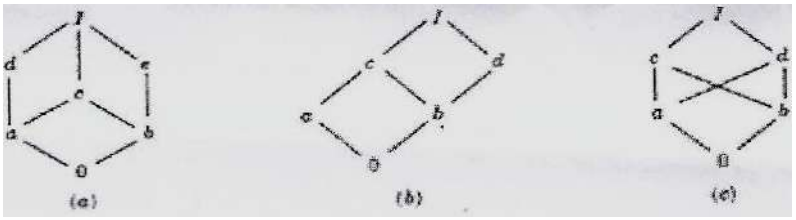
Section – II

Q.5 Solve any three. **12**

a) Explain Lattices properties.

b) What are the different type of functions?

c) Which of the partially ordered sets in figures (a), (b) and (c) are lattices? Justify your answer.



d) What is group code? Define groups.

Q.6 Solve the following questions. **16**

a) Let A = {1, 2, 3, 4}, B = {a, b, c}, C = {x, y, z}. Consider the relations R from A to B and S from B to C as follows: R = {(1, b), (3, a) (3, b),(4, c)} and S={(a, y), (c, x),(a, z) }

1) Draw the diagrams of R and S.
2) Find the matrix of each relation R, S (composition) $R \circ S$.
3) Write R-1 and the composition $R \circ S$ as sets of ordered pairs.

b) Define Group, Semi group and moniod with example.

Seat No.	

Set **Q**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

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

Instructions: 1) Q. No. 1 is compulsory and it should be solved in first 30 minutes in answer book.
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3) 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) A subset f of A x B is said to be a function from A to B if domain of f is A and first element of order pairs of f _____.
   a) do not repeat b) do not exist
   c) repeat d) members of B

2) A lattice $\langle A, \leq \rangle$ is bounded iff it has _____.
   a) a minimum element b) a maximum element
   c) both d) None

3) A poset $< A, \leq >$ is a _____ iff every pair of elements in A have both a meet and a join.
   a) group b) Ring
   c) lattice d) None

4) Abelian group satisfies additional _____ property than group.
   a) transitive b) Inverse
   c) identity d) Commutative

5) A totally ordered set is also called a _____.
   a) ring b) Field
   c) chain d) None

6) A _____ is a complemented distributive lattice.
   a) boolean function b) complete lattice
   c) modular lattice d) boolean expression

7) Every cyclic group is _____.
   a) an abelian group b) may not abelian group
   c) not a group d) None

8) The expression 'Q if p' indicates which of the following connectives.
   a) Biconditional b) Conditional
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9) T→P is equivalent to _____.
   a) P b) T
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10) PCNF is _____.
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   b) Conjunction of minterms
   c) Conjunction of maxterms
   d) Disjunction of elementary sum

11) If $S = \{ \phi, \{ \phi \}, \{ \phi, \{\phi\} \} \}$ then what is cardinality of S?
   a) 0 b) 3
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   a) A to Z b) Z to B
   c) Y to B d) None of these

13) If the relation R is represented by matrix and if we replace 0 by 1 and 1 by 0 then resultant matrix represents _____.
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14) Relation matrix of the relation is given below.

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$$

   a) Only reflexive property
   b) Only symmetric property
   c) All properties except Irreflexive
   d) Only antisymmetric property

Seat No.	

Set **Q**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Solve any three. **12**

a) Explain Tautological Implication and show that $(\mathrm{P}\wedge\mathrm{Q}) \Rightarrow (\mathrm{P}\rightarrow\mathrm{Q})$.

b) Convert the given formula into prefix and suffix form.
$A\vee((\neg \mathrm{B}\rightarrow \mathrm{C})\wedge(\neg \mathrm{D}\leftrightarrow \mathrm{E}))$

c) Define equivalence relation and equivalence class along with an example.

d) Define duality law and prove that "If A has dual as A* and B has dual as B* and $A \Leftrightarrow B$ the prove that $A^* \Leftrightarrow B^*$

e) Show that $S \vee R$ is a valid conclusion from the following premises:
$P \vee Q, P \rightarrow R, Q \rightarrow S$

Q.3 Solve any one. **08**

a) Explain the following terms
1) Tautology and contradiction
2) Set inclusion and equality of sets
3) Relative complement of A with respect to B
4) Partition and covering of sets

b) Define minterm, PDNF, maxterm and PCNF and obtain PDNF and PCNF of $(P \wedge Q) \vee (\neg P \wedge Q \wedge R)$ without constructing truth table.

Q.4 Solve the following. **08**

a) Given a set S= {1,2,3,4,5}. Find the equivalence relation on S which generates the partition { {1,2,4},{3},{5}}. Draw graph of the relation.

b) Let A= {4,5,6,7,8}. State whether following are covering or partition along with reason.
1) {{4,5},{6},{7,8,4}}
2) {{4},{7,6},{5}}
3) {{4,5},{7},{6,8}}
4) {{4,5},{5,6},{4,7,8}}

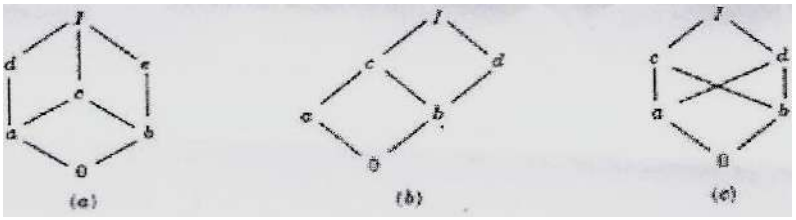
Section – II

Q.5 Solve any three. **12**

a) Explain Lattices properties.

b) What are the different type of functions?

c) Which of the partially ordered sets in figures (a), (b) and (c) are lattices? Justify your answer.



d) What is group code? Define groups.

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a) Let A = {1, 2, 3, 4}, B = {a, b, c}, C = {x, y, z}. Consider the relations R from A to B and S from B to C as follows: R = {(1, b), (3, a) (3, b),(4, c)} and S={(a, y), (c, x),(a, z) }

1) Draw the diagrams of R and S.
2) Find the matrix of each relation R, S (composition) $R \circ S$.
3) Write R-1 and the composition $R \circ S$ as sets of ordered pairs.

b) Define Group, Semi group and moniod with example.

Seat No.	

Set **R**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

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

Instructions: 1) Q. No. 1 is compulsory and it should be solved in first 30 minutes in answer book.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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   a) Complement of R b) Inverse of R
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3) Relation matrix of the relation is given below.
$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$$
   a) Only reflexive property
   b) Only symmetric property
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4) A subset f of A x B is said to be a function from A to B if domain of f is A and first element of order pairs of f _____.
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5) A lattice $\mathrm{h}\langle \mathrm{A}, \leq \rangle$ is bounded iff it has _____.
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   a) group b) Ring
   c) lattice d) None

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   a) 0
   b) 3
   c) 2
   d) 4

Seat No.	

Set **R**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Solve any three. **12**

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c) Define equivalence relation and equivalence class along with an example.

d) Define duality law and prove that "If A has dual as A* and B has dual as B* and $A \Leftrightarrow B$ the prove that $A^* \Leftrightarrow B^*$

e) Show that $S \vee R$ is a valid conclusion from the following premises:
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Q.3 Solve any one. **08**

a) Explain the following terms
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a) Given a set S= {1,2,3,4,5}. Find the equivalence relation on S which generates the partition { {1,2,4},{3},{5}}. Draw graph of the relation.

b) Let A= {4,5,6,7,8}. State whether following are covering or partition along with reason.
1) {{4,5},{6},{7,8,4}}
2) {{4},{7,6},{5}}
3) {{4,5},{7},{6,8}}
4) {{4,5},{5,6},{4,7,8}}

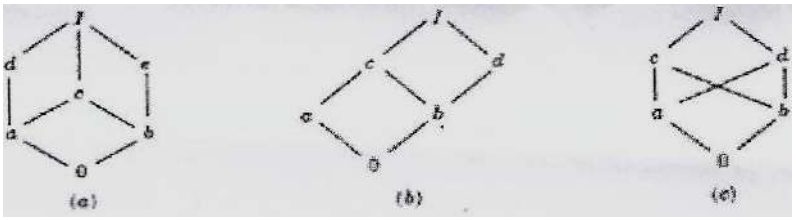
Section – II

Q.5 Solve any three. **12**

a) Explain Lattices properties.

b) What are the different type of functions?

c) Which of the partially ordered sets in figures (a), (b) and (c) are lattices? Justify your answer.



d) What is group code? Define groups.

Q.6 Solve the following questions. **16**

a) Let A = {1, 2, 3, 4}, B = {a, b, c}, C = {x, y, z}. Consider the relations R from A to B and S from B to C as follows: R = {(1, b), (3, a) (3, b),(4, c)} and S={(a, y), (c, x),(a, z) }

1) Draw the diagrams of R and S.
2) Find the matrix of each relation R, S (composition) $R \circ S$.
3) Write R-1 and the composition $R \circ S$ as sets of ordered pairs.

b) Define Group, Semi group and moniod with example.

Seat No.	

Set **S**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

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

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

1) A poset $h < A, \leq >$ is a _____ iff every pair of elements in A have both a meet and a join.
   a) group b) Ring
   c) lattice d) None

2) Abelian group satisfies additional _____ property than group.
   a) transitive b) Inverse
   c) identity d) Commutative

3) A totally ordered set is also called a _____.
   a) ring b) Field
   c) chain d) None

4) A _____ is a complemented distributive lattice.
   a) boolean function b) complete lattice
   c) modular lattice d) boolean expression

5) Every cyclic group is _____.
   a) an abelian group b) may not abelian group
   c) not a group d) None

6) The expression 'Q if p' indicates which of the following connectives.
   a) Biconditional b) Conditional
   c) Exclusive OR d) Tautology

7) T→P is equivalent to _____.
   a) P b) T
   c) $\neg P$ d) F

8) PCNF is _____.
   a) Conjunction of elementary product
   b) Conjunction of minterms
   c) Conjunction of maxterms
   d) Disjunction of elementary sum

9) If $S = \{ \phi, \{ \phi \}, \{ \phi, \{\phi \} \} \}$ then what is cardinality of S?
   a) 0 b) 3
   c) 2 d) 4

10) If Let S be the relation from Y to Z and R is the relation from A to B the composition $R \circ S$ is from _____.
   a) A to Z
   b) Z to B
   c) Y to B
   d) None of these

11) If the relation R is represented by matrix and if we replace 0 by 1 and 1 by 0 then resultant matrix represents _____.
   a) Complement of R
   b) Inverse of R
   c) Domain of R
   d) Range of R

12) Relation matrix of the relation is given below.

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$$

   a) Only reflexive property
   b) Only symmetric property
   c) All properties except Irreflexive
   d) Only antisymmetric property

13) A subset f of A x B is said to be a function from A to B if domain of f is A and first element of order pairs of f _____.
   a) do not repeat
   b) do not exist
   c) repeat
   d) members of B

14) A lattice $\mathrm{h}\langle \mathrm{A}, \leq \rangle$ is bounded iff it has _____.
   a) a minimum element
   b) a maximum element
   c) both
   d) None

SLR-FM-345

Seat No.	

Set S

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figure to the right indicates full marks.
3) Assume suitable data if required.

Section – I

Q.2 Solve any three. **12**

a) Explain Tautological Implication and show that $(\mathrm{P}\wedge\mathrm{Q}) => (\mathrm{P} \rightarrow \mathrm{Q})$.

b) Convert the given formula into prefix and suffix form.
$A^{\vee}\ ((\neg \mathrm{B} \rightarrow \mathrm{C})\wedge(\neg \mathrm{D} \leftrightarrow \mathrm{E}))$

c) Define equivalence relation and equivalence class along with an example.

d) Define duality law and prove that "If A has dual as A* and B has dual as B* and $A \Leftrightarrow B$ the prove that $A^* \Leftrightarrow B^*$

e) Show that $S^{\vee}R$ is a valid conclusion from the following premises:
$P^{\vee}Q, P \rightarrow R, Q \rightarrow S$

Q.3 Solve any one. **08**

a) Explain the following terms
1) Tautology and contradiction
2) Set inclusion and equality of sets
3) Relative complement of A with respect to B
4) Partition and covering of sets

b) Define minterm, PDNF, maxterm and PCNF and obtain PDNF and PCNF of $(P \wedge Q)^{\vee}(\neg P \wedge Q \wedge R)$ without constructing truth table.

Q.4 Solve the following. **08**

a) Given a set S= {1,2,3,4,5}. Find the equivalence relation on S which generates the partition { {1,2,4},{3},{5}}. Draw graph of the relation.

b) Let A= {4,5,6,7,8}. State whether following are covering or partition along with reason.
1) {{4,5},{6},{7,8,4}}
2) {{4},{7,6},{5}}
3) {{4,5},{7},{6,8}}
4) {{4,5},{5,6},{4,7,8}}

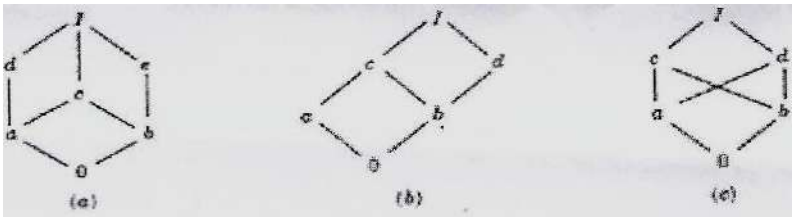
Section – II

Q.5 Solve any three. **12**

a) Explain Lattices properties.

b) What are the different type of functions?

c) Which of the partially ordered sets in figures (a), (b) and (c) are lattices? Justify your answer.



d) What is group code? Define groups.

Q.6 Solve the following questions. **16**

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1) Draw the diagrams of R and S.
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3) Write R-1 and the composition $R \circ S$ as sets of ordered pairs.

b) Define Group, Semi group and moniod with example.

SLR-FM-346

Seat No.		Set	P

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

Day & Date: Thursday, 12-12-2019 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.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) _____ is a type of transmission impairment in which the signal loses strength due to the resistance of the transmission medium.
   a) Distortion b) Attenuation
   c) Noise d) Decibel

2) A television broadcast is an example of _____ transmission.
   a) Half-duplex b) Simplex
   c) Full-duplex d) Automatic

3) Multiplexing is _____.
   a) The process of increasing bandwidth on a channel
   b) A technique that enables more than one data source to share the use of a common link.
   c) Mailing letters at the Post Office
   d) The capability to share frequency by time

4) The core for an optical fiber has _____.
   a) Lower index of refraction than air
   b) Lower index of refraction than the cladding
   c) A higher index of refraction than the cladding
   d) None of these

5) Repeater operates at which layer of OSI model?
   a) Application layer b) Presentation layer
   c) Physical layer d) Transport layer

6) The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called _____.
   a) Piggybacking b) Cyclic redundancy check
   c) Fletcher's checksum d) None of the mentioned

7) Which ARQ mechanism deals with the transmission of only damaged or lost frames despite the other multiple frames by increasing the efficiency & its utility in noisy channels?
   a) Go-Back-N ARQ b) Selective Repeat ARQ
   c) Stop-and-Wait ARQ d) All of the above

8) Which one of the following task is not done by data link layer?
   a) Framing b) Error control
   c) Flow control d) Channel coding

9) In the _____ method, after the station finds the line idle, it sends its frame immediately. If the line is not idle, it continuously senses the line until it finds it idle.

a) p-persistent b) nonpersistent
c) 1-persistent d) none of the above

10) IEEE 802.4 standard represents _____.

a) Overview and Architecture b) Token bus
c) Token Ring d) Virtual LAN and Security

11) In _____, each station is forced to send only at the beginning of the time slot.

a) Pure ALOHA b) Slotted ALOHA
c) Both (a) and (b) d) Neither (a) nor (b)

12) A _____ routing table contains information entered manually.

a) Static b) Dynamic
c) Hierarchical d) Non static

13) When a host on network A sends a message to a host on network B, which address does the router look at?

a) Logical b) Physical
c) Port d) None of the above

14) The _____ address uniquely defines a host on the Internet.

a) IP b) Port
c) Specific d) Physical

Seat No.	

Set **P**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
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) Figures to the right indicates full marks.

Section – I

Q.2 **Attempt any three.** **12**
- **a)** Explain the functions of Physical Layer and Data Link Layer.
- **b)** Describe A Simplex Stop-and-Wait Protocol.
- **c)** Explain Manchester and Differential Manchester encoding techniques.
- **d)** Describe transmission characteristics of Twisted Pair Cable.

Q.3 **Attempt any one.** **08**
- **a)** Explain OSI Reference Model with neat diagram.
- **b)** Explain Selective Repeat protocol with neat diagram.

Q.4 Explain the various methods used for framing of data with detailed explanation of each method. **08**

Section – II

Q.5 **Attempt any three.** **12**
- **a)** Explain Flooding and its uses.
- **b)** Explain CSMA/CD with diagram.
- **c)** Write a short note on Network Layer Design Issues.
- **d)** Explain the working of Switch with diagram.

Q.6 **Attempt any one.** **08**
- **a)** What do you mean by Congestion? Explain Leaky Bucket Algorithm in detail.
- **b)** Explain IEEE Std. 802.3 in detail with its Frame Format.

Q.7 Explain Link State Routing Algorithm with example. **08**

Seat No.	

Set **Q**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

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

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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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1) Which one of the following task is not done by data link layer?
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10) Multiplexing is _____.
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   b) A technique that enables more than one data source to share the use of a common link.
   c) Mailing letters at the Post Office
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11) The core for an optical fiber has _____.
   a) Lower index of refraction than air
   b) Lower index of refraction than the cladding
   c) A higher index of refraction than the cladding
   d) None of these

12) Repeater operates at which layer of OSI model?
   a) Application layer
   b) Presentation layer
   c) Physical layer
   d) Transport layer

13) The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called _____.
   a) Piggybacking
   b) Cyclic redundancy check
   c) Fletcher's checksum
   d) None of the mentioned

14) Which ARQ mechanism deals with the transmission of only damaged or lost frames despite the other multiple frames by increasing the efficiency & its utility in noisy channels?
   a) Go-Back-N ARQ
   b) Selective Repeat ARQ
   c) Stop-and-Wait ARQ
   d) All of the above

SLR-FM-346

Seat No.	

Set Q

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
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.
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Section – I

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Seat No.	

Set **R**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

Day & Date: Thursday, 12-12-2019 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.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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Seat No.	

Set **R**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
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) Figures to the right indicates full marks.

Section – I

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Seat No.	

Set | S

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

Day & Date: Thursday, 12-12-2019 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.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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Seat No.	

Set | S

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
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.
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Section – I

Q.2 **Attempt any three.** **12**
- **a)** Explain the functions of Physical Layer and Data Link Layer.
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Section – II

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- **a)** What do you mean by Congestion? Explain Leaky Bucket Algorithm in detail.
- **b)** Explain IEEE Std. 802.3 in detail with its Frame Format.

Q.7 Explain Link State Routing Algorithm with example. **08**

Seat No.	

Set **P**

S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DIGITAL LOGIC DESIGN

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 indicate full mark.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) 8 to 1 multiplexer integrated circuit is _____.
   a) 74153 b) 74193
   c) 74154 d) 74151

2) Data flow modeling uses _____ module item.
   a) Initial Construct b) Always Construct
   c) Assignment d) None of these

3) Minimized expression of $f(A, B, C) = \sum m(1,3,5,6,7)$ is _____.
   a) $A + BC$ b) $AC + B$
   c) $AB + C$ d) None of these

4) The lexical convention used in Verylog HDL is _____.
   a) C Language b) C++
   c) FORTRAN d) None of these

5) Counting of clock pulses can be done by using IC _____.
   a) 7447 b) 74148
   c) 7490 d) 75151

6) AND, OR, NOT can be implemented by _____.
   a) NAND or NOR b) XOR
   c) Both (a) & (b) d) None of these

7) Max-terms of $f(A, B, C) = \sum m(0, 1, 4, 5)$ are _____.
   a) $\sum m\ (2, 3, 6, 7)$ b) $\pi M\ (0, 1, 4, 5)$
   c) $\pi M\ (2, 3, 6, 7)$ d) None of these

8) Number of select lines required for 32 to 1 multiplexer is _____.
   a) 2 b) 3
   c) 4 d) 5

9) How many flip-flops are required for mod-16 counter _____.
   a) 6 b) 5
   c) 4 d) 3

10) $2's$ complement of 8-bit number 25 is _____.
   a) 11100110 b) 11100001
   c) 00011001 d) 11100111

11) The output of a logic gate is 1 when all its inputs are at logic 0, the gate is either _____.
   a) NAND or EX-OR
   b) OR or EX-NOR
   c) AND or EX-OR
   d) NOR or EX-OR

12) A ring counter consisting of five Flip-Flops will have _____.
   a) 5 states
   b) 10 states
   c) 32 states
   d) Infinite

13) Which flip-flop has Race-around condition _____.
   a) S-R
   b) J-K
   c) T Flip-flop
   d) D Flip-flop

14) In a JK Flip-Flop, toggle means _____.
   a) $Q = 1, \overline{Q} = 0$
   b) $Q = 0, \overline{Q} = 1$
   c) Change the Output to opposite state
   d) No change in output

Seat No.	

Set **P**

S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DIGITAL LOGIC DESIGN

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 indicate full marks.

Section - I

Q.2 Attempt any Four **16**

a) Minimize $f(A, B, C, D) = \pi M(1, 2, 5, 6, 10, 12, 15)$
b) Perform by $2's$ complement method: 32 - 23.
c) Implement AND, OR, NOT gate using NOR gates.
d) Design & explain 1-bit comparator. Draw diagram of 2-bit comparator.
e) Implement 1:16 de-muitiplexer using 1:4.

Q.3 Attempt any Two **12**

a) Explain 7-segment display using 7447.
b) Explain data-flow and behavioral-model in Verilog HDL.
c) Design & Explain Full Subtractor.

Section - II

Q.4 Attempt any Four **16**

a) Explain S-R flip-flop.
b) Write Verilog HDL program for 4-bit up-counter.
c) Write Verilog HDL program for full-adder using behavioral model.
d) Explain J-K flip-flop.
e) Write a HDL code for full subtractor.

Q.5 Attempt any Two **12**

a) Explain Shift Register with any Two modes of operation.
b) Write Verilog HDL code for 8:1 multiplexer.
c) Design and Explain mod-10 asynchronous counter.

Seat No.	

Set **Q**

S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DIGITAL LOGIC DESIGN

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 indicate full mark.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) Number of select lines required for 32 to 1 multiplexer is _____.
   a) 2 b) 3
   c) 4 d) 5

2) How many flip-flops are required for mod-16 counter _____.
   a) 6 b) 5
   c) 4 d) 3

3) $2's$ complement of 8-bit number 25 is _____.
   a) 11100110 b) 11100001
   c) 00011001 d) 11100111

4) The output of a logic gate is 1 when all its inputs are at logic 0, the gate is either _____.
   a) NAND or EX-OR b) OR or EX-NOR
   c) AND or EX-OR d) NOR or EX-OR

5) A ring counter consisting of five Flip-Flops will have _____.
   a) 5 states b) 10 states
   c) 32 states d) Infinite

6) Which flip-flop has Race-around condition _____.
   a) S-R b) J-K
   c) T Flip-flop d) D Flip-flop

7) In a JK Flip-Flop, toggle means _____.
   a) $Q = 1, \overline{Q} = 0$
   b) $Q = 0, \overline{Q} = 1$
   c) Change the Output to opposite state
   d) No change in output

8) 8 to 1 multiplexer integrated circuit is _____.
   a) 74153 b) 74193
   c) 74154 d) 74151

9) Data flow modeling uses _____ module item.
   a) Initial Construct b) Always Construct
   c) Assignment d) None of these

10) Minimized expression of $f(A, B, C) = \sum m(1,3,5,6,7)$ is _____.
   a) $A + BC$ b) $AC + B$
   c) $AB + C$ d) None of these

11) The lexical convention used in Verylog HDL is _____.
   a) C Language b) C++
   c) FORTRAN d) None of these

12) Counting of clock pulses can be done by using IC _____.
   a) 7447 b) 74148
   c) 7490 d) 75151

13) AND, OR, NOT can be implemented by _____.
   a) NAND or NOR b) XOR
   c) Both (a) & (b) d) None of these

14) Max-terms of $f(A, B, C) = \sum m(0, 1, 4, 5)$ are _____.
   a) $\sum m\ (2, 3, 6, 7)$ b) $\pi M\ (0, 1, 4, 5)$
   c) $\pi M\ (2, 3, 6, 7)$ d) None of these

Seat No.	

Set **Q**

S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DIGITAL LOGIC DESIGN

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 indicate full marks.

Section - I

Q.2 Attempt any Four **16**

a) Minimize $f(A, B, C, D) = \pi M(1, 2, 5, 6, 10, 12, 15)$
b) Perform by $2's$ complement method: 32 - 23.
c) Implement AND, OR, NOT gate using NOR gates.
d) Design & explain 1-bit comparator. Draw diagram of 2-bit comparator.
e) Implement 1:16 de-muitiplexer using 1:4.

Q.3 Attempt any Two **12**

a) Explain 7-segment display using 7447.
b) Explain data-flow and behavioral-model in Verilog HDL.
c) Design & Explain Full Subtractor.

Section - II

Q.4 Attempt any Four **16**

a) Explain S-R flip-flop.
b) Write Verilog HDL program for 4-bit up-counter.
c) Write Verilog HDL program for full-adder using behavioral model.
d) Explain J-K flip-flop.
e) Write a HDL code for full subtractor.

Q.5 Attempt any Two **12**

a) Explain Shift Register with any Two modes of operation.
b) Write Verilog HDL code for 8:1 multiplexer.
c) Design and Explain mod-10 asynchronous counter.

Seat No.	

Set **R**

S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DIGITAL LOGIC DESIGN

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 indicate full mark.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) Counting of clock pulses can be done by using IC _____.
   a) 7447 b) 74148
   c) 7490 d) 75151

2) AND, OR, NOT can be implemented by _____.
   a) NAND or NOR b) XOR
   c) Both (a) & (b) d) None of these

3) Max-terms of $f(A, B, C) = \sum m(0, 1, 4, 5)$ are _____.
   a) $\sum m\ (2, 3, 6, 7)$ b) $\pi M\ (0, 1, 4, 5)$
   c) $\pi M\ (2, 3, 6, 7)$ d) None of these

4) Number of select lines required for 32 to 1 multiplexer is _____.
   a) 2 b) 3
   c) 4 d) 5

5) How many flip-flops are required for mod-16 counter _____.
   a) 6 b) 5
   c) 4 d) 3

6) $2's$ complement of 8-bit number 25 is _____.
   a) 11100110 b) 11100001
   c) 00011001 d) 11100111

7) The output of a logic gate is 1 when all its inputs are at logic 0, the gate is either _____.
   a) NAND or EX-OR b) OR or EX-NOR
   c) AND or EX-OR d) NOR or EX-OR

8) A ring counter consisting of five Flip-Flops will have _____.
   a) 5 states b) 10 states
   c) 32 states d) Infinite

9) Which flip-flop has Race-around condition _____.
   a) S-R b) J-K
   c) T Flip-flop d) D Flip-flop

10) In a JK Flip-Flop, toggle means _____.
   a) $Q = 1, \overline{Q} = 0$
   b) $Q = 0, \overline{Q} = 1$
   c) Change the Output to opposite state
   d) No change in output

11) 8 to 1 multiplexer integrated circuit is _____.
   a) 74153 b) 74193
   c) 74154 d) 74151

12) Data flow modeling uses _____ module item.
   a) Initial Construct b) Always Construct
   c) Assignment d) None of these

13) Minimized expression of $f(A, B, C) = \sum m(1,3,5,6,7)$ is _____.
   a) $A + BC$ b) $AC + B$
   c) $AB + C$ d) None of these

14) The lexical convention used in Verylog HDL is _____.
   a) C Language b) C++
   c) FORTRAN d) None of these

Seat No.	

Set **R**

S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DIGITAL LOGIC DESIGN

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 indicate full marks.

Section - I

Q.2 Attempt any Four **16**

a) Minimize $f(A, B, C, D) = \pi M(1, 2, 5, 6, 10, 12, 15)$
b) Perform by $2's$ complement method: 32 - 23.
c) Implement AND, OR, NOT gate using NOR gates.
d) Design & explain 1-bit comparator. Draw diagram of 2-bit comparator.
e) Implement 1:16 de-muitiplexer using 1:4.

Q.3 Attempt any Two **12**

a) Explain 7-segment display using 7447.
b) Explain data-flow and behavioral-model in Verilog HDL.
c) Design & Explain Full Subtractor.

Section - II

Q.4 Attempt any Four **16**

a) Explain S-R flip-flop.
b) Write Verilog HDL program for 4-bit up-counter.
c) Write Verilog HDL program for full-adder using behavioral model.
d) Explain J-K flip-flop.
e) Write a HDL code for full subtractor.

Q.5 Attempt any Two **12**

a) Explain Shift Register with any Two modes of operation.
b) Write Verilog HDL code for 8:1 multiplexer.
c) Design and Explain mod-10 asynchronous counter.

Seat No.	

Set **S**

S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DIGITAL LOGIC DESIGN

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 indicate full mark.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) $2's$ complement of 8-bit number 25 is _____.
   a) 11100110 b) 11100001
   c) 00011001 d) 11100111

2) The output of a logic gate is 1 when all its inputs are at logic 0, the gate is either _____.
   a) NAND or EX-OR b) OR or EX-NOR
   c) AND or EX-OR d) NOR or EX-OR

3) A ring counter consisting of five Flip-Flops will have _____.
   a) 5 states b) 10 states
   c) 32 states d) Infinite

4) Which flip-flop has Race-around condition _____.
   a) S-R b) J-K
   c) T Flip-flop d) D Flip-flop

5) In a JK Flip-Flop, toggle means _____.
   a) $\mathrm{Q} = 1, \overline{\mathrm{Q}} = 0$
   b) $\mathrm{Q} = 0, \overline{\mathrm{Q}} = 1$
   c) Change the Output to opposite state
   d) No change in output

6) 8 to 1 multiplexer integrated circuit is _____.
   a) 74153 b) 74193
   c) 74154 d) 74151

7) Data flow modeling uses _____ module item.
   a) Initial Construct b) Always Construct
   c) Assignment d) None of these

8) Minimized expression of $\mathrm{f(A, B, C)} = \sum \mathrm{m}(1,3,5,6,7)$ is _____.
   a) $\mathrm{A + BC}$ b) $\mathrm{AC + B}$
   c) $\mathrm{AB + C}$ d) None of these

9) The lexical convention used in Verylog HDL is _____.
   a) C Language b) C++
   c) FORTRAN d) None of these

10) Counting of clock pulses can be done by using IC _____.
   a) 7447 b) 74148
   c) 7490 d) 75151

11) AND, OR, NOT can be implemented by _____.
   a) NAND or NOR
   b) XOR
   c) Both (a) & (b)
   d) None of these

12) Max-terms of $f(A, B, C) = \sum m(0, 1, 4, 5)$ are _____.
   a) $\sum m\ (2, 3, 6, 7)$
   b) $\pi M\ (0, 1, 4, 5)$
   c) $\pi M\ (2, 3, 6, 7)$
   d) None of these

13) Number of select lines required for 32 to 1 multiplexer is _____.
   a) 2
   b) 3
   c) 4
   d) 5

14) How many flip-flops are required for mod-16 counter _____.
   a) 6
   b) 5
   c) 4
   d) 3

Seat No.	

Set **S**

S.E. (Part - I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
DIGITAL LOGIC DESIGN

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 indicate full marks.

Section - I

Q.2 Attempt any Four **16**

a) Minimize $f(A, B, C, D) = \pi M(1, 2, 5, 6, 10, 12, 15)$
b) Perform by $2's$ complement method: 32 - 23.
c) Implement AND, OR, NOT gate using NOR gates.
d) Design & explain 1-bit comparator. Draw diagram of 2-bit comparator.
e) Implement 1:16 de-muitiplexer using 1:4.

Q.3 Attempt any Two **12**

a) Explain 7-segment display using 7447.
b) Explain data-flow and behavioral-model in Verilog HDL.
c) Design & Explain Full Subtractor.

Section - II

Q.4 Attempt any Four **16**

a) Explain S-R flip-flop.
b) Write Verilog HDL program for 4-bit up-counter.
c) Write Verilog HDL program for full-adder using behavioral model.
d) Explain J-K flip-flop.
e) Write a HDL code for full subtractor.

Q.5 Attempt any Two **12**

a) Explain Shift Register with any Two modes of operation.
b) Write Verilog HDL code for 8:1 multiplexer.
c) Design and Explain mod-10 asynchronous counter.

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Seat No.		Set	P

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER GRAPHICS

Day & Date: Tuesday, 17-12-2019 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 indicate full marks.
3) All Questions are compulsory.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) The process of introducing changes in the shape size and orientation of the object is called as _____.
   a) Transformation b) Projections
   c) Surface Removal d) Clipping

2) _____ is repositioning the coordinates along a circular path, in the x-y plane by making an angle with the axes.
   a) Combined transformation b) Rotation
   c) Scaling d) Translation

3) DVST stands for _____.
   a) Digital view storing table b) Direct visual storage tube
   c) Direct view storage tube d) Digital view storage tube

4) The side effect of scan conversion is _____.
   a) Aliasing b) Anti aliasing
   c) Both a & b d) None of these

5) Vector display is well suited for _____.
   a) Animation b) Cartoons
   c) Line drawing applications d) All of the above

6) Edge fill algorithm uses _____ process.
   a) Iterative process b) Binary process
   c) Non recursive process d) None of the above

7) Identify the incorrect statement :
   a) Bresenham's line drawing algorithm uses increment integer calculations.
   b) In Bresenham's algorithm error term is initialized to 0
   c) In Bresenham's algorithm, while generating a circle, it is easy to generate one octant first and other by successive reflection.
   d) None of the above

8) _____algorithm is proposed originally by catmull.
   a) Z-buffer b) Y-buffer
   c) Warnock d) Back-face

9) In Warnock algorithm, if polygon is totally outside the window is _____.
   a) Contained b) Disjoint
   c) Intersecting d) Surrounding

10) If the curve passes through all the control point, then it is _____.
   a) Interpolation b) Approximation
   c) Both a& b d) None of above

11) Parametric curve are _____.
   a) Axis independent b) Axis dependent
   c) Both a & b d) None of above

12) If a point is above and left of clipping rectangle, then it has _____ region code.
   a) 0000 b) 0101
   c) 1001 d) 1010

13) Mid-point subdivision algorithm used for _____.
   a) Point clipping b) Polygon clipping
   c) Line clipping d) Text clipping

14) Post segment function is used to make _____.
   a) Segment append b) Delete segment
   c) Segment visible d) Segment invisible

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Seat No.	

Set P

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
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 drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any three of the following. **12**

a) Comment on the raster and random display mechanism used in graphic terminals.
b) Discuss the merits and demerits of the DDA algorithm .Write the pseudo code for the DDA Algorithm.
c) Explain rotation about an arbitrary point.
d) Write a simple seed fill algorithm in detail for 4 connected boundary – defined regions.

Q.3 Attempt any one of the following. **08**

State the basic principle of the midpoint circle drawing algorithm. Using the midpoint circle algorithm, calculate first pixels in one octant.

OR

Write a scaling matrix with scaling factors 2, 3 and 1 in x, y and z directions, respectively. Apply the transformation matrix on a unit cube situated at the origin.

Q.4 Attempt the following. **08**

a) Using the homogenous coordinate transformation matrix, rotate the triangle ABC with A= (2,3) ,B=(5,5) and C= (4.3) by an angle 45 degree about the point (1,1).
b) Explain the working of CRT in detail with diagram.

Section – II

Q.5 Answer any three. **12**

a) Describe halftoning in detail.
b) Describe non parametric curves in detail.
c) Explain z- buffer algorithm in detail.
d) Explain B-spline curve and its properties.

Q.6 Describe mid-point subdivision algorithm with example. **08**

OR

Explain back face removal algorithm and antialiasing technique in detail.

Q.7 Explain curve generation and curve representation in detail. **08**

Seat No.	

Set **Q**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER GRAPHICS

Day & Date: Tuesday, 17-12-2019 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 indicate full marks.
3) All Questions are compulsory.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) _____algorithm is proposed originally by catmull.
   a) Z-buffer b) Y-buffer
   c) Warnock d) Back-face

2) In Warnock algorithm, if polygon is totally outside the window is _____.
   a) Contained b) Disjoint
   c) Intersecting d) Surrounding

3) If the curve passes through all the control point, then it is _____.
   a) Interpolation b) Approximation
   c) Both a& b d) None of above

4) Parametric curve are _____.
   a) Axis independent b) Axis dependent
   c) Both a & b d) None of above

5) If a point is above and left of clipping rectangle, then it has _____ region code.
   a) 0000 b) 0101
   c) 1001 d) 1010

6) Mid-point subdivision algorithm used for _____.
   a) Point clipping b) Polygon clipping
   c) Line clipping d) Text clipping

7) Post segment function is used to make _____.
   a) Segment append b) Delete segment
   c) Segment visible d) Segment invisible

8) The process of introducing changes in the shape size and orientation of the object is called as _____.
   a) Transformation b) Projections
   c) Surface Removal d) Clipping

9) _____ is repositioning the coordinates along a circular path, in the x-y plane by making an angle with the axes.
   a) Combined transformation b) Rotation
   c) Scaling d) Translation

10) DVST stands for _____.
   a) Digital view storing table
   b) Direct visual storage tube
   c) Direct view storage tube
   d) Digital view storage tube

11) The side effect of scan conversion is _____.
   a) Aliasing
   b) Anti aliasing
   c) Both a & b
   d) None of these

12) Vector display is well suited for _____.
   a) Animation
   b) Cartoons
   c) Line drawing applications
   d) All of the above

13) Edge fill algorithm uses _____ process.
   a) Iterative process
   b) Binary process
   c) Non recursive process
   d) None of the above

14) Identify the incorrect statement :
   a) Bresenham's line drawing algorithm uses increment integer calculations.
   b) In Bresenham's algorithm error term is initialized to 0
   c) In Bresenham's algorithm, while generating a circle, it is easy to generate one octant first and other by successive reflection.
   d) None of the above

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Seat No.	

Set Q

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
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 drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any three of the following. **12**

a) Comment on the raster and random display mechanism used in graphic terminals.
b) Discuss the merits and demerits of the DDA algorithm .Write the pseudo code for the DDA Algorithm.
c) Explain rotation about an arbitrary point.
d) Write a simple seed fill algorithm in detail for 4 connected boundary – defined regions.

Q.3 Attempt any one of the following. **08**

State the basic principle of the midpoint circle drawing algorithm. Using the midpoint circle algorithm, calculate first pixels in one octant.

OR

Write a scaling matrix with scaling factors 2, 3 and 1 in x, y and z directions, respectively. Apply the transformation matrix on a unit cube situated at the origin.

Q.4 Attempt the following. **08**

a) Using the homogenous coordinate transformation matrix, rotate the triangle ABC with A= (2,3) ,B=(5,5) and C= (4.3) by an angle 45 degree about the point (1,1).
b) Explain the working of CRT in detail with diagram.

Section – II

Q.5 Answer any three. **12**

a) Describe halftoning in detail.
b) Describe non parametric curves in detail.
c) Explain z- buffer algorithm in detail.
d) Explain B-spline curve and its properties.

Q.6 Describe mid-point subdivision algorithm with example. **08**

OR

Explain back face removal algorithm and antialiasing technique in detail.

Q.7 Explain curve generation and curve representation in detail. **08**

Seat No.	

Set **R**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER GRAPHICS

Day & Date: Tuesday, 17-12-2019 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 indicate full marks.
3) All Questions are compulsory.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) Vector display is well suited for _____.
   a) Animation b) Cartoons
   c) Line drawing applications d) All of the above

2) Edge fill algorithm uses _____ process.
   a) Iterative process b) Binary process
   c) Non recursive process d) None of the above

3) Identify the incorrect statement :
   a) Bresenham's line drawing algorithm uses increment integer calculations.
   b) In Bresenham's algorithm error term is initialized to 0
   c) In Bresenham's algorithm, while generating a circle, it is easy to generate one octant first and other by successive reflection.
   d) None of the above

4) _____algorithm is proposed originally by catmull.
   a) Z-buffer b) Y-buffer
   c) Warnock d) Back-face

5) In Warnock algorithm, if polygon is totally outside the window is _____.
   a) Contained b) Disjoint
   c) Intersecting d) Surrounding

6) If the curve passes through all the control point, then it is _____.
   a) Interpolation b) Approximation
   c) Both a& b d) None of above

7) Parametric curve are _____.
   a) Axis independent b) Axis dependent
   c) Both a & b d) None of above

8) If a point is above and left of clipping rectangle, then it has _____ region code.
   a) 0000 b) 0101
   c) 1001 d) 1010

9) Mid-point subdivision algorithm used for _____.
   a) Point clipping b) Polygon clipping
   c) Line clipping d) Text clipping

10) Post segment function is used to make _____.
   a) Segment append
   b) Delete segment
   c) Segment visible
   d) Segment invisible

11) The process of introducing changes in the shape size and orientation of the object is called as _____.
   a) Transformation
   b) Projections
   c) Surface Removal
   d) Clipping

12) _____ is repositioning the coordinates along a circular path, in the x-y plane by making an angle with the axes.
   a) Combined transformation
   b) Rotation
   c) Scaling
   d) Translation

13) DVST stands for _____.
   a) Digital view storing table
   b) Direct visual storage tube
   c) Direct view storage tube
   d) Digital view storage tube

14) The side effect of scan conversion is _____.
   a) Aliasing
   b) Anti aliasing
   c) Both a & b
   d) None of these

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Seat No.	

Set R

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
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 drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any three of the following. **12**

a) Comment on the raster and random display mechanism used in graphic terminals.
b) Discuss the merits and demerits of the DDA algorithm .Write the pseudo code for the DDA Algorithm.
c) Explain rotation about an arbitrary point.
d) Write a simple seed fill algorithm in detail for 4 connected boundary – defined regions.

Q.3 Attempt any one of the following. **08**

State the basic principle of the midpoint circle drawing algorithm. Using the midpoint circle algorithm, calculate first pixels in one octant.

OR

Write a scaling matrix with scaling factors 2, 3 and 1 in x, y and z directions, respectively. Apply the transformation matrix on a unit cube situated at the origin.

Q.4 Attempt the following. **08**

a) Using the homogenous coordinate transformation matrix, rotate the triangle ABC with A= (2,3) ,B=(5,5) and C= (4.3) by an angle 45 degree about the point (1,1).
b) Explain the working of CRT in detail with diagram.

Section – II

Q.5 Answer any three. **12**

a) Describe halftoning in detail.
b) Describe non parametric curves in detail.
c) Explain z- buffer algorithm in detail.
d) Explain B-spline curve and its properties.

Q.6 Describe mid-point subdivision algorithm with example. **08**

OR

Explain back face removal algorithm and antialiasing technique in detail.

Q.7 Explain curve generation and curve representation in detail. **08**

Seat No.	

Set **S**

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER GRAPHICS

Day & Date: Tuesday, 17-12-2019 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 indicate full marks.
3) All Questions are compulsory.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) If the curve passes through all the control point, then it is _____.
   a) Interpolation b) Approximation
   c) Both a& b d) None of above

2) Parametric curve are _____.
   a) Axis independent b) Axis dependent
   c) Both a & b d) None of above

3) If a point is above and left of clipping rectangle, then it has _____ region code.
   a) 0000 b) 0101
   c) 1001 d) 1010

4) Mid-point subdivision algorithm used for _____.
   a) Point clipping b) Polygon clipping
   c) Line clipping d) Text clipping

5) Post segment function is used to make _____.
   a) Segment append b) Delete segment
   c) Segment visible d) Segment invisible

6) The process of introducing changes in the shape size and orientation of the object is called as _____.
   a) Transformation b) Projections
   c) Surface Removal d) Clipping

7) _____ is repositioning the coordinates along a circular path, in the x-y plane by making an angle with the axes.
   a) Combined transformation b) Rotation
   c) Scaling d) Translation

8) DVST stands for _____.
   a) Digital view storing table b) Direct visual storage tube
   c) Direct view storage tube d) Digital view storage tube

9) The side effect of scan conversion is _____.
   a) Aliasing b) Anti aliasing
   c) Both a & b d) None of these

10) Vector display is well suited for _____.
   a) Animation
   b) Cartoons
   c) Line drawing applications
   d) All of the above

11) Edge fill algorithm uses _____ process.
   a) Iterative process
   b) Binary process
   c) Non recursive process
   d) None of the above

12) Identify the incorrect statement :
   a) Bresenham's line drawing algorithm uses increment integer calculations.
   b) In Bresenham's algorithm error term is initialized to 0
   c) In Bresenham's algorithm, while generating a circle, it is easy to generate one octant first and other by successive reflection.
   d) None of the above

13) _____algorithm is proposed originally by catmull.
   a) Z-buffer
   b) Y-buffer
   c) Warnock
   d) Back-face

14) In Warnock algorithm, if polygon is totally outside the window is _____.
   a) Contained
   b) Disjoint
   c) Intersecting
   d) Surrounding

SLR-FM-348

Seat No.	

Set S

S.E. (Part – I) (New/Old) (CBCS) Examination Nov/Dec-2019
Information Technology
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 drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any three of the following. **12**

a) Comment on the raster and random display mechanism used in graphic terminals.
b) Discuss the merits and demerits of the DDA algorithm .Write the pseudo code for the DDA Algorithm.
c) Explain rotation about an arbitrary point.
d) Write a simple seed fill algorithm in detail for 4 connected boundary – defined regions.

Q.3 Attempt any one of the following. **08**

State the basic principle of the midpoint circle drawing algorithm. Using the midpoint circle algorithm, calculate first pixels in one octant.

OR

Write a scaling matrix with scaling factors 2, 3 and 1 in x, y and z directions, respectively. Apply the transformation matrix on a unit cube situated at the origin.

Q.4 Attempt the following. **08**

a) Using the homogenous coordinate transformation matrix, rotate the triangle ABC with A= (2,3) ,B=(5,5) and C= (4.3) by an angle 45 degree about the point (1,1).
b) Explain the working of CRT in detail with diagram.

Section – II

Q.5 Answer any three. **12**

a) Describe halftoning in detail.
b) Describe non parametric curves in detail.
c) Explain z- buffer algorithm in detail.
d) Explain B-spline curve and its properties.

Q.6 Describe mid-point subdivision algorithm with example. **08**

OR

Explain back face removal algorithm and antialiasing technique in detail.

Q.7 Explain curve generation and curve representation in detail. **08**

SLR-FM-350

Seat No.	

Set P

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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 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) The first approximation to real root of the equation $x - \cos x = 0$ by Regula falsi method is _____.
   a) 0.6851 b) 1.6851
   c) 0.6581 d) 0.8651

2) Identify, which of the following method has quadratic convergence?
   a) Regula falsi method b) Newton - Raphson method
   c) Both a and b d) Romberg's method

3) The number of strips required in Weddel's rule is _____.
   a) A Multiple of 6 b) A multiple of 10
   c) A Multiple of 3 d) A multiple of 2

4) 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

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 b) 2.66667
   c) 2.66669 d) None

6) 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) $\frac{1}{4}[3I_2 - I_1]$ d) None

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

a) 0.3722 b) -5.3723
c) 5.3723 d) 10.7445

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

a) $\overline{A \cup B} = \bar{A} \cup \bar{B}$ b) $\overline{A \cap B} = \bar{A} \cup \bar{B}$
c) $\bar{A} \subseteq A$ d) $A \subseteq \bar{A}$

9) The scalar cardinality of fuzzy set A defined by the membership function $A(x) = 1 + \frac{x}{10}, x \in \{0, -1, -2, -3, -4\}$ is _____.

a) 3 b) 3.5
c) 4 d) 4.5

10) In extension principle the gradiation of images are defined as _____.

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

11) Consider the fuzzy set defined by the membership function $B(x) = e^{-x}, x \in [0, \infty)$, then level set of fuzzy set B is _____.

a) (0,1) b) [0,1]
c) (0,1] d) [0,1)

12) If A is a fuzzy number then boundary of A is _____.

a) Unbounded b) Bounded
c) Finite d) None of these

13) Feasible solution satisfies _____.

a) Only constraints b) Only non-negative restrictions
c) Both a and b d) None of these

14) The assignment problem is said to be balanced if it is _____.

a) Rectangular matrix b) Triangular matrix
c) Unit matrix d) Square matrix

Seat No.	

Set **P**

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

a) 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.

b) Find positive root of the equation $x \log_{10} x = 1.2$ by using false-position method correct to 3 decimal places.

c) Solve the system of equations by using Gauss-Jacobi method.
$$x - y + z = 1, \quad -3x + 2y - 3z = -6, \quad 2x - 5y + 4z = 5$$

d) Solve the system of equations by using Gauss-Jacobi method.
$$8x - 3y + 2z = 20, \quad 4x + 11y - z = 33, \quad 6x + 3y + 12z = 35$$

e) Using Power method find eigen values and corresponding eigen vectors.
$$A = \begin{bmatrix} 5 & 0 & 1 \\ 0 & -2 & 0 \\ 1 & 0 & 5 \end{bmatrix} \qquad Take\ x_0 = [1 \quad 0 \quad 0]^T$$
Perform 5 iterations.

Q.3 Attempt any three. **09**

a) Solve the system of education by using Gauss-Seidal method (perform 3 iterations)
$$83x + 11y - 4z = 95, \quad 7x + 52y + 13z = 104 \quad 3x + 8y + 29z = 71$$

b) Evaluate $\int_4^{5.2} \log_e x \ dx$ by using Trapezoidal rule take n = 6.

c) Evaluate $\int_0^{1/2} \int_0^{1/2} \frac{\sin xy}{1+xy} dx\, dy$
By using Simpson's rule with $h = k = \frac{1}{4}$

d) By using Weddel's rule find
$\int_0^{0.6} e^{-x^2} \ dx$ by taking n = 6

e) 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.

Q.4 Attempt any two. **10**

a) Apply factorization method to solve the equations.
$$3x + 2y + 7z = 4, \quad 2x + 3y + z = 5, \quad 3x + 4y + z = 7$$

b) Perform two iterations of Newton-Raphson method to find a solution of the system.
$x^2 + xy = 6, \quad x^2 - y^2 = 3$ 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.

Section – II

Q.5 Attempt any three from the following **09**

a) 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)

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

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

For $\alpha = 0, 0.3, 0.9$

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

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

ii) $B(x) = \log x\,, x \in [1, 2.72]$

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 $f(A)$.

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

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

Q.6 Attempt any three from the following **09**

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

	I	II	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.

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

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

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

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

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

Find:

i) Boundary of A.

ii) Core of A.

Q.7 Attempt any two from the following **10**

a) Solve $Max\ Z = 3x_1 + 5x_2 + 4x_3$ subject to constraints

$2x_1 + 3x_2 \leq 8,\ \ 2x_2 + 5x_3 \leq 10,\ \ 3x_1 + 2x_2 + 4x_3 \leq 15\ \ x_1, x_2, x_3 \geq 0$

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

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

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

Find $\text{MAX}(A, B)$

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

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

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

Find a fuzzy number $A.B$

Seat No.	

Set **Q**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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 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) Which of the following is true for fuzzy sets?
   a) $\overline{A \cup B} = \bar{A} \cup \bar{B}$ b) $\overline{A \cap B} = \bar{A} \cup \bar{B}$
   c) $\bar{A} \subseteq A$ d) $A \subseteq \bar{A}$

2) The scalar cardinality of fuzzy set A defined by the membership function $A(x) = 1 + \frac{x}{10}, x \in \{0, -1, -2, -3, -4\}$ is _____.
   a) 3 b) 3.5
   c) 4 d) 4.5

3) In extension principle the gradiation of images are defined as _____.
   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

4) Consider the fuzzy set defined by the membership function $B(x) = e^{-x}, x \in [0, \infty)$, then level set of fuzzy set B is _____.
   a) (0,1) b) [0,1]
   c) (0,1] d) [0,1)

5) If A is a fuzzy number then boundary of A is _____.
   a) Unbounded b) Bounded
   c) Finite d) None of these

6) Feasible solution satisfies _____.
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   c) Both a and b d) None of these

7) The assignment problem is said to be balanced if it is _____.
   a) Rectangular matrix b) Triangular matrix
   c) Unit matrix d) Square matrix

8) The first approximation to real root of the equation $x - \cos x = 0$ by Regula falsi method is _____.
   a) 0.6851 b) 1.6851
   c) 0.6581 d) 0.8651

9) Identify, which of the following method has quadratic convergence?
   a) Regula falsi method b) Newton - Raphson method
   c) Both a and b d) Romberg's method

10) The number of strips required in Weddel's rule is _____.
   a) A Multiple of 6 b) A multiple of 10
   c) A Multiple of 3 d) A multiple of 2

11) 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

12) 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 b) 2.66667
   c) 2.66669 d) None

13) If I_1 and I_2 denotes approximate value of $I = \int_a^b f(x)dx$ in the Romberg's method then I = _____.
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   c) $\frac{1}{4}[3I_2 - I_1]$ d) None

14) The dominant eigen value of the matrix $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ is _____.
   a) 0.3722 b) -5.3723
   c) 5.3723 d) 10.7445

Seat No.	

Set **Q**

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

a) 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.

b) Find positive root of the equation $x \log_{10} x = 1.2$ by using false-position method correct to 3 decimal places.

c) Solve the system of equations by using Gauss-Jacobi method.
$$x - y + z = 1, \quad -3x + 2y - 3z = -6, \quad 2x - 5y + 4z = 5$$

d) Solve the system of equations by using Gauss-Jacobi method.
$$8x - 3y + 2z = 20, \quad 4x + 11y - z = 33, \quad 6x + 3y + 12z = 35$$

e) Using Power method find eigen values and corresponding eigen vectors.
$$A = \begin{bmatrix} 5 & 0 & 1 \\ 0 & -2 & 0 \\ 1 & 0 & 5 \end{bmatrix} \qquad Take\ x_0 = [1 \quad 0 \quad 0]^T$$
Perform 5 iterations.

Q.3 Attempt any three. **09**

a) Solve the system of education by using Gauss-Seidal method (perform 3 iterations)
$$83x + 11y - 4z = 95, \quad 7x + 52y + 13z = 104 \quad 3x + 8y + 29z = 71$$

b) Evaluate $\int_4^{5.2} \log_e x \ dx$ by using Trapezoidal rule take n = 6.

c) Evaluate $\int_0^{1/2} \int_0^{1/2} \frac{\sin xy}{1+xy} dx\, dy$
By using Simpson's rule with $h = k = \frac{1}{4}$

d) By using Weddel's rule find
$\int_0^{0.6} e^{-x^2} \ dx$ by taking n = 6

e) 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.

Q.4 Attempt any two. **10**

a) Apply factorization method to solve the equations.
$$3x + 2y + 7z = 4, \quad 2x + 3y + z = 5, \quad 3x + 4y + z = 7$$

b) Perform two iterations of Newton-Raphson method to find a solution of the system.
$x^2 + xy = 6, \quad x^2 - y^2 = 3$ 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.

Section – II

Q.5 Attempt any three from the following **09**

a) 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)

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

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

For $\alpha = 0, 0.3, 0.9$

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

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

ii) $B(x) = \log x\,, x \in [1, 2.72]$

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 $f(A)$.

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

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

Q.6 Attempt any three from the following **09**

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

	I	II	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.

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

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

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

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

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

Find:

i) Boundary of A.

ii) Core of A.

Q.7 Attempt any two from the following **10**

a) Solve $Max\ Z = 3x_1 + 5x_2 + 4x_3$ subject to constraints

$2x_1 + 3x_2 \leq 8,\ \ 2x_2 + 5x_3 \leq 10,\ \ 3x_1 + 2x_2 + 4x_3 \leq 15\ \ x_1, x_2, x_3 \geq 0$

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

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

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

Find $\text{MAX}(A, B)$

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

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

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

Find a fuzzy number $A.B$

Seat No.	

Set **R**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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 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 b) 2.66667
c) 2.66669 d) None

2) 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) $\frac{1}{4}[3I_2 - I_1]$ d) None

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

a) 0.3722 b) -5.3723
c) 5.3723 d) 10.7445

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

a) $\overline{A \cup B} = \bar{A} \cup \bar{B}$ b) $\overline{A \cap B} = \bar{A} \cup \bar{B}$
c) $\bar{A} \subseteq A$ d) $A \subseteq \bar{A}$

5) The scalar cardinality of fuzzy set A defined by the membership function $A(x) = 1 + \frac{x}{10}, x \in \{0, -1, -2, -3, -4\}$ is _____.

a) 3 b) 3.5
c) 4 d) 4.5

6) In extension principle the gradiation of images are defined as _____.
   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

7) Consider the fuzzy set defined by the membership function $B(x) = e^{-x}, x \in [0, \infty)$, then level set of fuzzy set B is _____.
   a) (0,1) b) [0,1]
   c) (0,1] d) [0,1)

8) If A is a fuzzy number then boundary of A is _____.
   a) Unbounded b) Bounded
   c) Finite d) None of these

9) Feasible solution satisfies _____.
   a) Only constraints b) Only non-negative restrictions
   c) Both a and b d) None of these

10) The assignment problem is said to be balanced if it is _____.
   a) Rectangular matrix b) Triangular matrix
   c) Unit matrix d) Square matrix

11) The first approximation to real root of the equation $x - \cos x = 0$ by Regula falsi method is _____.
   a) 0.6851 b) 1.6851
   c) 0.6581 d) 0.8651

12) Identify, which of the following method has quadratic convergence?
   a) Regula falsi method b) Newton - Raphson method
   c) Both a and b d) Romberg's method

13) The number of strips required in Weddel's rule is _____.
   a) A Multiple of 6 b) A multiple of 10
   c) A Multiple of 3 d) A multiple of 2

14) 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

Seat No.	

Set **R**

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

a) 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.

b) Find positive root of the equation $x \log_{10} x = 1.2$ by using false-position method correct to 3 decimal places.

c) Solve the system of equations by using Gauss-Jacobi method.
$$x - y + z = 1, \quad -3x + 2y - 3z = -6, \quad 2x - 5y + 4z = 5$$

d) Solve the system of equations by using Gauss-Jacobi method.
$$8x - 3y + 2z = 20, \quad 4x + 11y - z = 33, \quad 6x + 3y + 12z = 35$$

e) Using Power method find eigen values and corresponding eigen vectors.
$$A = \begin{bmatrix} 5 & 0 & 1 \\ 0 & -2 & 0 \\ 1 & 0 & 5 \end{bmatrix} \qquad Take\ x_0 = [1 \quad 0 \quad 0]^T$$
Perform 5 iterations.

Q.3 Attempt any three. **09**

a) Solve the system of education by using Gauss-Seidal method (perform 3 iterations)
$$83x + 11y - 4z = 95, \quad 7x + 52y + 13z = 104 \quad 3x + 8y + 29z = 71$$

b) Evaluate $\int_4^{5.2} \log_e x \ dx$ by using Trapezoidal rule take n = 6.

c) Evaluate $\int_0^{1/2} \int_0^{1/2} \frac{\sin xy}{1+xy} dx\, dy$
By using Simpson's rule with $h = k = \frac{1}{4}$

d) By using Weddel's rule find
$\int_0^{0.6} e^{-x^2} \ dx$ by taking n = 6

e) 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.

Q.4 Attempt any two. **10**

a) Apply factorization method to solve the equations.
$$3x + 2y + 7z = 4, \quad 2x + 3y + z = 5, \quad 3x + 4y + z = 7$$

b) Perform two iterations of Newton-Raphson method to find a solution of the system.
$x^2 + xy = 6, \quad x^2 - y^2 = 3$ 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.

Section – II

Q.5 Attempt any three from the following **09**

a) 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)

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

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

For $\alpha = 0, 0.3, 0.9$

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

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

ii) $B(x) = \log x, x \in [1, 2.72]$

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 $f(A)$.

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

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

Q.6 Attempt any three from the following **09**

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

	I	II	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.

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

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

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

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

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

Find:

i) Boundary of A.

ii) Core of A.

Q.7 Attempt any two from the following **10**

a) Solve $Max\ Z = 3x_1 + 5x_2 + 4x_3$ subject to constraints

$2x_1 + 3x_2 \leq 8,\ \ 2x_2 + 5x_3 \leq 10,\ \ 3x_1 + 2x_2 + 4x_3 \leq 15\ \ x_1, x_2, x_3 \geq 0$

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

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

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

Find $\text{MAX}(A, B)$

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

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

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

Find a fuzzy number $A.B$

Seat No.	

Set **S**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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 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) In extension principle the gradiation of images are defined as _____.
   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

2) Consider the fuzzy set defined by the membership function $B(x) = e^{-x}, x \in [0, \infty)$, then level set of fuzzy set B is _____.
   a) (0,1) b) [0,1]
   c) (0,1] d) [0,1)

3) If A is a fuzzy number then boundary of A is _____.
   a) Unbounded b) Bounded
   c) Finite d) None of these

4) Feasible solution satisfies _____.
   a) Only constraints b) Only non-negative restrictions
   c) Both a and b d) None of these

5) The assignment problem is said to be balanced if it is _____.
   a) Rectangular matrix b) Triangular matrix
   c) Unit matrix d) Square matrix

6) The first approximation to real root of the equation $x - \cos x = 0$ by Regula falsi method is _____.
   a) 0.6851 b) 1.6851
   c) 0.6581 d) 0.8651

7) Identify, which of the following method has quadratic convergence?
   a) Regula falsi method b) Newton - Raphson method
   c) Both a and b d) Romberg's method

8) The number of strips required in Weddel's rule is _____.
   a) A Multiple of 6 b) A multiple of 10
   c) A Multiple of 3 d) 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
b) 2.66667
c) 2.66669
d) None

11) 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) $\frac{1}{4}[3I_2 - I_1]$
d) None

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

a) 0.3722
b) -5.3723
c) 5.3723
d) 10.7445

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

a) $\overline{A \cup B} = \bar{A} \cup \bar{B}$
b) $\overline{A \cap B} = \bar{A} \cup \bar{B}$
c) $\bar{A} \subseteq A$
d) $A \subseteq \bar{A}$

14) The scalar cardinality of fuzzy set A defined by the membership function $A(x) = 1 + \frac{x}{10}, x \in \{0, -1, -2, -3, -4\}$ is _____.

a) 3
b) 3.5
c) 4
d) 4.5

Seat No.	

Set **S**

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

a) 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.

b) Find positive root of the equation $x \log_{10} x = 1.2$ by using false-position method correct to 3 decimal places.

c) Solve the system of equations by using Gauss-Jacobi method.
$$x - y + z = 1, \quad -3x + 2y - 3z = -6, \quad 2x - 5y + 4z = 5$$

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

e) Using Power method find eigen values and corresponding eigen vectors.
$$A = \begin{bmatrix} 5 & 0 & 1 \\ 0 & -2 & 0 \\ 1 & 0 & 5 \end{bmatrix} \qquad Take\ x_0 = [1 \quad 0 \quad 0]^T$$
Perform 5 iterations.

Q.3 Attempt any three. **09**

a) Solve the system of education by using Gauss-Seidal method (perform 3 iterations)
$$83x + 11y - 4z = 95, \quad 7x + 52y + 13z = 104 \quad 3x + 8y + 29z = 71$$

b) Evaluate $\int_4^{5.2} \log_e x \ dx$ by using Trapezoidal rule take n = 6.

c) Evaluate $\int_0^{1/2} \int_0^{1/2} \frac{\sin xy}{1+xy} dx\, dy$
By using Simpson's rule with $h = k = \frac{1}{4}$

d) By using Weddel's rule find
$\int_0^{0.6} e^{-x^2} \ dx$ by taking n = 6

e) 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.

Q.4 Attempt any two. **10**

a) Apply factorization method to solve the equations.
$$3x + 2y + 7z = 4, \quad 2x + 3y + z = 5, \quad 3x + 4y + z = 7$$

b) Perform two iterations of Newton-Raphson method to find a solution of the system.
$x^2 + xy = 6, \quad x^2 - y^2 = 3$ 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.

Section – II

Q.5 Attempt any three from the following **09**

a) 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)

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

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

For $\alpha = 0, 0.3, 0.9$

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

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

ii) $B(x) = \log x, x \in [1, 2.72]$

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 $f(A)$.

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

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

Q.6 Attempt any three from the following **09**

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

	I	II	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.

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

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

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

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

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

Find:

i) Boundary of A.

ii) Core of A.

Q.7 Attempt any two from the following **10**

a) Solve $Max\ Z = 3x_1 + 5x_2 + 4x_3$ subject to constraints

$2x_1 + 3x_2 \leq 8,\ \ 2x_2 + 5x_3 \leq 10,\ \ 3x_1 + 2x_2 + 4x_3 \leq 15\ \ x_1, x_2, x_3 \geq 0$

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

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

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

Find $\text{MAX}(A, B)$

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

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

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

Find a fuzzy number $A.B$

SLR-FM-351

Seat No.	

Set P

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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 it 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 statements are correct?
   a) An alphabet is a finite sequence of distinct symbols.
   b) A word is a finite sequence of symbols over a given alphabet.
   c) A language is a possibly infinite set of words over a given alphabet
   d) An infinite language can be regular.

2) a ∗ (ab) ∗ (abc) ∗ Which of the following regular expressions denote the same language as the above regular expression?
   a) (a + ab + abc) ∗ b) a ∗ (a + b) ∗ (a + b + c) ∗
   c) a ∗ (∧ + ab) ∗ (∧ + abc) ∗ d) None

3) Consider the following Context-Free Grammar (CFG) G:
   S→XX | Y X→aXc | aYc Y→Yb | ^
   Which of the following statements about the language L(G) generated by G are correct?
   a) ∧ ∈ L(G) b) aabbbccac ∈ L(G)
   c) Both d) None

4) While converting the context free grammar into CNF normal form, which of the following is not necessary?
   a) Elimination of null production
   b) Elimination of unit production
   c) Elimination of useless production
   d) None of these

5) The regular expression with all strings of 0's and 1's with at-least two consecutive 0's, is _____.
   a) 1+(10)* b) (0 + 1)*00 (0 + 1)*
   c) (0+1)*011 d) 0*1*2*

6) A parse tree for a string in L(G) is a tree where _____.
   a) The root is the start symbol for g
   b) the leaf nodes are the terminal symbols of g
   c) all of these
   d) None

7) Which of the following languages CANNOT be defined by Finite Automata?
   a) {ab, abab, ababab, abababab,……}
   b) {abb, aabbbb, aaabbbbbb, aaaabbbbbbbb,....}
   c) {a, aa, aba, abba, abbba, abbbba, abbbbba,...}
   d) {a, b, aa, bb, aaa, bbb, aaaa, bbbb,…..}

8) PDA _____ accept the language of palindrome without middle marker input symbol.
   a) May
   b) Can
   c) May not
   d) Can not

9) Push down machine represents _____.
   a) Type 0 Grammar
   b) Type 1 grammar
   c) Type 2 Grammar
   d) Type 3 grammar

10) Pumping lemma is generally used for proving that _____.
   a) given grammar is regular
   b) given grammar is not regular
   c) whether two given regular expressions are equivalent or not
   d) None of these

11) The δ^* for the TM is defined by _____.
   a) δ^*: $Q\ X\ (\lceil U\ \{\Delta\})\ \rightarrow Q\ U\{ha, hr\}\ X\ (\lceil U\ \{\Delta\})\ X\ \{L, R, S\}$
   b) δ^* : $Q\ X \sum \rightarrow Q\ U\ \{ha, hr\}\ X\ (\lceil U\ \{\Delta\})\ X\ \{L, R, S\}$
   c) $\delta^*\ QX(\lceil U\ \{\Delta\})\ \rightarrow Q\ X\ (\lceil U\ \{\Delta\})\ X\ \{L, R, S\}$
   d) δ^*: $Q\ X\lceil U\ \{\hat{}\}\ \rightarrow Q\ U\ \{\ ha, hr\}\ X\ (\lceil U\ \{\Delta\ \})$

12) Universal TM influenced the concept of _____.
   a) stored program computers
   b) Computability
   c) interpretative implementation of programming lang
   d) All

13) The Tape of Turing Machine is used as _____.
   a) Input storage device
   b) Output storage device
   c) Infinite and read-write internal memory
   d) All of these

14) TM is called as _____.
   a) Acceptor
   b) Calculator
   c) Both a) and b)
   d) None of these

Seat No.	

Set | P

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

Q.2 Attempt any three of the following questions. **12**

a) Derive A={$a^m b^n c^n$ | m, n≥0}

b) Compare between NFA and DFA.

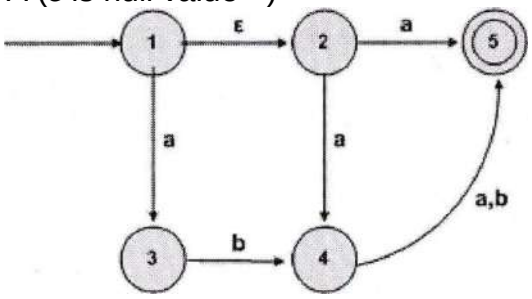
c) L = { x | x contains substring 010 }

d) What is dangling else phenomenon in programming language?

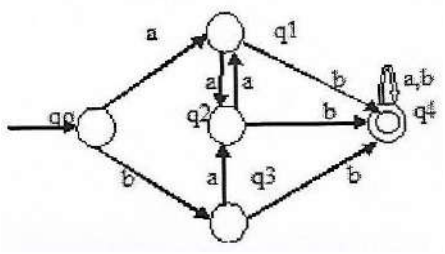
Q.3 Attempt any two of the following questions. **16**

a) Consider the grammar: S -> aS | aSbS| epsilon
where S is the only non-terminal, and epsilon is the null string. Find if grammar is ambiguous, by giving derivation and parse trees for the string aab.

b) Convert NFA to DFA (***ε*** is null value ^)



c) Minimize following DFA.



Section – II

Q.4 Attempt any three of the following questions. **12**

a) Prove that L = {$a^n b^n c^n$ | n >=0} in not regular.

b) What is pumping lemma? Explain the need of pumping lemma.

c) Explain the basic model working of PDA.

d) Construct a PDA for the language generated by the following grammar.
S → aSA | a
A→ bB
B→b

e) Compare NPDA and DPDA

Q.5 Attempt any two of the following questions. **16**

a) Design PDA for accepting palindrome where the $\sum = \{a, b\}$.

b) Design TM for accepting language L= $\{0^n 1^n \mid n>=0\}$.

c) Explain the following.

1) TM with multiple track.
2) TM with semi infinite tape.

SLR-FM-351

Seat No.	

Set Q

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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 it 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) PDA _____ accept the language of palindrome without middle marker input symbol.
   a) May b) Can
   c) May not d) Can not

2) Push down machine represents _____.
   a) Type 0 Grammar b) Type 1 grammar
   c) Type 2 Grammar d) Type 3 grammar

3) Pumping lemma is generally used for proving that _____.
   a) given grammar is regular
   b) given grammar is not regular
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4) The δ^* for the TM is defined by _____.
   a) $\delta^*: Q\ X\ (\lceil U\ \{\Delta\})\ \rightarrow Q\ U\{ha, hr\}\ X\ (\lceil U\ \{\Delta\})\ X\ \{L, R, S\}$
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   d) $\delta^*: Q\ X\lceil U\ \{\hat{}\}\ \rightarrow Q\ U\ \{\ ha, hr\}\ X\ (\lceil U\ \{\Delta\})$

5) Universal TM influenced the concept of _____.
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6) The Tape of Turing Machine is used as _____.
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   b) Output storage device
   c) Infinite and read-write internal memory
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7) TM is called as _____.
   a) Acceptor b) Calculator
   c) Both a) and b) d) None of these

8) Which of the following statements are correct?
   a) An alphabet is a finite sequence of distinct symbols.
   b) A word is a finite sequence of symbols over a given alphabet.
   c) A language is a possibly infinite set of words over a given alphabet
   d) An infinite language can be regular.

9) a ∗ (ab) ∗ (abc) ∗ Which of the following regular expressions denote the same language as the above regular expression?
   a) (a + ab + abc) ∗
   b) a ∗ (a + b) ∗ (a + b + c) ∗
   c) a ∗ (^ + ab) ∗ (^ + abc) ∗
   d) None

10) Consider the following Context-Free Grammar (CFG) G:
S→XX | Y X→aXc | aYc Y→Yb | ^
Which of the following statements about the language L(G) generated by G are correct?
   a) ^ ∈ L(G)
   b) aabbbccac ∈ L(G)
   c) Both
   d) None

11) While converting the context free grammar into CNF normal form, which of the following is not necessary?
   a) Elimination of null production
   b) Elimination of unit production
   c) Elimination of useless production
   d) None of these

12) The regular expression with all strings of 0's and 1's with at-least two consecutive 0's, is _____.
   a) 1+(10)*
   b) (0 + 1)*00 (0 + 1)*
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14) Which of the following languages CANNOT be defined by Finite Automata?
   a) {ab, abab, ababab, abababab,……}
   b) {abb, aabbbb, aaabbbbbb, aaaabbbbbbbb,....}
   c) {a, aa, aba, abba, abbba, abbbba, abbbbba,...}
   d) {a, b, aa, bb, aaa, bbb, aaaa, bbbb,…..}

Seat No.	

Set **Q**

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

Q.2 Attempt any three of the following questions. **12**

a) Derive A={$a^m b^n c^n$ | m, n≥0}

b) Compare between NFA and DFA.

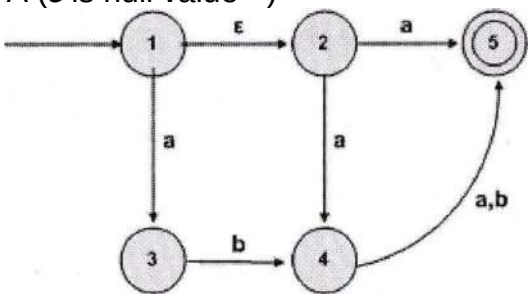
c) L = { x | x contains substring 010 }

d) What is dangling else phenomenon in programming language?

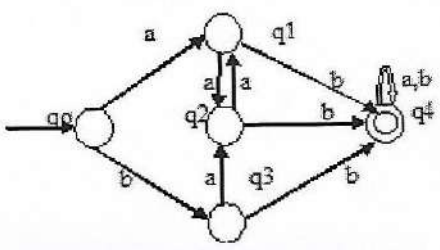
Q.3 Attempt any two of the following questions. **16**

a) Consider the grammar: S -> aS | aSbS| epsilon
where S is the only non-terminal, and epsilon is the null string. Find if grammar is ambiguous, by giving derivation and parse trees for the string aab.

b) Convert NFA to DFA (***ε*** is null value ^)



c) Minimize following DFA.



Section – II

Q.4 Attempt any three of the following questions. **12**

a) Prove that L = {$a^n b^n c^n$ | n >=0} in not regular.

b) What is pumping lemma? Explain the need of pumping lemma.

c) Explain the basic model working of PDA.

d) Construct a PDA for the language generated by the following grammar.
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A→ bB
B→b

e) Compare NPDA and DPDA

Q.5 Attempt any two of the following questions. **16**

a) Design PDA for accepting palindrome where the $\sum = \{a, b\}$.

b) Design TM for accepting language L= $\{0^n 1^n \mid n>=0\}$.

c) Explain the following.

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Seat No.	

Set **R**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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 it should be solved in first 30 minutes in answer book.
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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 regular expression with all strings of 0's and 1's with at-least two consecutive 0's, is _____.
   a) 1+(10)* b) (0 + 1)*00 (0 + 1)*
   c) (0+1)*011 d) 0*1*2*

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   a) The root is the start symbol for g
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   c) all of these
   d) None

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   a) {ab, abab, ababab, abababab,……}
   b) {abb, aabbbb, aaabbbbbb, aaaabbbbbbbb,....}
   c) {a, aa, aba, abba, abbba, abbbba, abbbbba,...}
   d) {a, b, aa, bb, aaa, bbb, aaaa, bbbb,…..}

4) PDA _____ accept the language of palindrome without middle marker input symbol.
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   c) May not d) Can not

5) Push down machine represents _____.
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6) Pumping lemma is generally used for proving that _____.
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7) The δ^* for the TM is defined by _____.
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   a) Input storage device
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11) Which of the following statements are correct?
   a) An alphabet is a finite sequence of distinct symbols.
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12) $a * (ab) * (abc) *$ Which of the following regular expressions denote the same language as the above regular expression?
   a) $(a + ab + abc) *$
   b) $a * (a + b) * (a + b + c) *$
   c) $a * (\wedge + ab) * (\wedge + abc) *$
   d) None

13) Consider the following Context-Free Grammar (CFG) G:
   $S \rightarrow XX \mid Y \quad X \rightarrow aXc \mid aYc \quad Y \rightarrow Yb \mid \wedge$
   Which of the following statements about the language L(G) generated by G are correct?
   a) $\wedge \in L(G)$
   b) $aabbbccac \in L(G)$
   c) Both
   d) None

14) While converting the context free grammar into CNF normal form, which of the following is not necessary?
   a) Elimination of null production
   b) Elimination of unit production
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   d) None of these

Seat No.	

Set **R**

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

Q.2 Attempt any three of the following questions. **12**

a) Derive A={$a^m b^n c^n$ | m, n≥0}

b) Compare between NFA and DFA.

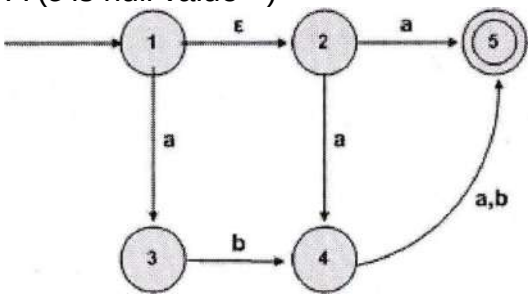
c) L = { x | x contains substring 010 }

d) What is dangling else phenomenon in programming language?

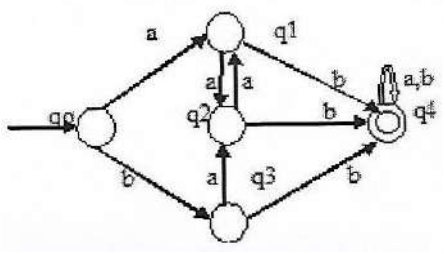
Q.3 Attempt any two of the following questions. **16**

a) Consider the grammar: S -> aS | aSbS| epsilon
where S is the only non-terminal, and epsilon is the null string. Find if grammar is ambiguous, by giving derivation and parse trees for the string aab.

b) Convert NFA to DFA (***ε*** is null value ^)



c) Minimize following DFA.



Section – II

Q.4 Attempt any three of the following questions. **12**

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e) Compare NPDA and DPDA

Q.5 Attempt any two of the following questions. **16**

a) Design PDA for accepting palindrome where the $\sum = \{a, b\}$.

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c) Explain the following.

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Seat No.	

Set **S**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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 it 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**

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Seat No.	

Set **S**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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.
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Section – I

Q.2 Attempt any three of the following questions. **12**

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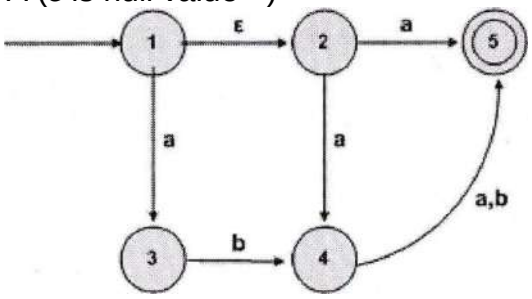

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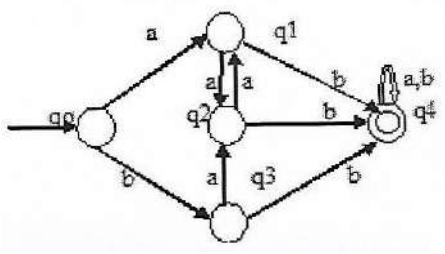

Section – II

Q.4 Attempt any three of the following questions. **12**

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Seat No.	

Set **P**

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

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 it should be solved in first 30 minutes in answer book.
2) Figures to 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) In 8085 name the 16 bit registers?
   a) Stack pointer b) Program counter
   c) Both a & b d) None of these

2) 8085 Microprocessor is enclosed with _____ pins DIP (Dual in line package).
   a) 40 b) 20
   c) 26 d) 36

3) The instruction, MOV AX, 0005H belongs to the address mode _____.
   a) Register b) Direct
   c) Immediate d) Register relative

4) Which of the following is not a data copy/transfer instruction?
   a) MOV b) PUSH
   c) DAS d) POP

5) The instruction that subtracts 1 from the contents of the specified register/memory location is _____.
   a) INC b) SUBB
   c) SUB d) DEC

6) The RD, WR, M/IO is the heart of control for a _____mode.
   a) minimum b) maximum
   c) compatibility mode d) control mode

7) In 8086 microprocessor one of the following statements is not true _____.
   a) Coprocessor is interfaced in MAX mode
   b) Coprocessor is interfaced in MIN mode
   c) I/O can be interfaced in MAX / MIN mode
   d) Supports pipelining

8) A _____Instruction at the end of interrupt service program takes the execution back to the interrupted program.
   a) forward b) return
   c) data d) line

9) In 8086 microprocessor the following has the highest priority among all type interrupts.
   a) NMI b) DIV 0
   c) Type 255 d) Over flow

10) Port C of 8255 can function independently as _____.
   a) input port
   b) output port
   c) either input or output ports
   d) both input and output ports

11) The unit that executes all the numeric processor instructions in 8087 is _____.
   a) Control unit
   b) ALU
   c) Numeric extension unit
   d) None of the mentioned

12) The 8087 can operate on memory operands of following data types_____.
   a) Word integer, short integer and long integer
   b) Packed BCD, short real and long real
   c) Temporary real
   d) All of the above

13) The management of the memory system required to ensure the smooth execution of the running process is done by.
   a) Control unit
   b) memory
   c) memory management unit
   d) bus interface unit

14) The fetching of program from secondary memory to place it in physical memory, during the execution of CPU is called _____.
   a) mapping
   b) swapping in
   c) swapping out
   d) pipe lining

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Seat No.	

Set P

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

Day & Date: Monday, 25-11-2019 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 Attempt any three. **12**

a) Explain the features of 8085 Microprocessor.
b) Draw and explain architecture diagram of 8085.
c) Describe addressing modes of 8086 with suitable example.
d) Explain the data transfer and arithmetic instructions with examples.
e) Explain briefly any 4 assembler directives.

Q.3 Attempt any two. **16**

a) With a neat diagram explain 8086 Architecture.
b) Sketch the minimum mode configuration of 8086 and explain the operation briefly.
c) Given that, (DS) = 2000 H, (BX) = 2124 H, (DI) = 4A39 H, Displacement = E260.
Determine the effective (or offset) address and physical address, if applicable, resulting from these registers and addressing modes:
1) Immediate
2) Direct
3) Register assuming BX
4) Register Indirect assuming BX

Section – II

Q.4 Attempt any three. **12**

a) Write a note on Interrupt service Routine with a diagram.
b) Write the features and operating modes of DMA Controller 8257.
c) Describe Bit Set/Reset mode (BSR mode) of 8255.
d) Explain the following data types of numeric data processor 8087.
1) Word integer
2) Short Integer
3) Long Integer
4) Packed BCD
e) Write the features of 80386 Microprocessor.

Q.5 Attempt any two. **16**

a) Explain the Maskable and Non-maskable Interrupt (8259) with example.
b) Describe the Block diagram of 8087 numeric data processor.
c) Describe the features and architecture of 80286 processor.

Seat No.	

Set **Q**

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

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 it should be solved in first 30 minutes in answer book.
2) Figures to 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) A _____Instruction at the end of interrupt service program takes the execution back to the interrupted program.
   a) forward b) return
   c) data d) line

2) In 8086 microprocessor the following has the highest priority among all type interrupts.
   a) NMI b) DIV 0
   c) Type 255 d) Over flow

3) Port C of 8255 can function independently as _____.
   a) input port b) output port
   c) either input or output ports d) both input and output ports

4) The unit that executes all the numeric processor instructions in 8087 is _____.
   a) Control unit b) ALU
   c) Numeric extension unit d) None of the mentioned

5) The 8087 can operate on memory operands of following data types_____.
   a) Word integer, short integer and long integer
   b) Packed BCD, short real and long real
   c) Temporary real
   d) All of the above

6) The management of the memory system required to ensure the smooth execution of the running process is done by.
   a) Control unit b) memory
   c) memory management unit d) bus interface unit

7) The fetching of program from secondary memory to place it in physical memory, during the execution of CPU is called _____.
   a) mapping b) swapping in
   c) swapping out d) pipe lining

8) In 8085 name the 16 bit registers?
   a) Stack pointer b) Program counter
   c) Both a & b d) None of these

9) 8085 Microprocessor is enclosed with _____ pins DIP (Dual in line package).
   a) 40 b) 20
   c) 26 d) 36

10) The instruction, MOV AX, 0005H belongs to the address mode _____.
   a) Register
   b) Direct
   c) Immediate
   d) Register relative

11) Which of the following is not a data copy/transfer instruction?
   a) MOV
   b) PUSH
   c) DAS
   d) POP

12) The instruction that subtracts 1 from the contents of the specified register/memory location is _____.
   a) INC
   b) SUBB
   c) SUB
   d) DEC

13) The RD, WR, M/IO is the heart of control for a _____mode.
   a) minimum
   b) maximum
   c) compatibility mode
   d) control mode

14) In 8086 microprocessor one of the following statements is not true _____.
   a) Coprocessor is interfaced in MAX mode
   b) Coprocessor is interfaced in MIN mode
   c) I/O can be interfaced in MAX / MIN mode
   d) Supports pipelining

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Seat No.	

Set Q

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

Day & Date: Monday, 25-11-2019 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 Attempt any three. **12**

a) Explain the features of 8085 Microprocessor.
b) Draw and explain architecture diagram of 8085.
c) Describe addressing modes of 8086 with suitable example.
d) Explain the data transfer and arithmetic instructions with examples.
e) Explain briefly any 4 assembler directives.

Q.3 Attempt any two. **16**

a) With a neat diagram explain 8086 Architecture.
b) Sketch the minimum mode configuration of 8086 and explain the operation briefly.
c) Given that, (DS) = 2000 H, (BX) = 2124 H, (DI) = 4A39 H, Displacement = E260.
Determine the effective (or offset) address and physical address, if applicable, resulting from these registers and addressing modes:
1) Immediate
2) Direct
3) Register assuming BX
4) Register Indirect assuming BX

Section – II

Q.4 Attempt any three. **12**

a) Write a note on Interrupt service Routine with a diagram.
b) Write the features and operating modes of DMA Controller 8257.
c) Describe Bit Set/Reset mode (BSR mode) of 8255.
d) Explain the following data types of numeric data processor 8087.
1) Word integer
2) Short Integer
3) Long Integer
4) Packed BCD
e) Write the features of 80386 Microprocessor.

Q.5 Attempt any two. **16**

a) Explain the Maskable and Non-maskable Interrupt (8259) with example.
b) Describe the Block diagram of 8087 numeric data processor.
c) Describe the features and architecture of 80286 processor.

Seat No.	

Set **R**

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

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 it should be solved in first 30 minutes in answer book.
2) Figures to 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) The instruction that subtracts 1 from the contents of the specified register/memory location is _____.
   a) INC b) SUBB
   c) SUB d) DEC

2) The RD, WR, M/IO is the heart of control for a _____mode.
   a) minimum b) maximum
   c) compatibility mode d) control mode

3) In 8086 microprocessor one of the following statements is not true _____.
   a) Coprocessor is interfaced in MAX mode
   b) Coprocessor is interfaced in MIN mode
   c) I/O can be interfaced in MAX / MIN mode
   d) Supports pipelining

4) A _____Instruction at the end of interrupt service program takes the execution back to the interrupted program.
   a) forward b) return
   c) data d) line

5) In 8086 microprocessor the following has the highest priority among all type interrupts.
   a) NMI b) DIV 0
   c) Type 255 d) Over flow

6) Port C of 8255 can function independently as _____.
   a) input port b) output port
   c) either input or output ports d) both input and output ports

7) The unit that executes all the numeric processor instructions in 8087 is _____.
   a) Control unit b) ALU
   c) Numeric extension unit d) None of the mentioned

8) The 8087 can operate on memory operands of following data types_____.
   a) Word integer, short integer and long integer
   b) Packed BCD, short real and long real
   c) Temporary real
   d) All of the above

9) The management of the memory system required to ensure the smooth execution of the running process is done by.
   a) Control unit
   b) memory
   c) memory management unit
   d) bus interface unit

10) The fetching of program from secondary memory to place it in physical memory, during the execution of CPU is called _____.
   a) mapping
   b) swapping in
   c) swapping out
   d) pipe lining

11) In 8085 name the 16 bit registers?
   a) Stack pointer
   b) Program counter
   c) Both a & b
   d) None of these

12) 8085 Microprocessor is enclosed with _____ pins DIP (Dual in line package).
   a) 40
   b) 20
   c) 26
   d) 36

13) The instruction, MOV AX, 0005H belongs to the address mode _____.
   a) Register
   b) Direct
   c) Immediate
   d) Register relative

14) Which of the following is not a data copy/transfer instruction?
   a) MOV
   b) PUSH
   c) DAS
   d) POP

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Seat No.	

Set R

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

Day & Date: Monday, 25-11-2019 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 Attempt any three. **12**

a) Explain the features of 8085 Microprocessor.
b) Draw and explain architecture diagram of 8085.
c) Describe addressing modes of 8086 with suitable example.
d) Explain the data transfer and arithmetic instructions with examples.
e) Explain briefly any 4 assembler directives.

Q.3 Attempt any two. **16**

a) With a neat diagram explain 8086 Architecture.
b) Sketch the minimum mode configuration of 8086 and explain the operation briefly.
c) Given that, (DS) = 2000 H, (BX) = 2124 H, (DI) = 4A39 H, Displacement = E260.
Determine the effective (or offset) address and physical address, if applicable, resulting from these registers and addressing modes:
1) Immediate
2) Direct
3) Register assuming BX
4) Register Indirect assuming BX

Section – II

Q.4 Attempt any three. **12**

a) Write a note on Interrupt service Routine with a diagram.
b) Write the features and operating modes of DMA Controller 8257.
c) Describe Bit Set/Reset mode (BSR mode) of 8255.
d) Explain the following data types of numeric data processor 8087.
1) Word integer
2) Short Integer
3) Long Integer
4) Packed BCD
e) Write the features of 80386 Microprocessor.

Q.5 Attempt any two. **16**

a) Explain the Maskable and Non-maskable Interrupt (8259) with example.
b) Describe the Block diagram of 8087 numeric data processor.
c) Describe the features and architecture of 80286 processor.

Seat No.	

Set **S**

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

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 it should be solved in first 30 minutes in answer book.
2) Figures to 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) Port C of 8255 can function independently as _____.
   a) input port b) output port
   c) either input or output ports d) both input and output ports

2) The unit that executes all the numeric processor instructions in 8087 is _____.
   a) Control unit b) ALU
   c) Numeric extension unit d) None of the mentioned

3) The 8087 can operate on memory operands of following data types_____.
   a) Word integer, short integer and long integer
   b) Packed BCD, short real and long real
   c) Temporary real
   d) All of the above

4) The management of the memory system required to ensure the smooth execution of the running process is done by.
   a) Control unit b) memory
   c) memory management unit d) bus interface unit

5) The fetching of program from secondary memory to place it in physical memory, during the execution of CPU is called _____.
   a) mapping b) swapping in
   c) swapping out d) pipe lining

6) In 8085 name the 16 bit registers?
   a) Stack pointer b) Program counter
   c) Both a & b d) None of these

7) 8085 Microprocessor is enclosed with _____ pins DIP (Dual in line package).
   a) 40 b) 20
   c) 26 d) 36

8) The instruction, MOV AX, 0005H belongs to the address mode _____.
   a) Register b) Direct
   c) Immediate d) Register relative

9) Which of the following is not a data copy/transfer instruction?
   a) MOV b) PUSH
   c) DAS d) POP

10) The instruction that subtracts 1 from the contents of the specified register/memory location is _____.
   a) INC b) SUBB
   c) SUB d) DEC

11) The RD, WR, M/IO is the heart of control for a _____mode.
   a) minimum b) maximum
   c) compatibility mode d) control mode

12) In 8086 microprocessor one of the following statements is not true _____.
   a) Coprocessor is interfaced in MAX mode
   b) Coprocessor is interfaced in MIN mode
   c) I/O can be interfaced in MAX / MIN mode
   d) Supports pipelining

13) A _____Instruction at the end of interrupt service program takes the execution back to the interrupted program.
   a) forward b) return
   c) data d) line

14) In 8086 microprocessor the following has the highest priority among all type interrupts.
   a) NMI b) DIV 0
   c) Type 255 d) Over flow

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Seat No.		Set	S

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

Day & Date: Monday, 25-11-2019 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 Attempt any three. **12**

a) Explain the features of 8085 Microprocessor.
b) Draw and explain architecture diagram of 8085.
c) Describe addressing modes of 8086 with suitable example.
d) Explain the data transfer and arithmetic instructions with examples.
e) Explain briefly any 4 assembler directives.

Q.3 Attempt any two. **16**

a) With a neat diagram explain 8086 Architecture.
b) Sketch the minimum mode configuration of 8086 and explain the operation briefly.
c) Given that, (DS) = 2000 H, (BX) = 2124 H, (DI) = 4A39 H, Displacement = E260.
Determine the effective (or offset) address and physical address, if applicable, resulting from these registers and addressing modes:
1) Immediate
2) Direct
3) Register assuming BX
4) Register Indirect assuming BX

Section – II

Q.4 Attempt any three. **12**

a) Write a note on Interrupt service Routine with a diagram.
b) Write the features and operating modes of DMA Controller 8257.
c) Describe Bit Set/Reset mode (BSR mode) of 8255.
d) Explain the following data types of numeric data processor 8087.
1) Word integer
2) Short Integer
3) Long Integer
4) Packed BCD
e) Write the features of 80386 Microprocessor.

Q.5 Attempt any two. **16**

a) Explain the Maskable and Non-maskable Interrupt (8259) with example.
b) Describe the Block diagram of 8087 numeric data processor.
c) Describe the features and architecture of 80286 processor.

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Seat No.	

Set P

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 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) A graph having an edge from each vertex to every other vertex is called a _____.
   a) Tightly Connected b) Strongly Connected
   c) Weakly Connected d) Loosely Connected

2) Other name for directed graph is _____.
   a) Direct graph b) Digraph
   c) Dir-graph d) None of these

3) In Binary trees nodes with no successor are called _____.
   a) End nodes b) Terminal nodes
   c) Final nodes d) Last nodes

4) A connected graph T without any cycles is called _____.
   a) free graph b) no cycle graph
   c) non cycle graph d) circular graph

5) Every node N in a binary tree T except the root has a unique parent called the _____ of N.
   a) Antecedents b) Predecessor
   c) Forerunner d) Precursor

6) In a graph if E= (u, v) means _____.
   a) u is adjacent to v but v is not adjacent to u
   b) e begins at u and ends at v
   c) u is processor and v is successor
   d) both b and c

7) Sequential representation of binary tree uses _____.
   a) Array with pointers b) Single linear array
   c) Two dimentional arrays d) Three dimentional arrays

8) In a graph if e= [u, v], Then u and v are called _____.
   a) End points of e b) Adjacent nodes
   c) Neighbours d) All of the above

9) A binary tree whose every node has either zero or two children is called _____.

a) complete binary tree
b) binary search tree
c) extended binary tree
d) data structure

10) Which indicates pre-order traversal?

a) Left sub-tree, Right sub-tree and root
b) Right sub-tree, Left sub-tree and root
c) Root, Left sub-tree, Right sub-tree
d) Right sub-tree, root, Left sub-tree

11) A terminal node in a binary tree is called _____.

a) Root
b) Leaf
c) Child
d) Branch

12) The post order traversal of binary tree is DEBFCA. Find out the pre order traversal.

a) ABFCDE
b) ADBFEC
c) ABDECF
d) ABDCEF

13) Which of the following data structure is linear type?

a) Graph
b) Trees
c) Binary tree
d) Stack

14) To represent hierarchical relationship between elements, Which data structure is suitable?

a) Dequeue
b) Priority
c) Tree
d) Graph

Seat No.	

Set **P**

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

Q.2 Answer any four. **16**

a) Evaluate the expression 5 6 2 + * 12 4 / - , show stepwise evaluation using stack.
b) Write a c function insert and delete operations for simple queue.
c) Write an algorithm to insert new node at END position of doubly linked list.
d) What are applications of linked list? Explain them
e) A binary trees T have 9 nodes. The inorder and preorder traversals of T yeild the following sequences of nodes.
Inorder: E A C K F H D B G
Preorder: F A E K C D H G B
Draw the diagram of the tree.
f) Write a note on threaded binary trees

Q.3 Answer any two questions. **12**

a) Write an algorithm to evaluate a postfix expression with example.
b) Write a program for addition of two polynomials.
c) Write an algorithm for
1) Insert a node at middle position of single linked list.
2) Insert a node at end position of single linked list.

Section – II

Q.4 Answer any four. **16**

a) Define B- Tree. List the properties of B-tree.
b) What are the differences between B and B+ tree?
c) Define AVL tree? Explain deletion of node in AVL tree with suitable example.
d) Define the graph and explain adjacency list and adjacency matrix representation of graph.
e) Write Dijkstra's algorithm to solve shortest path problem.
f) Define following terminologies of graph with examples.
1) Pendant node b) Directed graph
3) Isolated graph d) Cyclic graph

Q.5 Answer any two questions. **12**

a) Build step by step B+ tree for following elements of order 5
C, H, A, B, K, L, D, E, Q, W, M, S, T, N, P, Z, Y
b) Draw a tree for following elements using AVL trees.
3, 5, 11, 8, 4, 1,12, 7, 2, 6, 10
c) Write a c function for BFS and DFS of a graph.

Seat No.	

Set **Q**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 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) In a graph if e= [u, v], Then u and v are called _____.
   a) End points of e b) Adjacent nodes
   c) Neighbours d) All of the above

2) A binary tree whose every node has either zero or two children is called _____.
   a) complete binary tree b) binary search tree
   c) extended binary tree d) data structure

3) Which indicates pre-order traversal?
   a) Left sub-tree, Right sub-tree and root
   b) Right sub-tree, Left sub-tree and root
   c) Root, Left sub-tree, Right sub-tree
   d) Right sub-tree, root, Left sub-tree

4) A terminal node in a binary tree is called _____.
   a) Root b) Leaf
   c) Child d) Branch

5) The post order traversal of binary tree is DEBFCA. Find out the pre order traversal.
   a) ABFCDE b) ADBFEC
   c) ABDECF d) ABDCEF

6) Which of the following data structure is linear type?
   a) Graph b) Trees
   c) Binary tree d) Stack

7) To represent hierarchical relationship between elements, Which data structure is suitable?
   a) Dequeue b) Priority
   c) Tree d) Graph

8) A graph having an edge from each vertex to every other vertex is called a _____.
   a) Tightly Connected b) Strongly Connected
   c) Weakly Connected d) Loosely Connected

9) Other name for directed graph is _____.
   a) Direct graph b) Digraph
   c) Dir-graph d) None of these

10) In Binary trees nodes with no successor are called _____.
   a) End nodes b) Terminal nodes
   c) Final nodes d) Last nodes

11) A connected graph T without any cycles is called _____.
   a) free graph b) no cycle graph
   c) non cycle graph d) circular graph

12) Every node N in a binary tree T except the root has a unique parent called the _____ of N.
   a) Antecedents b) Predecessor
   c) Forerunner d) Precursor

13) In a graph if E= (u, v) means _____.
   a) u is adjacent to v but v is not adjacent to u
   b) e begins at u and ends at v
   c) u is processor and v is successor
   d) both b and c

14) Sequential representation of binary tree uses _____.
   a) Array with pointers b) Single linear array
   c) Two dimentional arrays d) Three dimentional arrays

Seat No.	

Set **Q**

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

Q.2 Answer any four. **16**

a) Evaluate the expression 5 6 2 + * 12 4 / - , show stepwise evaluation using stack.
b) Write a c function insert and delete operations for simple queue.
c) Write an algorithm to insert new node at END position of doubly linked list.
d) What are applications of linked list? Explain them
e) A binary trees T have 9 nodes. The inorder and preorder traversals of T yeild the following sequences of nodes.
Inorder: E A C K F H D B G
Preorder: F A E K C D H G B
Draw the diagram of the tree.
f) Write a note on threaded binary trees

Q.3 Answer any two questions. **12**

a) Write an algorithm to evaluate a postfix expression with example.
b) Write a program for addition of two polynomials.
c) Write an algorithm for
1) Insert a node at middle position of single linked list.
2) Insert a node at end position of single linked list.

Section – II

Q.4 Answer any four. **16**

a) Define B- Tree. List the properties of B-tree.
b) What are the differences between B and B+ tree?
c) Define AVL tree? Explain deletion of node in AVL tree with suitable example.
d) Define the graph and explain adjacency list and adjacency matrix representation of graph.
e) Write Dijkstra's algorithm to solve shortest path problem.
f) Define following terminologies of graph with examples.
1) Pendant node b) Directed graph
3) Isolated graph d) Cyclic graph

Q.5 Answer any two questions. **12**

a) Build step by step B+ tree for following elements of order 5
C, H, A, B, K, L, D, E, Q, W, M, S, T, N, P, Z, Y
b) Draw a tree for following elements using AVL trees.
3, 5, 11, 8, 4, 1,12, 7, 2, 6, 10
c) Write a c function for BFS and DFS of a graph.

Seat No.	

Set **R**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 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) Every node N in a binary tree T except the root has a unique parent called the _____ of N.
   a) Antecedents b) Predecessor
   c) Forerunner d) Precursor

2) In a graph if E= (u, v) means _____.
   a) u is adjacent to v but v is not adjacent to u
   b) e begins at u and ends at v
   c) u is processor and v is successor
   d) both b and c

3) Sequential representation of binary tree uses _____.
   a) Array with pointers b) Single linear array
   c) Two dimentional arrays d) Three dimentional arrays

4) In a graph if e= [u, v], Then u and v are called _____.
   a) End points of e b) Adjacent nodes
   c) Neighbours d) All of the above

5) A binary tree whose every node has either zero or two children is called _____.
   a) complete binary tree b) binary search tree
   c) extended binary tree d) data structure

6) Which indicates pre-order traversal?
   a) Left sub-tree, Right sub-tree and root
   b) Right sub-tree, Left sub-tree and root
   c) Root, Left sub-tree, Right sub-tree
   d) Right sub-tree, root, Left sub-tree

7) A terminal node in a binary tree is called _____.
   a) Root b) Leaf
   c) Child d) Branch

8) The post order traversal of binary tree is DEBFCA. Find out the pre order traversal.
   a) ABFCDE b) ADBFEC
   c) ABDECF d) ABDCEF

9) Which of the following data structure is linear type?
   a) Graph b) Trees
   c) Binary tree d) Stack

10) To represent hierarchical relationship between elements, Which data structure is suitable?
   a) Dequeue b) Priority
   c) Tree d) Graph

11) A graph having an edge from each vertex to every other vertex is called a _____.
   a) Tightly Connected b) Strongly Connected
   c) Weakly Connected d) Loosely Connected

12) Other name for directed graph is _____.
   a) Direct graph b) Digraph
   c) Dir-graph d) None of these

13) In Binary trees nodes with no successor are called _____.
   a) End nodes b) Terminal nodes
   c) Final nodes d) Last nodes

14) A connected graph T without any cycles is called _____.
   a) free graph b) no cycle graph
   c) non cycle graph d) circular graph

Seat No.	

Set **R**

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

Q.2 Answer any four. **16**

a) Evaluate the expression 5 6 2 + * 12 4 / - , show stepwise evaluation using stack.
b) Write a c function insert and delete operations for simple queue.
c) Write an algorithm to insert new node at END position of doubly linked list.
d) What are applications of linked list? Explain them
e) A binary trees T have 9 nodes. The inorder and preorder traversals of T yeild the following sequences of nodes.
Inorder: E A C K F H D B G
Preorder: F A E K C D H G B
Draw the diagram of the tree.
f) Write a note on threaded binary trees

Q.3 Answer any two questions. **12**

a) Write an algorithm to evaluate a postfix expression with example.
b) Write a program for addition of two polynomials.
c) Write an algorithm for
1) Insert a node at middle position of single linked list.
2) Insert a node at end position of single linked list.

Section – II

Q.4 Answer any four. **16**

a) Define B- Tree. List the properties of B-tree.
b) What are the differences between B and B+ tree?
c) Define AVL tree? Explain deletion of node in AVL tree with suitable example.
d) Define the graph and explain adjacency list and adjacency matrix representation of graph.
e) Write Dijkstra's algorithm to solve shortest path problem.
f) Define following terminologies of graph with examples.
1) Pendant node b) Directed graph
3) Isolated graph d) Cyclic graph

Q.5 Answer any two questions. **12**

a) Build step by step B+ tree for following elements of order 5
C, H, A, B, K, L, D, E, Q, W, M, S, T, N, P, Z, Y
b) Draw a tree for following elements using AVL trees.
3, 5, 11, 8, 4, 1,12, 7, 2, 6, 10
c) Write a c function for BFS and DFS of a graph.

Seat No.		Set	S

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 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 indicates pre-order traversal?
   a) Left sub-tree, Right sub-tree and root
   b) Right sub-tree, Left sub-tree and root
   c) Root, Left sub-tree, Right sub-tree
   d) Right sub-tree, root, Left sub-tree

2) A terminal node in a binary tree is called _____.
   a) Root b) Leaf
   c) Child d) Branch

3) The post order traversal of binary tree is DEBFCA. Find out the pre order traversal.
   a) ABFCDE b) ADBFEC
   c) ABDECF d) ABDCEF

4) Which of the following data structure is linear type?
   a) Graph b) Trees
   c) Binary tree d) Stack

5) To represent hierarchical relationship between elements, Which data structure is suitable?
   a) Dequeue b) Priority
   c) Tree d) Graph

6) A graph having an edge from each vertex to every other vertex is called a _____.
   a) Tightly Connected b) Strongly Connected
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7) Other name for directed graph is _____.
   a) Direct graph b) Digraph
   c) Dir-graph d) None of these

8) In Binary trees nodes with no successor are called _____.
   a) End nodes b) Terminal nodes
   c) Final nodes d) Last nodes

9) A connected graph T without any cycles is called _____.
   a) free graph
   b) no cycle graph
   c) non cycle graph
   d) circular graph

10) Every node N in a binary tree T except the root has a unique parent called the _____ of N.
   a) Antecedents
   b) Predecessor
   c) Forerunner
   d) Precursor

11) In a graph if E= (u, v) means _____.
   a) u is adjacent to v but v is not adjacent to u
   b) e begins at u and ends at v
   c) u is processor and v is successor
   d) both b and c

12) Sequential representation of binary tree uses _____.
   a) Array with pointers
   b) Single linear array
   c) Two dimentional arrays
   d) Three dimentional arrays

13) In a graph if e= [u, v], Then u and v are called _____.
   a) End points of e
   b) Adjacent nodes
   c) Neighbours
   d) All of the above

14) A binary tree whose every node has either zero or two children is called _____.
   a) complete binary tree
   b) binary search tree
   c) extended binary tree
   d) data structure

SLR-FM-353

Seat No.	

Set S

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

Q.2 Answer any four. **16**

a) Evaluate the expression 5 6 2 + * 12 4 / - , show stepwise evaluation using stack.
b) Write a c function insert and delete operations for simple queue.
c) Write an algorithm to insert new node at END position of doubly linked list.
d) What are applications of linked list? Explain them
e) A binary trees T have 9 nodes. The inorder and preorder traversals of T yeild the following sequences of nodes.
Inorder: E A C K F H D B G
Preorder: F A E K C D H G B
Draw the diagram of the tree.
f) Write a note on threaded binary trees

Q.3 Answer any two questions. **12**

a) Write an algorithm to evaluate a postfix expression with example.
b) Write a program for addition of two polynomials.
c) Write an algorithm for
1) Insert a node at middle position of single linked list.
2) Insert a node at end position of single linked list.

Section – II

Q.4 Answer any four. **16**

a) Define B- Tree. List the properties of B-tree.
b) What are the differences between B and B+ tree?
c) Define AVL tree? Explain deletion of node in AVL tree with suitable example.
d) Define the graph and explain adjacency list and adjacency matrix representation of graph.
e) Write Dijkstra's algorithm to solve shortest path problem.
f) Define following terminologies of graph with examples.
1) Pendant node b) Directed graph
3) Isolated graph d) Cyclic graph

Q.5 Answer any two questions. **12**

a) Build step by step B+ tree for following elements of order 5
C, H, A, B, K, L, D, E, Q, W, M, S, T, N, P, Z, Y
b) Draw a tree for following elements using AVL trees.
3, 5, 11, 8, 4, 1,12, 7, 2, 6, 10
c) Write a c function for BFS and DFS of a graph.

Seat No.	

Set | P

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER NETWORKS

Day & Date: Wednesday, 27-11-2019 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) In classless addressing, the ____ is the varying part (similar to the hosted)
   a) Prefix b) host id
   c) Suffix d) None

2) In a block, the prefix length is /22; what is the mask?
   a) 255.255.252.0 b) 255.255.255.0
   c) 255.255.0.0 d) None of the mentioned

3) An endpoint of an inter-process communication flow across a computer network is called _____.
   a) Pipe b) Socket
   c) Port d) None of the mentioned

4) The server program normally uses _____ port number.
   a) Dynamic b) Well known
   c) An ephemeral d) None

5) How can you connect to a server xyz.com over port number 1234?
   a) Telnet 1234 xyz.com b) Telnet xyz.com 1234
   c) Connect xyz.com 1234 d) Connect 1234 xyz.com

6) A _____ is a program providing services to the _____ program.
   a) Server-client b) Client-Server
   c) Server-Server d) None

7) FTP uses One port number (21) is used for ____ and another one for ____ Direct sequence.
   a) Data transfer, control connection
   b) Socket connection, data transfer
   c) Control connection, data transfer
   d) Control connection, socket connection

8) The DHCP server issues a passive open command on UDP port number ____ and waits for a client.
   a) 67 b) 68
   c) 69 d) 70

9) If DHCP client and server are on different networks there is a need of an intermediary called as _____.
   a) Second client b) Primary server
   c) Relay agent d) Bridge

10) After sending DHCPDISCOVER message, the client goes to the _____ state.
   a) Selecting
   b) Init
   c) Requesting
   d) None of these

11) In the DNS the names are defined in the _____ structure.
   a) a linear list
   b) an inverted tree
   c) a graph
   d) a linked list

12) _____ is more powerful and complex than _____.
   a) POP3;IMAP4
   b) IMAP4;POP3
   c) SMTP;POP3
   d) None of these

13) For control connection, FTP uses the _____ character set.
   a) Regular ASCII
   b) EBCDIC
   c) NVT ASCII
   d) All of these

14) When the sender is connected to the mail server via the LAN or a WAN we need only _____.
   a) Two MTAs
   b) Two UAs and two pairs of MTAs
   c) Two UAs and a pair of MTAs
   d) None of these

Seat No.	

Set **P**

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

Section – I

Q.2 Solve any three. **12**

a) What is IP addressing? Explain Sub netting with example.
b) What are the three phases a in TCP connection?
c) Explain connection oriented concurrent server with suitable diagram.
d) Differentiate between Iterative and concurrent programs.

Q.3 Solve any two. **16**

a) Explain TCP flow control with Sliding window protocol.
b) Explain cogitation control with open loop and closed loop.
c) Explain TCP services.

Section – II

Q.4 Attempt any four questions. **12**

a) Explain BOOTP and the operations on BOOTP.
b) Explain the different options provided by TELNET.
c) Explain Out of Band Signaling and Escape character concepts in TELNET.
d) List out in detail the three steps of FTP file transfer.
e) Explain DNS query and DNS response message in detail.

Q.5 Attempt any two questions. **16**

a) Explain the architecture of E-Mail along with neat diagrams of all scenarios.
b) Explain DHCP Operation and Configuration.
c) Describe and explain
1) SSH Protocol stack

OR

2) SSH packet format.

Seat No.	

Set **Q**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER NETWORKS

Day & Date: Wednesday, 27-11-2019 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) The DHCP server issues a passive open command on UDP port number ____ and waits for a client.
a) 67 b) 68
c) 69 d) 70

2) If DHCP client and server are on different networks there is a need of an intermediary called as _____.
a) Second client b) Primary server
c) Relay agent d) Bridge

3) After sending DHCPDISCOVER message, the client goes to the _____ state.
a) Selecting b) Init
c) Requesting d) None of these

4) In the DNS the names are defined in the _____ structure.
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a) POP3;IMAP4 b) IMAP4;POP3
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c) Two UAs and a pair of MTAs d) None of these

8) In classless addressing, the ____ is the varying part (similar to the hosted)
a) Prefix b) host id
c) Suffix d) None

9) In a block, the prefix length is /22; what is the mask?
a) 255.255.252.0 b) 255.255.255.0
c) 255.255.0.0 d) None of the mentioned

10) An endpoint of an inter-process communication flow across a computer network is called _____.
   a) Pipe
   b) Socket
   c) Port
   d) None of the mentioned

11) The server program normally uses _____ port number.
   a) Dynamic
   b) Well known
   c) An ephemeral
   d) None

12) How can you connect to a server xyz.com over port number 1234?
   a) Telnet 1234 xyz.com
   b) Telnet xyz.com 1234
   c) Connect xyz.com 1234
   d) Connect 1234 xyz.com

13) A _____ is a program providing services to the _____ program.
   a) Server-client
   b) Client-Server
   c) Server-Server
   d) None

14) FTP uses One port number (21) is used for ____ and another one for ____ Direct sequence.
   a) Data transfer, control connection
   b) Socket connection, data transfer
   c) Control connection, data transfer
   d) Control connection, socket connection

Seat No.	

Set **Q**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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.
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Section – I

Q.2 Solve any three. **12**

a) What is IP addressing? Explain Sub netting with example.
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d) Differentiate between Iterative and concurrent programs.

Q.3 Solve any two. **16**

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c) Explain TCP services.

Section – II

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e) Explain DNS query and DNS response message in detail.

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c) Describe and explain
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OR

2) SSH packet format.

Seat No.	

Set **R**

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER NETWORKS

Day & Date: Wednesday, 27-11-2019 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) How can you connect to a server xyz.com over port number 1234?
   a) Telnet 1234 xyz.com b) Telnet xyz.com 1234
   c) Connect xyz.com 1234 d) Connect 1234 xyz.com

2) A _____ is a program providing services to the _____ program.
   a) Server-client b) Client-Server
   c) Server-Server d) None

3) FTP uses One port number (21) is used for ____ and another one for ____ Direct sequence.
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   c) 69 d) 70

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   a) POP3;IMAP4 b) IMAP4;POP3
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   c) Port
   d) None of the mentioned

14) The server program normally uses _____ port number.
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   b) Well known
   c) An ephemeral
   d) None

Seat No.	

Set **R**

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

Section – I

Q.2 Solve any three. **12**

a) What is IP addressing? Explain Sub netting with example.
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c) Explain connection oriented concurrent server with suitable diagram.
d) Differentiate between Iterative and concurrent programs.

Q.3 Solve any two. **16**

a) Explain TCP flow control with Sliding window protocol.
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Section – II

Q.4 Attempt any four questions. **12**

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c) Describe and explain
1) SSH Protocol stack

OR

2) SSH packet format.

Seat No.	

Set | S

S.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER NETWORKS

Day & Date: Wednesday, 27-11-2019 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) After sending DHCPDISCOVER message, the client goes to the _____ state.
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   a) Second client
   b) Primary server
   c) Relay agent
   d) Bridge

Seat No.	

Set **S**

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

Section – I

Q.2 Solve any three. **12**

a) What is IP addressing? Explain Sub netting with example.
b) What are the three phases a in TCP connection?
c) Explain connection oriented concurrent server with suitable diagram.
d) Differentiate between Iterative and concurrent programs.

Q.3 Solve any two. **16**

a) Explain TCP flow control with Sliding window protocol.
b) Explain cogitation control with open loop and closed loop.
c) Explain TCP services.

Section – II

Q.4 Attempt any four questions. **12**

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d) List out in detail the three steps of FTP file transfer.
e) Explain DNS query and DNS response message in detail.

Q.5 Attempt any two questions. **16**

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b) Explain DHCP Operation and Configuration.
c) Describe and explain
1) SSH Protocol stack

OR

2) SSH packet format.

SLR-FM-355

Seat No.		Set	P

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

Day & Date: Friday, 06-12-2019 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) Assume suitable data if necessary.
3) Figure must be drawn wherever 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) In Priority scheduling a priority number (integer) is associated with each process.The CPU is allocated to the process with the highest priority (smallest integer = highest priority). The problem of. Starvation? Low priority processes may never execute, is resolved by _____.
   a) Terminating the process b) Aging
   c) Mutual Exclusion d) Semaphore

2) A major problem with priority scheduling is _____.
   a) Definite blocking b) Starvation
   c) Low priority d) None of these

3) _____ scheduler selects the jobs from the pool of jobs and loads into the ready queue.
   a) Long term b) Short term
   c) Medium term d) None of these

4) Saving the state of the old process and loading the saved state of the new process is called _____.
   a) Context Switch b) State
   c) Multi programming d) None of these

5) A thread _____.
   a) Is a lightweight process where the context switching is low
   b) Is a lightweight process where the context switching is high
   c) Is used to speed up paging
   d) None of these

6) In the running state _____.
   a) Only the process which has control of the processor is found
   b) All the processes waiting for I/O to be completed are found
   c) All the processes waiting for the processor are found
   d) None of these

7) The kernel of the operating system remains in the primary memory because _____.
   a) It is mostly called (used)
   b) It manages all interrupt calls
   c) It controls all operations in process
   d) It is low level

8) If all page frames are initially empty, and a process is allocated 3 page frames in real memory and references its pages in the order 1 2 3 2 4 5 2 3 2 4 1 and the page replacement is FIFO, the total number of page faults caused by the process will be _____.
   a) 10 b) 7
   c) 8 d) 9

9) Situations where two or more processes are reading or writing some shared data and the final results depends on the order of usage of the shared data, are called _____.
   a) Race conditions b) Critical section
   c) Mutual exclusion d) Dead locks

10) _____ allocates the largest hole (free fragment) available in the memory.
   a) Best Fit b) Worst Fit
   c) First Fit d) None of these

11) Let S and Q be two semaphores initialized to 1, where P0 and P1 processes the following statements wait(S);wait(Q); —; signal(S);signal(Q) and wait(Q); wait(S);—;signal(Q);signal(S); respectively. The above situation depicts a _____.
   a) Semaphore b) Deadlock
   c) Signal d) Interrupt

12) The process related to process control, file management, device management, information about system and communication that is requested by any higher level language can be performed by _____.
   a) Editors b) Compilers
   c) System Call d) Caching

13) The solution to Critical Section Problem is: Mutual Exclusion, Progress and Bounded Waiting .
   a) The statement is false. b) The statement is true.
   c) The statement is contradictory d) None of these

14) A critical region _____.
   a) is a piece of code which only one process executes at a time
   b) is a region prone to deadlock
   c) is a piece of code which only a finite number of processes execute
   d) is found only in Windows NT operation system

SLR-FM-355

Seat No.	

Set P

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

Day & Date: Friday, 06-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Assume suitable data if necessary.
3) Figure must be drawn wherever necessary.

Section – I

Q.2 Attempt the following question. **12**
a) Explain in detail the evolution of an operating system.
b) Explain all the operations on processes.
c) Explain with example round robin and multilevel scheduling algorithm.
d) What is critical section problem, explain Peterson's solution.

Q.3 Attempt any one of the following question. **08**
a) Explain any two classic problem of synchronization.
b) Explain with figure process concepts, process state, and PCB.

Q.4 Write a note on (any two) **08**
a) Algorithm Evaluation
b) Monitors
c) What operating system do

Section – II

Q.5 Attempt the following. **12**
a) Explain the deadlock system model and deadlock characterization.
b) Explain with example optimal and LRU page replacement.
c) Explain the background and demand paging w.r.t. virtual memory.
d) What is paging? Explain the basic method of paging with example.

Q.6 Attempt any one **08**
a) Explain the following w.r.t. deadlock avoidance.
1) Safe state
2) Resource Allocation Graph
3) Bnaker's algorithm
b) Explain the most common techniques for structuring page table.

Q.9 Attempt the following. (Any two) **08**
a) Copy on write
b) Recovery from deadlock
c) Swapping

Seat No.	

Set **Q**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

Day & Date: Friday, 06-12-2019 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) Assume suitable data if necessary.
3) Figure must be drawn wherever 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) If all page frames are initially empty, and a process is allocated 3 page frames in real memory and references its pages in the order 1 2 3 2 4 5 2 3 2 4 1 and the page replacement is FIFO, the total number of page faults caused by the process will be _____.
   a) 10 b) 7
   c) 8 d) 9

2) Situations where two or more processes are reading or writing some shared data and the final results depends on the order of usage of the shared data, are called _____.
   a) Race conditions b) Critical section
   c) Mutual exclusion d) Dead locks

3) _____ allocates the largest hole (free fragment) available in the memory.
   a) Best Fit b) Worst Fit
   c) First Fit d) None of these

4) Let S and Q be two semaphores initialized to 1, where P0 and P1 processes the following statements wait(S);wait(Q); —; signal(S);signal(Q) and wait(Q); wait(S);—;signal(Q);signal(S); respectively. The above situation depicts a _____.
   a) Semaphore b) Deadlock
   c) Signal d) Interrupt

5) The process related to process control, file management, device management, information about system and communication that is requested by any higher level language can be performed by _____.
   a) Editors b) Compilers
   c) System Call d) Caching

6) The solution to Critical Section Problem is: Mutual Exclusion, Progress and Bounded Waiting .
   a) The statement is false. b) The statement is true.
   c) The statement is contradictory d) None of these

7) A critical region _____.
   a) is a piece of code which only one process executes at a time
   b) is a region prone to deadlock
   c) is a piece of code which only a finite number of processes execute
   d) is found only in Windows NT operation system

8) In Priority scheduling a priority number (integer) is associated with each process.The CPU is allocated to the process with the highest priority (smallest integer = highest priority). The problem of. Starvation? Low priority processes may never execute, is resolved by _____.
   a) Terminating the process
   b) Aging
   c) Mutual Exclusion
   d) Semaphore

9) A major problem with priority scheduling is _____.
   a) Definite blocking
   b) Starvation
   c) Low priority
   d) None of these

10) _____ scheduler selects the jobs from the pool of jobs and loads into the ready queue.
   a) Long term
   b) Short term
   c) Medium term
   d) None of these

11) Saving the state of the old process and loading the saved state of the new process is called _____.
   a) Context Switch
   b) State
   c) Multi programming
   d) None of these

12) A thread _____.
   a) Is a lightweight process where the context switching is low
   b) Is a lightweight process where the context switching is high
   c) Is used to speed up paging
   d) None of these

13) In the running state _____.
   a) Only the process which has control of the processor is found
   b) All the processes waiting for I/O to be completed are found
   c) All the processes waiting for the processor are found
   d) None of these

14) The kernel of the operating system remains in the primary memory because _____.
   a) It is mostly called (used)
   b) It manages all interrupt calls
   c) It controls all operations in process
   d) It is low level

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Seat No.	

Set Q

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

Day & Date: Friday, 06-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Assume suitable data if necessary.
3) Figure must be drawn wherever necessary.

Section – I

Q.2 Attempt the following question. **12**
a) Explain in detail the evolution of an operating system.
b) Explain all the operations on processes.
c) Explain with example round robin and multilevel scheduling algorithm.
d) What is critical section problem, explain Peterson's solution.

Q.3 Attempt any one of the following question. **08**
a) Explain any two classic problem of synchronization.
b) Explain with figure process concepts, process state, and PCB.

Q.4 Write a note on (any two) **08**
a) Algorithm Evaluation
b) Monitors
c) What operating system do

Section – II

Q.5 Attempt the following. **12**
a) Explain the deadlock system model and deadlock characterization.
b) Explain with example optimal and LRU page replacement.
c) Explain the background and demand paging w.r.t. virtual memory.
d) What is paging? Explain the basic method of paging with example.

Q.6 Attempt any one **08**
a) Explain the following w.r.t. deadlock avoidance.
1) Safe state
2) Resource Allocation Graph
3) Bnaker's algorithm
b) Explain the most common techniques for structuring page table.

Q.9 Attempt the following. (Any two) **08**
a) Copy on write
b) Recovery from deadlock
c) Swapping

Seat No.	

Set **R**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

Day & Date: Friday, 06-12-2019 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) Assume suitable data if necessary.
3) Figure must be drawn wherever 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) A thread _____.
   a) Is a lightweight process where the context switching is low
   b) Is a lightweight process where the context switching is high
   c) Is used to speed up paging
   d) None of these

2) In the running state _____.
   a) Only the process which has control of the processor is found
   b) All the processes waiting for I/O to be completed are found
   c) All the processes waiting for the processor are found
   d) None of these

3) The kernel of the operating system remains in the primary memory because _____.
   a) It is mostly called (used)
   b) It manages all interrupt calls
   c) It controls all operations in process
   d) It is low level

4) If all page frames are initially empty, and a process is allocated 3 page frames in real memory and references its pages in the order 1 2 3 2 4 5 2 3 2 4 1 and the page replacement is FIFO, the total number of page faults caused by the process will be _____.
   a) 10 b) 7
   c) 8 d) 9

5) Situations where two or more processes are reading or writing some shared data and the final results depends on the order of usage of the shared data, are called _____.
   a) Race conditions b) Critical section
   c) Mutual exclusion d) Dead locks

6) _____ allocates the largest hole (free fragment) available in the memory.
   a) Best Fit b) Worst Fit
   c) First Fit d) None of these

7) Let S and Q be two semaphores initialized to 1, where P0 and P1 processes the following statements wait(S);wait(Q); —; signal(S);signal(Q) and wait(Q); wait(S);—;signal(Q);signal(S); respectively. The above situation depicts a _____.
   a) Semaphore b) Deadlock
   c) Signal d) Interrupt

8) The process related to process control, file management, device management, information about system and communication that is requested by any higher level language can be performed by _____.
   a) Editors b) Compilers
   c) System Call d) Caching

9) The solution to Critical Section Problem is: Mutual Exclusion, Progress and Bounded Waiting .
   a) The statement is false. b) The statement is true.
   c) The statement is contradictory d) None of these

10) A critical region _____.
   a) is a piece of code which only one process executes at a time
   b) is a region prone to deadlock
   c) is a piece of code which only a finite number of processes execute
   d) is found only in Windows NT operation system

11) In Priority scheduling a priority number (integer) is associated with each process.The CPU is allocated to the process with the highest priority (smallest integer = highest priority). The problem of. Starvation? Low priority processes may never execute, is resolved by _____.
   a) Terminating the process b) Aging
   c) Mutual Exclusion d) Semaphore

12) A major problem with priority scheduling is _____.
   a) Definite blocking b) Starvation
   c) Low priority d) None of these

13) _____ scheduler selects the jobs from the pool of jobs and loads into the ready queue.
   a) Long term b) Short term
   c) Medium term d) None of these

14) Saving the state of the old process and loading the saved state of the new process is called _____.
   a) Context Switch b) State
   c) Multi programming d) None of these

SLR-FM-355

Seat No.	

Set R

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

Day & Date: Friday, 06-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Assume suitable data if necessary.
3) Figure must be drawn wherever necessary.

Section – I

Q.2 Attempt the following question. **12**
a) Explain in detail the evolution of an operating system.
b) Explain all the operations on processes.
c) Explain with example round robin and multilevel scheduling algorithm.
d) What is critical section problem, explain Peterson's solution.

Q.3 Attempt any one of the following question. **08**
a) Explain any two classic problem of synchronization.
b) Explain with figure process concepts, process state, and PCB.

Q.4 Write a note on (any two) **08**
a) Algorithm Evaluation
b) Monitors
c) What operating system do

Section – II

Q.5 Attempt the following. **12**
a) Explain the deadlock system model and deadlock characterization.
b) Explain with example optimal and LRU page replacement.
c) Explain the background and demand paging w.r.t. virtual memory.
d) What is paging? Explain the basic method of paging with example.

Q.6 Attempt any one **08**
a) Explain the following w.r.t. deadlock avoidance.
1) Safe state
2) Resource Allocation Graph
3) Bnaker's algorithm
b) Explain the most common techniques for structuring page table.

Q.9 Attempt the following. (Any two) **08**
a) Copy on write
b) Recovery from deadlock
c) Swapping

Seat No.	

Set **S**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

Day & Date: Friday, 06-12-2019 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) Assume suitable data if necessary.
3) Figure must be drawn wherever 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) _____ allocates the largest hole (free fragment) available in the memory.
   a) Best Fit b) Worst Fit
   c) First Fit d) None of these

2) Let S and Q be two semaphores initialized to 1, where P0 and P1 processes the following statements wait(S);wait(Q); —; signal(S);signal(Q) and wait(Q); wait(S);—;signal(Q);signal(S); respectively. The above situation depicts a _____.
   a) Semaphore b) Deadlock
   c) Signal d) Interrupt

3) The process related to process control, file management, device management, information about system and communication that is requested by any higher level language can be performed by _____.
   a) Editors b) Compilers
   c) System Call d) Caching

4) The solution to Critical Section Problem is: Mutual Exclusion, Progress and Bounded Waiting .
   a) The statement is false. b) The statement is true.
   c) The statement is contradictory d) None of these

5) A critical region _____.
   a) is a piece of code which only one process executes at a time
   b) is a region prone to deadlock
   c) is a piece of code which only a finite number of processes execute
   d) is found only in Windows NT operation system

6) In Priority scheduling a priority number (integer) is associated with each process.The CPU is allocated to the process with the highest priority (smallest integer = highest priority). The problem of. Starvation? Low priority processes may never execute, is resolved by _____.
   a) Terminating the process b) Aging
   c) Mutual Exclusion d) Semaphore

7) A major problem with priority scheduling is _____.
   a) Definite blocking b) Starvation
   c) Low priority d) None of these

8) _____ scheduler selects the jobs from the pool of jobs and loads into the ready queue.
   a) Long term
   b) Short term
   c) Medium term
   d) None of these

9) Saving the state of the old process and loading the saved state of the new process is called _____.
   a) Context Switch
   b) State
   c) Multi programming
   d) None of these

10) A thread _____.
   a) Is a lightweight process where the context switching is low
   b) Is a lightweight process where the context switching is high
   c) Is used to speed up paging
   d) None of these

11) In the running state _____.
   a) Only the process which has control of the processor is found
   b) All the processes waiting for I/O to be completed are found
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12) The kernel of the operating system remains in the primary memory because _____.
   a) It is mostly called (used)
   b) It manages all interrupt calls
   c) It controls all operations in process
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13) If all page frames are initially empty, and a process is allocated 3 page frames in real memory and references its pages in the order 1 2 3 2 4 5 2 3 2 4 1 and the page replacement is FIFO, the total number of page faults caused by the process will be _____.
   a) 10
   b) 7
   c) 8
   d) 9

14) Situations where two or more processes are reading or writing some shared data and the final results depends on the order of usage of the shared data, are called _____.
   a) Race conditions
   b) Critical section
   c) Mutual exclusion
   d) Dead locks

SLR-FM-355

Seat No.	

Set S

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

Day & Date: Friday, 06-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Assume suitable data if necessary.
3) Figure must be drawn wherever necessary.

Section – I

Q.2 Attempt the following question. **12**
a) Explain in detail the evolution of an operating system.
b) Explain all the operations on processes.
c) Explain with example round robin and multilevel scheduling algorithm.
d) What is critical section problem, explain Peterson's solution.

Q.3 Attempt any one of the following question. **08**
a) Explain any two classic problem of synchronization.
b) Explain with figure process concepts, process state, and PCB.

Q.4 Write a note on (any two) **08**
a) Algorithm Evaluation
b) Monitors
c) What operating system do

Section – II

Q.5 Attempt the following. **12**
a) Explain the deadlock system model and deadlock characterization.
b) Explain with example optimal and LRU page replacement.
c) Explain the background and demand paging w.r.t. virtual memory.
d) What is paging? Explain the basic method of paging with example.

Q.6 Attempt any one **08**
a) Explain the following w.r.t. deadlock avoidance.
1) Safe state
2) Resource Allocation Graph
3) Bnaker's algorithm
b) Explain the most common techniques for structuring page table.

Q.9 Attempt the following. (Any two) **08**
a) Copy on write
b) Recovery from deadlock
c) Swapping

Seat No.	

Set **P**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

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) A macro prototype statement declares _____.
   a) Name of the macro
   b) Name and kinds of its parameters
   c) Both a & b
   d) None of the above

2) Which of the following loading method uses various cards for relocation & linking?
   a) Relocating loader b) Direct-linking loader
   c) Dynamic loading d) None of these

3) Instruction cost of ADD 4(R0), *12(R1) is _____.
   a) 2 b) 3
   c) 4 d) 5

4) Peephole optimization uses which of the following transformations?
   a) Redundant instruction elimination
   b) Algebraic transformations
   c) Use of machine idioms
   d) All of these

5) Problem oriented language used in language processing affects _____.
   a) Specification gap b) Execution gap
   c) Both a & b d) Semantic gap

6) Which of the following is a Phrase-structure grammar?
   a) $A ::= \pi$ b) $\alpha ::= \beta$
   c) $A ::= Bt|t$ d) $\alpha A\beta ::= \alpha\pi\beta$

7) Which table is used to process forward references during assembly of a program?
   a) Symbol Table & CRT b) SRT
   c) FRT d) All of these

8) Parsing table used for Predictive parser can be constructed by using _____.
   a) Subset construction algorithm b) First & follow algorithm
   c) Shift-reduce algorithm d) None of these

9) Compilers are _____.
   a) Recursive
   b) Non-reusable
   c) Re-enterable
   d) Serially usable

10) Number of digits used for Opcode in m/c instruction format are _____.
   a) 1
   b) 2
   c) 3
   d) None

11) Regular expressions are used as input for _____.
   a) Assembler
   b) Syntax analysis
   c) LEX
   d) YACC

12) Which of the following is not an advanced assembler directive?
   a) START
   b) ORIGIN
   c) EQU
   d) LTORG

13) Action & Goto tables are part of _____.
   a) Predictive parser
   b) Shift-reduce parser
   c) LR parser
   d) None of these

14) Which of the following is not a part of Object modules?
   a) Machine program
   b) Relocation table
   c) Linking table
   d) None of these

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Seat No.	

Set P

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

Day & Date: Monday, 09-12-2019 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 Attempt any Four. **08**

a) What is a execution gap? Illustrate.
b) What is a language processor? Give examples.
c) List the aspects of compilation.
d) How is input buffering useful?
e) What are the organizational issues in assembler design?

Q.3 Attempt any Two. **10**

a) List the language processing activities and explain each in detail.
b) Compare between:
1) Problem and procedure oriented languages
2) Compilers and assemblers
c) State and elaborate on the components of assembly language programming? Illustrate each.

Q.4 Attempt any One. **10**

a) What are sentinels? Illustrate their use.
b) Explain the concept of Nested macro. How do they work?
c) Explain the role of a analyzer in compilers.

Section – II

Q.5 Attempt any Four. **08**

a) Give the characteristics of a basic block.
b) What are pre address codes?
c) What are the situations under which relocation is required?
d) What is relocation factor? What values is it permitted to take?
e) List the different loader schemes.

Q.6 Attempt any Two. **10**

a) How relocation factor is calculated? Take examples of different situations and find relocation factor.
b) Develop a design of a linker in form of an algorithm?
c) Explain steps involved in design of –
1) Compile and go loader
2) Direct linking loaders

Q.7 Attempt any One. **10**

a) List the cards used in Direct Linking Loaders and give functions of each.
b) What are Subroutine linkages? Give its involvement in Relocating Loader scheme.
c) What is Peephole Optimization? Give its characteristics.

Seat No.	

Set **Q**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

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) Parsing table used for Predictive parser can be constructed by using _____.
   a) Subset construction algorithm b) First & follow algorithm
   c) Shift-reduce algorithm d) None of these

2) Compilers are _____.
   a) Recursive b) Non-reusable
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3) Number of digits used for Opcode in m/c instruction format are _____.
   a) 1 b) 2
   c) 3 d) None

4) Regular expressions are used as input for _____.
   a) Assembler b) Syntax analysis
   c) LEX d) YACC

5) Which of the following is not an advanced assembler directive?
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6) Action & Goto tables are part of _____.
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   c) LR parser d) None of these

7) Which of the following is not a part of Object modules?
   a) Machine program b) Relocation table
   c) Linking table d) None of these

8) A macro prototype statement declares _____.
   a) Name of the macro
   b) Name and kinds of its parameters
   c) Both a & b
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9) Which of the following loading method uses various cards for relocation & linking?
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10) Instruction cost of ADD 4(R0), *12(R1) is _____.
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   b) Algebraic transformations
   c) Use of machine idioms
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12) Problem oriented language used in language processing affects _____.
   a) Specification gap b) Execution gap
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13) Which of the following is a Phrase-structure grammar?
   a) $A ::= \pi$ b) $\alpha ::= \beta$
   c) $A ::= Bt|t$ d) $\alpha A\beta ::= \alpha\pi\beta$

14) Which table is used to process forward references during assembly of a program?
   a) Symbol Table & CRT b) SRT
   c) FRT d) All of these

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Seat No.	

Set Q

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

Day & Date: Monday, 09-12-2019 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 Attempt any Four. **08**

a) What is a execution gap? Illustrate.
b) What is a language processor? Give examples.
c) List the aspects of compilation.
d) How is input buffering useful?
e) What are the organizational issues in assembler design?

Q.3 Attempt any Two. **10**

a) List the language processing activities and explain each in detail.
b) Compare between:
1) Problem and procedure oriented languages
2) Compilers and assemblers
c) State and elaborate on the components of assembly language programming? Illustrate each.

Q.4 Attempt any One. **10**

a) What are sentinels? Illustrate their use.
b) Explain the concept of Nested macro. How do they work?
c) Explain the role of a analyzer in compilers.

Section – II

Q.5 Attempt any Four. **08**

a) Give the characteristics of a basic block.
b) What are pre address codes?
c) What are the situations under which relocation is required?
d) What is relocation factor? What values is it permitted to take?
e) List the different loader schemes.

Q.6 Attempt any Two. **10**

a) How relocation factor is calculated? Take examples of different situations and find relocation factor.
b) Develop a design of a linker in form of an algorithm?
c) Explain steps involved in design of –
1) Compile and go loader
2) Direct linking loaders

Q.7 Attempt any One. **10**

a) List the cards used in Direct Linking Loaders and give functions of each.
b) What are Subroutine linkages? Give its involvement in Relocating Loader scheme.
c) What is Peephole Optimization? Give its characteristics.

Seat No.	

Set **R**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

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) Problem oriented language used in language processing affects _____.
   a) Specification gap b) Execution gap
   c) Both a & b d) Semantic gap

2) Which of the following is a Phrase-structure grammar?
   a) $A ::= \pi$ b) $\alpha ::= \beta$
   c) $A ::= Bt|t$ d) $\alpha A\beta ::= \alpha\pi\beta$

3) Which table is used to process forward references during assembly of a program?
   a) Symbol Table & CRT b) SRT
   c) FRT d) All of these

4) Parsing table used for Predictive parser can be constructed by using _____.
   a) Subset construction algorithm b) First & follow algorithm
   c) Shift-reduce algorithm d) None of these

5) Compilers are _____.
   a) Recursive b) Non-reusable
   c) Re-enterable d) Serially usable

6) Number of digits used for Opcode in m/c instruction format are _____.
   a) 1 b) 2
   c) 3 d) None

7) Regular expressions are used as input for _____.
   a) Assembler b) Syntax analysis
   c) LEX d) YACC

8) Which of the following is not an advanced assembler directive?
   a) START b) ORIGIN
   c) EQU d) LTORG

9) Action & Goto tables are part of _____.
   a) Predictive parser b) Shift-reduce parser
   c) LR parser d) None of these

10) Which of the following is not a part of Object modules?
   a) Machine program b) Relocation table
   c) Linking table d) None of these

11) A macro prototype statement declares _____.
   a) Name of the macro
   b) Name and kinds of its parameters
   c) Both a & b
   d) None of the above

12) Which of the following loading method uses various cards for relocation & linking?
   a) Relocating loader
   b) Direct-linking loader
   c) Dynamic loading
   d) None of these

13) Instruction cost of ADD 4(R0), *12(R1) is _____.
   a) 2
   b) 3
   c) 4
   d) 5

14) Peephole optimization uses which of the following transformations?
   a) Redundant instruction elimination
   b) Algebraic transformations
   c) Use of machine idioms
   d) All of these

SLR-FM-356

Seat No.	

Set R

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

Day & Date: Monday, 09-12-2019 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 Attempt any Four. **08**

a) What is a execution gap? Illustrate.
b) What is a language processor? Give examples.
c) List the aspects of compilation.
d) How is input buffering useful?
e) What are the organizational issues in assembler design?

Q.3 Attempt any Two. **10**

a) List the language processing activities and explain each in detail.
b) Compare between:
1) Problem and procedure oriented languages
2) Compilers and assemblers
c) State and elaborate on the components of assembly language programming? Illustrate each.

Q.4 Attempt any One. **10**

a) What are sentinels? Illustrate their use.
b) Explain the concept of Nested macro. How do they work?
c) Explain the role of a analyzer in compilers.

Section – II

Q.5 Attempt any Four. **08**

a) Give the characteristics of a basic block.
b) What are pre address codes?
c) What are the situations under which relocation is required?
d) What is relocation factor? What values is it permitted to take?
e) List the different loader schemes.

Q.6 Attempt any Two. **10**

a) How relocation factor is calculated? Take examples of different situations and find relocation factor.
b) Develop a design of a linker in form of an algorithm?
c) Explain steps involved in design of –
1) Compile and go loader
2) Direct linking loaders

Q.7 Attempt any One. **10**

a) List the cards used in Direct Linking Loaders and give functions of each.
b) What are Subroutine linkages? Give its involvement in Relocating Loader scheme.
c) What is Peephole Optimization? Give its characteristics.

Seat No.	

Set **S**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

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) Number of digits used for Opcode in m/c instruction format are _____.
   a) 1 b) 2
   c) 3 d) None

2) Regular expressions are used as input for _____.
   a) Assembler b) Syntax analysis
   c) LEX d) YACC

3) Which of the following is not an advanced assembler directive?
   a) START b) ORIGIN
   c) EQU d) LTORG

4) Action & Goto tables are part of _____.
   a) Predictive parser b) Shift-reduce parser
   c) LR parser d) None of these

5) Which of the following is not a part of Object modules?
   a) Machine program b) Relocation table
   c) Linking table d) None of these

6) A macro prototype statement declares _____.
   a) Name of the macro
   b) Name and kinds of its parameters
   c) Both a & b
   d) None of the above

7) Which of the following loading method uses various cards for relocation & linking?
   a) Relocating loader b) Direct-linking loader
   c) Dynamic loading d) None of these

8) Instruction cost of ADD 4(R0), *12(R1) is _____.
   a) 2 b) 3
   c) 4 d) 5

9) Peephole optimization uses which of the following transformations?
   a) Redundant instruction elimination
   b) Algebraic transformations
   c) Use of machine idioms
   d) All of these

10) Problem oriented language used in language processing affects _____.
   a) Specification gap
   b) Execution gap
   c) Both a & b
   d) Semantic gap

11) Which of the following is a Phrase-structure grammar?
   a) $A ::= \pi$
   b) $\alpha ::= \beta$
   c) $A ::= Bt|t$
   d) $\alpha A\beta ::= \alpha\pi\beta$

12) Which table is used to process forward references during assembly of a program?
   a) Symbol Table & CRT
   b) SRT
   c) FRT
   d) All of these

13) Parsing table used for Predictive parser can be constructed by using _____.
   a) Subset construction algorithm
   b) First & follow algorithm
   c) Shift-reduce algorithm
   d) None of these

14) Compilers are _____.
   a) Recursive
   b) Non-reusable
   c) Re-enterable
   d) Serially usable

SLR-FM-356

Seat No.	

Set S

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

Day & Date: Monday, 09-12-2019 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 Attempt any Four. **08**

a) What is a execution gap? Illustrate.
b) What is a language processor? Give examples.
c) List the aspects of compilation.
d) How is input buffering useful?
e) What are the organizational issues in assembler design?

Q.3 Attempt any Two. **10**

a) List the language processing activities and explain each in detail.
b) Compare between:
1) Problem and procedure oriented languages
2) Compilers and assemblers
c) State and elaborate on the components of assembly language programming? Illustrate each.

Q.4 Attempt any One. **10**

a) What are sentinels? Illustrate their use.
b) Explain the concept of Nested macro. How do they work?
c) Explain the role of a analyzer in compilers.

Section – II

Q.5 Attempt any Four. **08**

a) Give the characteristics of a basic block.
b) What are pre address codes?
c) What are the situations under which relocation is required?
d) What is relocation factor? What values is it permitted to take?
e) List the different loader schemes.

Q.6 Attempt any Two. **10**

a) How relocation factor is calculated? Take examples of different situations and find relocation factor.
b) Develop a design of a linker in form of an algorithm?
c) Explain steps involved in design of –
1) Compile and go loader
2) Direct linking loaders

Q.7 Attempt any One. **10**

a) List the cards used in Direct Linking Loaders and give functions of each.
b) What are Subroutine linkages? Give its involvement in Relocating Loader scheme.
c) What is Peephole Optimization? Give its characteristics.

Seat No.	

Set **P**

T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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

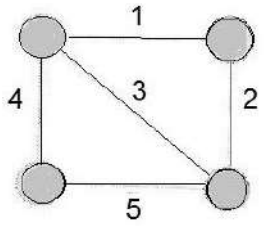
Duration: 30 Minutes Marks: 14

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

1) Which of the following is true about Huffman code?
   a) Huffman code may become lossy in some cases
   b) Huffman code may not be lossless in some cases
   c) In Huffman code, no code is prefix of other code
   d) None of the above

2) The time complexity of binary search is _____.
   a) O(1) b) O(log n)
   c) O(n) d) O(n logn)

3) For a given graph, minimum cost of Spanning tree is _____.



   a) 7 b) 6
   c) 12 d) 10

4) Algorithm sum(A[],n)
```
{
   sum = 0;
   for i = 1 to n
     sum = sum + A[i];
   return sum;
}
```
Step count of the algorithm is
   a) n b) n+3
   c) 2n+3 d) 2n+2

5) For messages with given frequencies (2, 3, 5, 7, 9, 13), what will be total decode time _____.
   a) 39 b) 93
   c) 89 d) 132

6) If Deadlines are (2, 2, 3, 3, 3) of 5 jobs, how many maximum jobs can be completed?
   a) 2 b) 3
   c) 4 d) 5

7) Kruskal's algorithm is for finding _____.
   a) All pairs shortest path
   b) Single source shortest path
   c) Minimum cost spanning tree
   d) Minimum cost tour

8) The correct matching for the following pairs are _____.

A.	Optimal Binary Search Tree	1.	Backtracking
B.	NP Complete	2.	Dynamic Programming
C.	Hamilton Cycle	3.	Branch and Bound

   a) A-3, B-2, C-1 b) A-2, B-3, C-1
   c) A-2, B-1, C-4 d) none

9) In flow shop scheduling OFT stands for _____.
   a) Optimal Find Time b) Organized Finish Time
   c) Optimal Finish Time d) None

10) Dynamic programming works on principle of _____.
   a) Optimality b) Feasible solutions
   c) Constraint d) None

11) If two queen are placed at positions (i, j) and (k, l). They are on the same diagnol iff _____.
   a) |j-k|=|i-k| b) |j-l|=|i-k|
   c) |i-j|=|k-l| d) None

12) Graph coloring problem is which type of algorithm design strategy.
   a) Dynamic Programming b) Greedy Method
   c) Backtracking d) None

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
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 of the following questions. **12**

a) Plot the graph of functions n, logn, nlogn, n^2, n^3 for n=1, 2, 3, 4, 5.

b) Find an optimal binary tree merge pattern for 10 files whose lengths are
i) 28, 32, 12, 5, 84, 53, 91, 35, 3, 11

c) If a shopkeeper wants to return amount of Rs. 27 using the coins of Rs. 1, 2, 5, 10 with availability of coins are 1, 2, 5, 5 respectively. What are different ways in which shopkeeper will return amount. Which will be the optimal solution in terms of minimum number of coins?

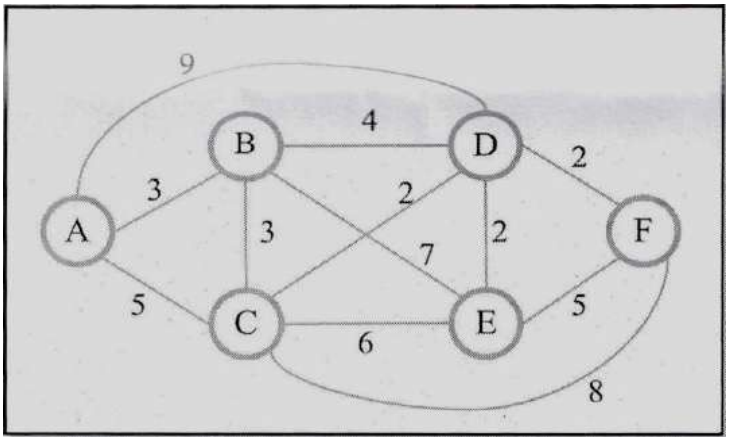
d) Find step count of the following algorithm

```
Algorithm Mult (a, b, c, n)
{
    for i:= 1 to n do
    for j= 1 to n do
     {
        c[i, j] := 0;
        for k= 1 to n do
              c[i,j] := c[i,j] + a[i,j] * b[i,j]
     }
}
```

Q.3 Attempt any one of the following questions. **08**

a) Write an algorithm for assigning programs to more than one tape.
Find an optimal placement for 10 programs on four tapes where programs are of length 12, 5, 6, 7, 13, 8, 23, 19, 20, 23.

b) Find minimum cost spanning tree using Prime's algorithm.



Q.4 Draw binary search tree for given elements. Calculate average number of comparisons for successful search and unsuccessful search. **08**
10, 20, 30, 40, 50, 60, 70, 80, 90, 100

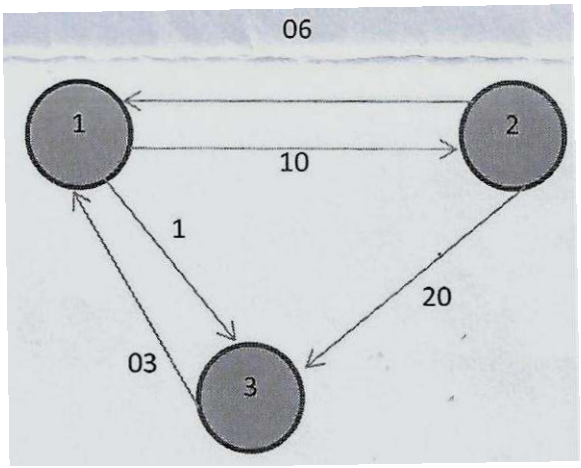
Section – II

Q.5 Attempt any three of the following questions. **12**

a) Write a note on reliability design with example.

b) Solve 0/1 Knapsack problem using dynamic programming
M=6, n=3 profit= {1, 2, 5} and weight= {2, 3, 5}.

c) Find all pair shortest path using dynamic programming.



d) Write brief note on P, NP, NP - complete and NP – Hard problems.

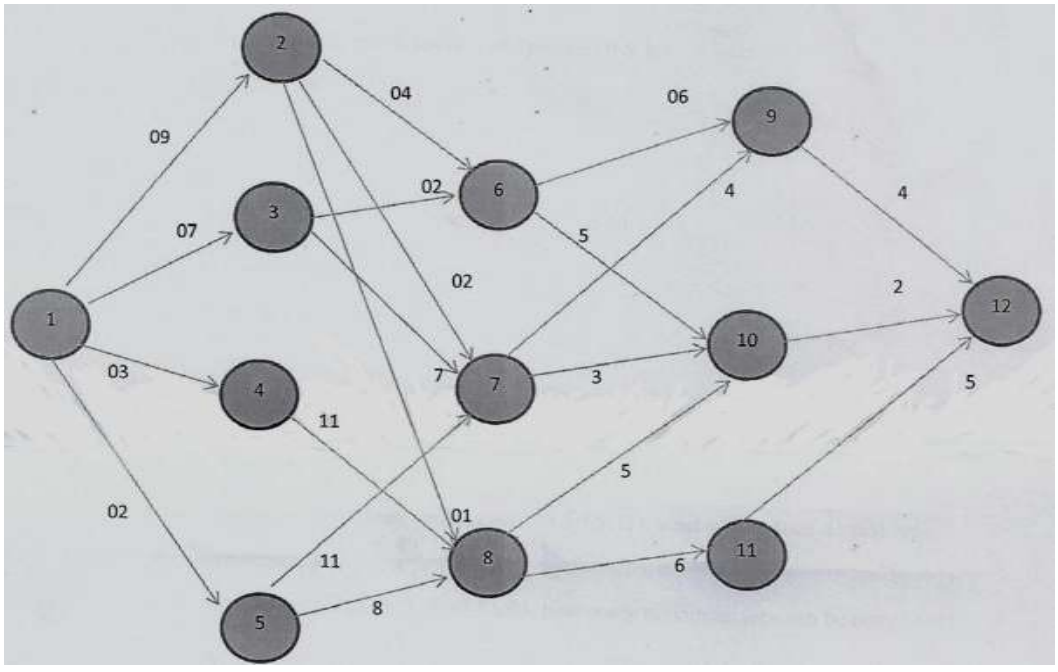
Q.6 Attempt any one of the following questions. **08**

Use optimal binary search tree to generate a tree on following data N=4 and identifier (a1,a2,a3,a4)=(do,if,int,while) p(1:4)=(3,31,1) and q(0:4)=(2,3,1,1,1)

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 Find minimum cost path from s to t multistage graph using backward approach. **08**



Seat No.	

Set **Q**

T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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) The correct matching for the following pairs are _____.

A.	Optimal Binary Search Tree	1.	Backtracking
B.	NP Complete	2.	Dynamic Programming
C.	Hamilton Cycle	3.	Branch and Bound

a) A-3, B-2, C-1 b) A-2, B-3, C-1
c) A-2, B-1, C-4 d) none

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) If two queen are placed at positions (i, j) and (k, l). They are on the same diagnol iff _____.
a) |j-k|=|i-k| b) |j-l|=|i-k|
c) |i-j|=|k-l| d) None

5) Graph coloring problem is which type of algorithm design strategy.
a) Dynamic Programming b) Greedy Method
c) Backtracking d) None

6) Travelling Sales Man 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) Which of the following is true about Huffman code?
a) Huffman code may become lossy in some cases
b) Huffman code may not be lossless in some cases
c) In Huffman code, no code is prefix of other code
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9) The time complexity of binary search is _____.
a) O(1) b) O(log n)
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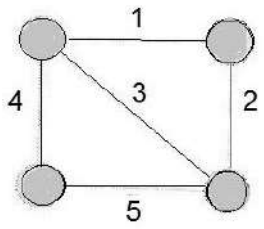
10) For a given graph, minimum cost of Spanning tree is _____.



a) 7 b) 6
c) 12 d) 10

11) Algorithm sum(A[],n)

```
{
   sum = 0;
   for i = 1 to n
     sum = sum + A[i];
   return sum;
}
```

Step count of the algorithm is

a) n b) n+3
c) 2n+3 d) 2n+2

12) For messages with given frequencies (2, 3, 5, 7, 9, 13), what will be total decode time _____.

a) 39 b) 93
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13) If Deadlines are (2, 2, 3, 3, 3) of 5 jobs, how many maximum jobs can be completed?

a) 2 b) 3
c) 4 d) 5

14) Kruskal's algorithm is for finding _____.

a) All pairs shortest path
b) Single source shortest path
c) Minimum cost spanning tree
d) Minimum cost tour

Seat No.	

Set **Q**

T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 of the following questions. **12**

a) Plot the graph of functions n, logn, nlogn, n^2, n^3 for n=1, 2, 3, 4, 5.

b) Find an optimal binary tree merge pattern for 10 files whose lengths are
i) 28, 32, 12, 5, 84, 53, 91, 35, 3, 11

c) If a shopkeeper wants to return amount of Rs. 27 using the coins of Rs. 1, 2, 5, 10 with availability of coins are 1, 2, 5, 5 respectively. What are different ways in which shopkeeper will return amount. Which will be the optimal solution in terms of minimum number of coins?

d) Find step count of the following algorithm

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Algorithm Mult (a, b, c, n)
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    for i:= 1 to n do
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        c[i, j] := 0;
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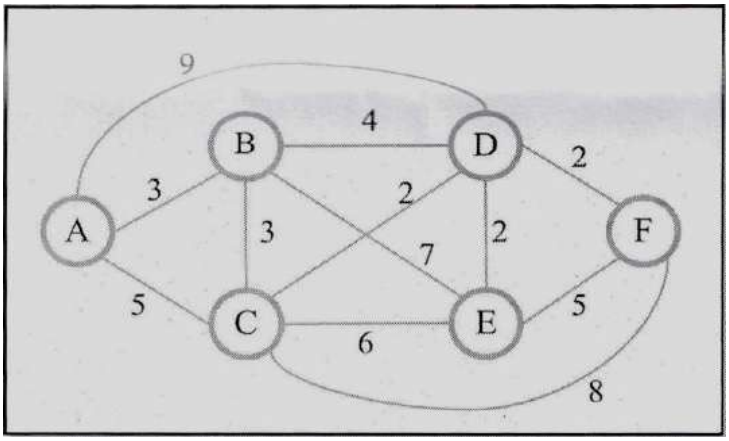
              c[i,j] := c[i,j] + a[i,j] * b[i,j]
     }
}
```

Q.3 Attempt any one of the following questions. **08**

a) Write an algorithm for assigning programs to more than one tape.
Find an optimal placement for 10 programs on four tapes where programs are of length 12, 5, 6, 7, 13, 8, 23, 19, 20, 23.

b) Find minimum cost spanning tree using Prime's algorithm.



Q.4 Draw binary search tree for given elements. Calculate average number of comparisons for successful search and unsuccessful search. **08**
10, 20, 30, 40, 50, 60, 70, 80, 90, 100

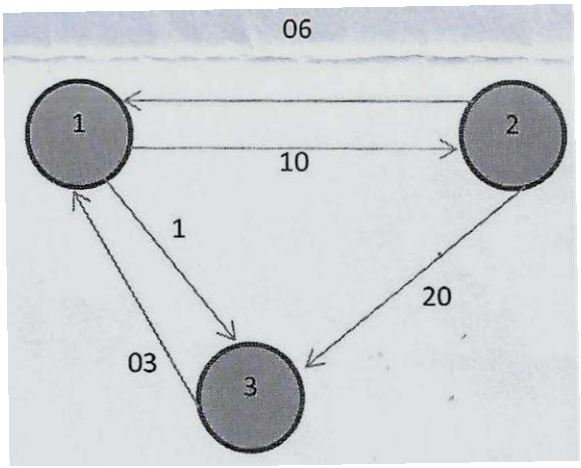
Section – II

Q.5 **Attempt any three of the following questions.** **12**

a) Write a note on reliability design with example.

b) Solve 0/1 Knapsack problem using dynamic programming
M=6, n=3 profit= {1, 2, 5} and weight= {2, 3, 5}.

c) Find all pair shortest path using dynamic programming.



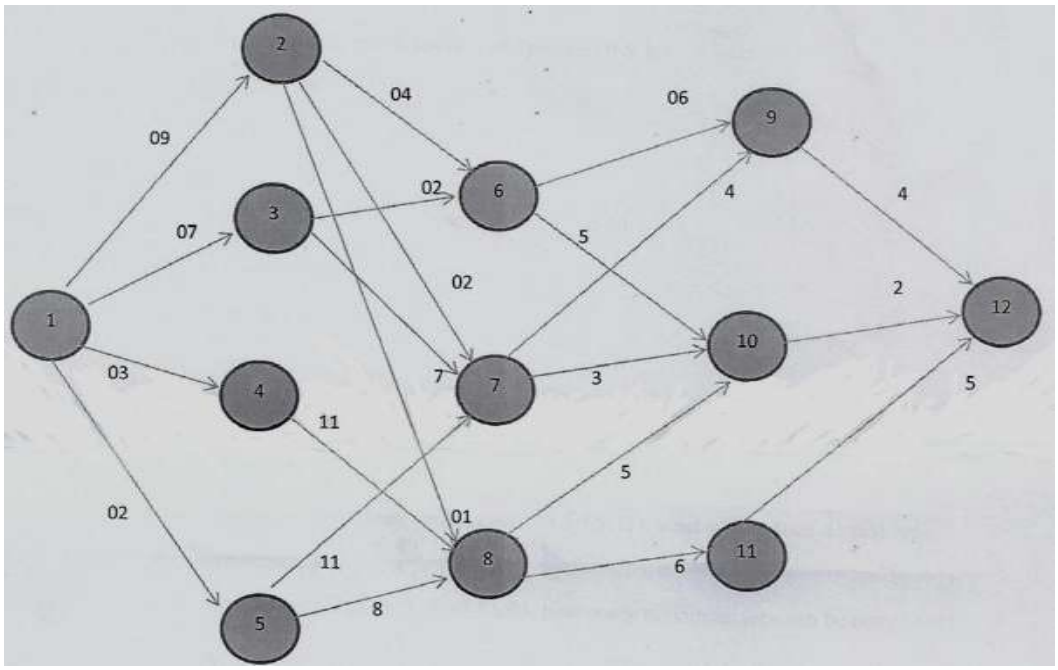
d) Write brief note on P, NP, NP - complete and NP – Hard problems.

Q.6 **Attempt any one of the following questions.** **08**
Use optimal binary search tree to generate a tree on following data N=4 and identifier (a1,a2,a3,a4)=(do,if,int,while) p(1:4)=(3,31,1) and q(0:4)=(2,3,1,1,1)

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 Find minimum cost path from s to t multistage graph using backward approach. **08**



Seat No.	

Set **R**

T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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) For messages with given frequencies (2, 3, 5, 7, 9, 13), what will be total decode time _____.
   a) 39 b) 93
   c) 89 d) 132

2) If Deadlines are (2, 2, 3, 3, 3) of 5 jobs, how many maximum jobs can be completed?
   a) 2 b) 3
   c) 4 d) 5

3) Kruskal's algorithm is for finding _____.
   a) All pairs shortest path
   b) Single source shortest path
   c) Minimum cost spanning tree
   d) Minimum cost tour

4) The correct matching for the following pairs are _____.

A.	Optimal Binary Search Tree	1.	Backtracking
B.	NP Complete	2.	Dynamic Programming
C.	Hamilton Cycle	3.	Branch and Bound

   a) A-3, B-2, C-1 b) A-2, B-3, C-1
   c) A-2, B-1, C-4 d) none

5) In flow shop scheduling OFT stands for _____.
   a) Optimal Find Time b) Organized Finish Time
   c) Optimal Finish Time d) None

6) Dynamic programming works on principle of _____.
   a) Optimality b) Feasible solutions
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7) If two queen are placed at positions (i, j) and (k, l). They are on the same diagnol iff _____.
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   c) |i-j|=|k-l| d) None

8) Graph coloring problem is which type of algorithm design strategy.
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9) Travelling Sales Man problem belongs to which of the class?
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   b) NP
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10) The hardest of NP problems can be _____.
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   b) NP-hard
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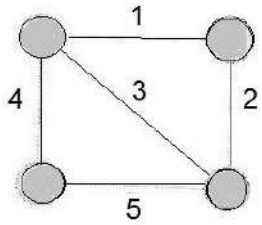
11) Which of the following is true about Huffman code?
   a) Huffman code may become lossy in some cases
   b) Huffman code may not be lossless in some cases
   c) In Huffman code, no code is prefix of other code
   d) None of the above

12) The time complexity of binary search is _____.
   a) O(1)
   b) O(log n)
   c) O(n)
   d) O(n logn)

13) For a given graph, minimum cost of Spanning tree is _____.



   a) 7
   b) 6
   c) 12
   d) 10

14) Algorithm sum(A[],n)

```
{
   sum = 0;
   for i = 1 to n
     sum = sum + A[i];
   return sum;
}
```

Step count of the algorithm is
   a) n
   b) n+3
   c) 2n+3
   d) 2n+2

Seat No.	

Set **R**

T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 of the following questions. **12**

a) Plot the graph of functions n, logn, nlogn, n^2, n^3 for n=1, 2, 3, 4, 5.

b) Find an optimal binary tree merge pattern for 10 files whose lengths are
i) 28, 32, 12, 5, 84, 53, 91, 35, 3, 11

c) If a shopkeeper wants to return amount of Rs. 27 using the coins of Rs. 1, 2, 5, 10 with availability of coins are 1, 2, 5, 5 respectively. What are different ways in which shopkeeper will return amount. Which will be the optimal solution in terms of minimum number of coins?

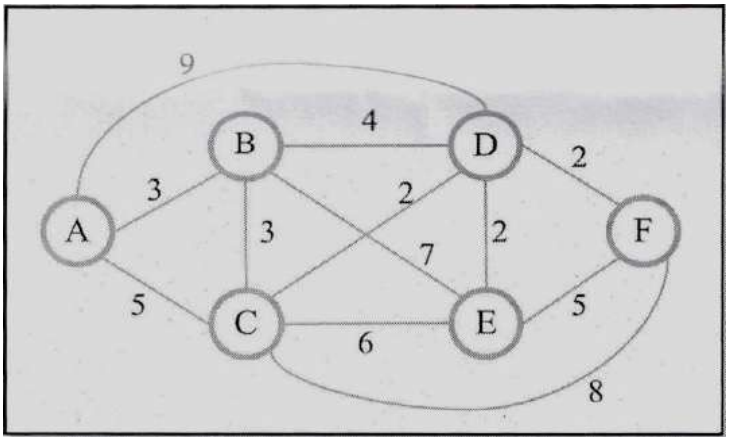
d) Find step count of the following algorithm

```
Algorithm Mult (a, b, c, n)
{
    for i:= 1 to n do
    for j= 1 to n do
     {
        c[i, j] := 0;
        for k= 1 to n do
              c[i,j] := c[i,j] + a[i,j] * b[i,j]
     }
}
```

Q.3 Attempt any one of the following questions. **08**

a) Write an algorithm for assigning programs to more than one tape.
Find an optimal placement for 10 programs on four tapes where programs are of length 12, 5, 6, 7, 13, 8, 23, 19, 20, 23.

b) Find minimum cost spanning tree using Prime's algorithm.



Q.4 Draw binary search tree for given elements. Calculate average number of comparisons for successful search and unsuccessful search. **08**
10, 20, 30, 40, 50, 60, 70, 80, 90, 100

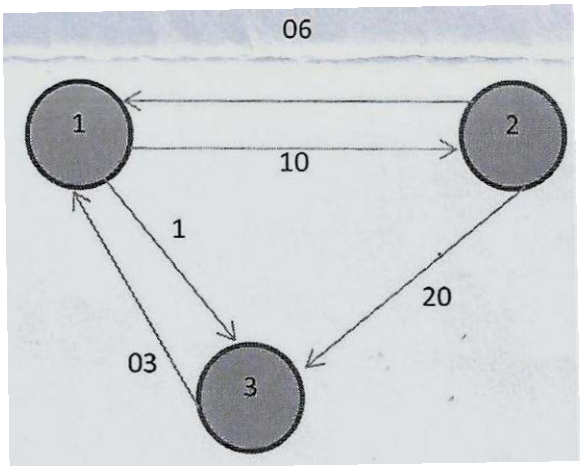
Section – II

Q.5 Attempt any three of the following questions. **12**

a) Write a note on reliability design with example.

b) Solve 0/1 Knapsack problem using dynamic programming
M=6, n=3 profit= {1, 2, 5} and weight= {2, 3, 5}.

c) Find all pair shortest path using dynamic programming.



d) Write brief note on P, NP, NP - complete and NP – Hard problems.

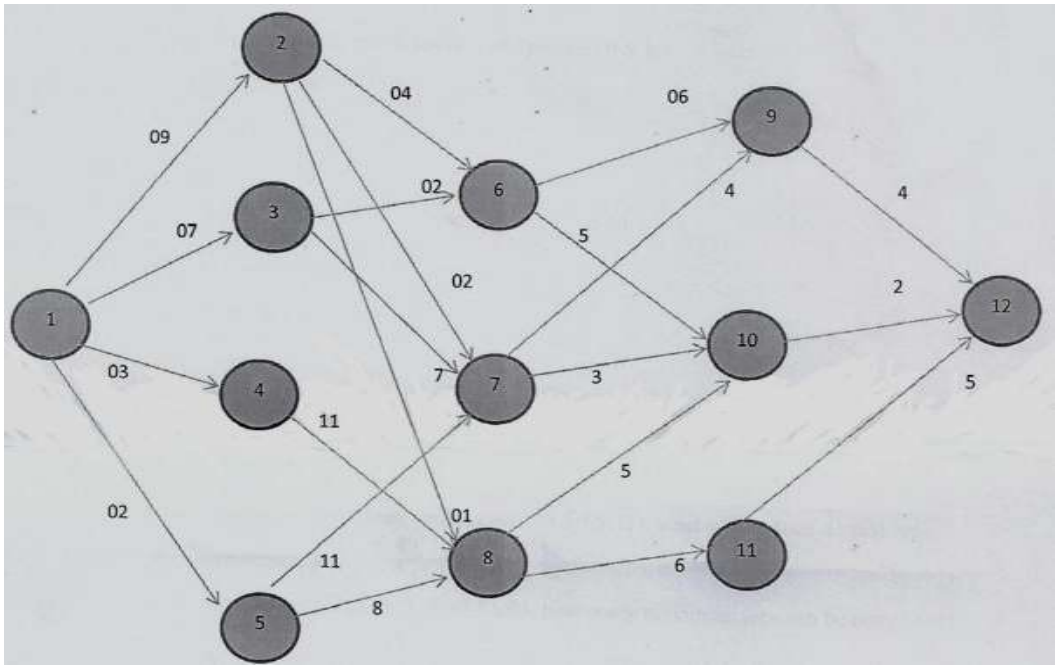
Q.6 Attempt any one of the following questions. **08**

Use optimal binary search tree to generate a tree on following data N=4 and identifier (a1,a2,a3,a4)=(do,if,int,while) p(1:4)=(3,31,1) and q(0:4)=(2,3,1,1,1)

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 Find minimum cost path from s to t multistage graph using backward approach. **08**



Seat No.	

Set **S**

T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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) Dynamic programming works on principle of _____.
   a) Optimality b) Feasible solutions
   c) Constraint d) None

2) If two queen are placed at positions (i, j) and (k, l). They are on the same diagnol iff _____.
   a) |j-k|=|i-k| b) |j-l|=|i-k|
   c) |i-j|=|k-l| d) None

3) Graph coloring problem is which type of algorithm design strategy.
   a) Dynamic Programming b) Greedy Method
   c) Backtracking d) None

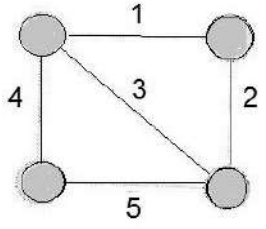
4) Travelling Sales Man problem belongs to which of the class?
   a) P b) NP
   c) Linear d) None of the mentioned

5) The hardest of NP problems can be _____.
   a) NP-complete b) NP-hard
   c) P d) None of the mentioned

6) Which of the following is true about Huffman code?
   a) Huffman code may become lossy in some cases
   b) Huffman code may not be lossless in some cases
   c) In Huffman code, no code is prefix of other code
   d) None of the above

7) The time complexity of binary search is _____.
   a) O(1) b) O(log n)
   c) O(n) d) O(n logn)

8) For a given graph, minimum cost of Spanning tree is _____.



   a) 7 b) 6
   c) 12 d) 10

9) Algorithm sum(A[],n)

```
{
   sum = 0;
   for i = 1 to n
     sum = sum + A[i];
   return sum;
}
```

Step count of the algorithm is

a) n b) n+3
c) 2n+3 d) 2n+2

10) For messages with given frequencies (2, 3, 5, 7, 9, 13), what will be total decode time _____.

a) 39 b) 93
c) 89 d) 132

11) If Deadlines are (2, 2, 3, 3, 3) of 5 jobs, how many maximum jobs can be completed?

a) 2 b) 3
c) 4 d) 5

12) Kruskal's algorithm is for finding _____.

a) All pairs shortest path
b) Single source shortest path
c) Minimum cost spanning tree
d) Minimum cost tour

13) The correct matching for the following pairs are _____.

A.	Optimal Binary Search Tree	1.	Backtracking
B.	NP Complete	2.	Dynamic Programming
C.	Hamilton Cycle	3.	Branch and Bound

a) A-3, B-2, C-1 b) A-2, B-3, C-1
c) A-2, B-1, C-4 d) none

14) In flow shop scheduling OFT stands for _____.

a) Optimal Find Time b) Organized Finish Time
c) Optimal Finish Time d) None

Seat No.	

Set **S**

T.E. (Part - I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 of the following questions. **12**

a) Plot the graph of functions n, logn, nlogn, n^2, n^3 for n=1, 2, 3, 4, 5.

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c) If a shopkeeper wants to return amount of Rs. 27 using the coins of Rs. 1, 2, 5, 10 with availability of coins are 1, 2, 5, 5 respectively. What are different ways in which shopkeeper will return amount. Which will be the optimal solution in terms of minimum number of coins?

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Q.3 Attempt any one of the following questions. **08**

a) Write an algorithm for assigning programs to more than one tape.
Find an optimal placement for 10 programs on four tapes where programs are of length 12, 5, 6, 7, 13, 8, 23, 19, 20, 23.

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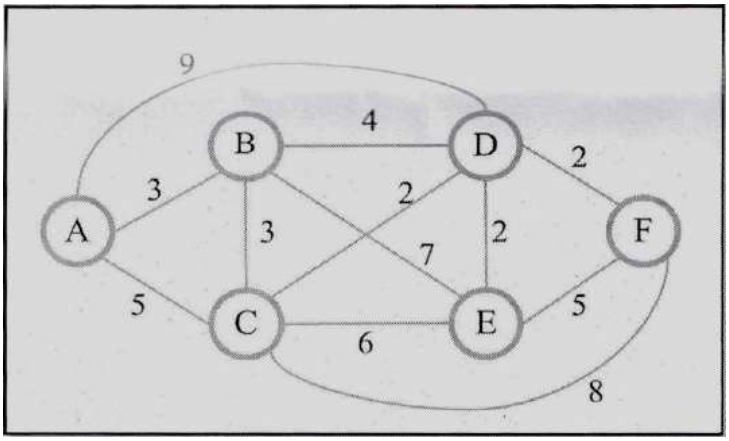

Q.4 Draw binary search tree for given elements. Calculate average number of comparisons for successful search and unsuccessful search. **08**
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Section – II

Q.5 Attempt any three of the following questions. **12**

a) Write a note on reliability design with example.

b) Solve 0/1 Knapsack problem using dynamic programming

M=6, n=3 profit= {1, 2, 5} and weight= {2, 3, 5}.

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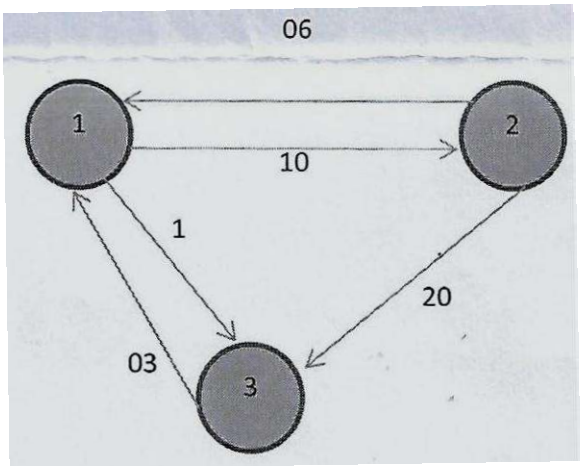

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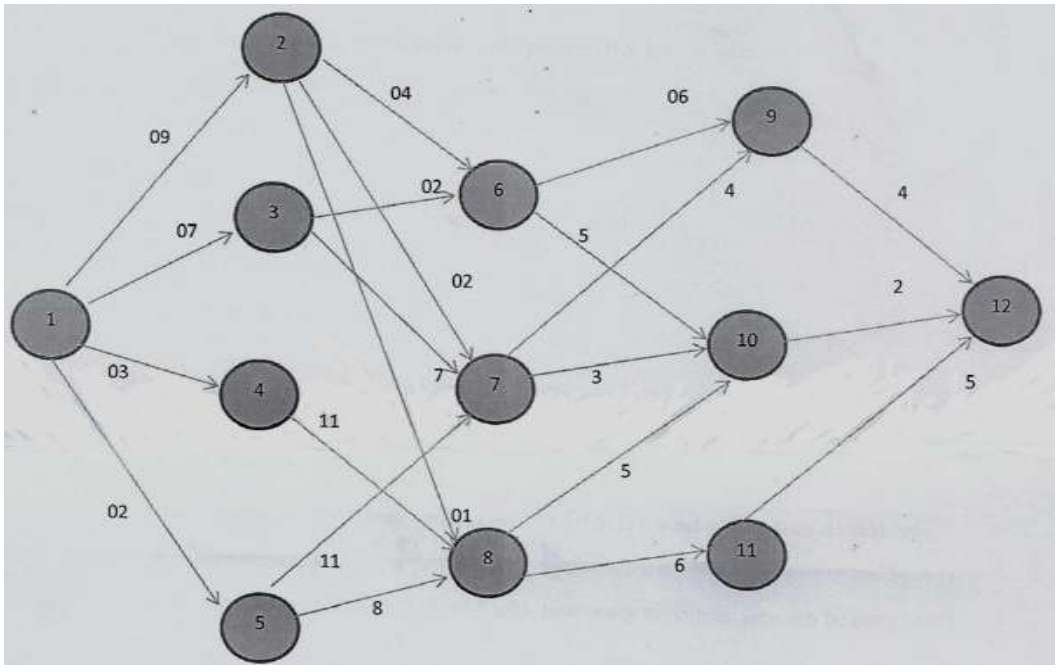
OR

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 Find minimum cost path from s to t multistage graph using backward approach. **08**



SLR-FM-358

Seat No.		Set	P

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday,13-12-2019 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) Which one of the following is used to define the structure of the relation, deleting relations and relating schemas?
   a) DML(Data Manipulation Language)
   b) DDL(Data Definition Language)
   c) Query
   d) Relational Schema

2) Which one of the following provides the ability to query information from the database and to insert tuples into, delete tuples from, and modify tuples in the database?
   a) DML(Data Manipulation Language)
   b) DDL(Data Definition Language)
   c) Query
   d) Relational Schema

3) Create table employee (name varchar, id integer) What type of statement is this?
   a) DML b) DDL
   c) View d) Integrity constraint

4) Select * from employee What type of statement is this?
   a) DML b) DDL
   c) View d) Integrity constraint

5) The basic data type char(n) is a _____ length character string and varchar(n) is _____ length character.
   a) Fixed, equal b) Equal, variable
   c) Fixed, variable d) Variable, equal

6) SQL view is said to be updatable (that is, inserts, updates or deletes can be applied on the view) if which of the following conditions are satisfied by the query defining the view?
   a) The from clause has only one database relation
   b) The query does not have a group by or having clause
   c) The select clause contains only attribute names of the relation, and does not have any expressions, aggregates, or distinct specification
   d) All of the mentioned

7) Which of the following is used at the end of the view to reject the tuples which do not satisfy the condition in where clause?
   a) With
   b) Check
   c) With check
   d) All of the mentioned

8) For the view
Create view instructor_info as
select ID, name, building
from instructor, department
where instructor.dept name= department.dept name;
If we insert tuple into the view as insert into instructor info values ('69987', 'White' 'Taylor');
What will be the values of the other attributes in instructor and department relations?
   a) Default value
   b) Null
   c) Error statement
   d) 0

9) Create view faculty as
Select ID, name, dept name
from instructor;
Find the error in this query.
   a) Instructor
   b) Select
   c) View ...as
   d) None of the mentioned

10) In the _____ normal form, a composite attribute is converted to individual attributes
   a) First
   b) Second
   c) Third
   d) Fourth

11) A table on the many side of a one to many or many to many relationship must: _____.
   a) Be in Second Normal Form (2NF)
   b) Be in Third Normal Form (3NF)
   c) Have a single attribute key
   d) Have a composite key

12) Tables in second normal form (2NF): _____.
   a) Eliminate all hidden dependencies
   b) Eliminate the possibility of a insertion anomalies
   c) Have a composite key
   d) Have all non key fields depend on the whole primary key

13) Which-one of the following statements about normal forms is FALSE?
   a) BCNF is stricter than 3 NF
   b) Lossless, dependency - preserving decomposition into 3 NF is always possible
   c) Loss less, dependency - preserving decomposition into BCNF is always possible
   d) Any relation with two attributes is BCNF

14) Functional Dependencies are the types of constraints that are based on _____.
   a) Key
   b) Key revisited
   c) Superset key
   d) None of these

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Seat No.	

Set P

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday,13-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Solve any three of the following. **12**

a) Differentiate between the following.
1) update and insert
2) primary key and foreign key
3) grant and revoke
4) row and column

b) Define DBMS. Explain the DBMS languages with examples: DDL, DML, and DCL.

c) Define E-R Diagram. Draw E-R diagram with Customer, Loan and Payment sets.

d) Explain any four Aggregate functions with examples.

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a) Write query for the following:
1) To create a table from a table
2) To eliminate duplicate rows
3) To add a new column in the table
4) To sort data in a table

b) What are the features of good relational design? Explain First Normal Form with suitable example.

c) Describe in detail concepts of Data Mining and Information Retrieval Explain with suitable example.

Section – II

Q.4 Solve any three of the following. **12**

a) Explain shadow paging.

b) Explain Static Hashing and Dynamic Hashing.

c) Explain conflict serializability with example.

d) How Multiple Granularity takes place in Concurrency Control?

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a) Consider schedule S with transaction T1 and T2. T1 transfer Rs. 150 from account A to C and T2 adds Rs. 50 into account A. Prepare concurrent schedule with two phase locking protocol.

b) What is deadlock? Explain necessary conditions for deadlock and methods for handling it.

c) Define Failure. Explain Log based Recovery.

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Seat No.	

Set Q

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday,13-12-2019 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.
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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 view
Create view instructor_info as
select ID, name, building
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where instructor.dept name= department.dept name;
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Find the error in this query.
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SLR-FM-358

Seat No.	

Set Q

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday,13-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

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a) Write query for the following:
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b) What are the features of good relational design? Explain First Normal Form with suitable example.

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Section – II

Q.4 Solve any three of the following. **12**

a) Explain shadow paging.

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b) What is deadlock? Explain necessary conditions for deadlock and methods for handling it.

c) Define Failure. Explain Log based Recovery.

Seat No.	

Set **R**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday,13-12-2019 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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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Seat No.	

Set **R**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday,13-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

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Section – II

Q.4 Solve any three of the following. **12**

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Seat No.	

Set **S**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday,13-12-2019 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) In the _____ normal form, a composite attribute is converted to individual attributes
   a) First b) Second
   c) Third d) Fourth

2) A table on the many side of a one to many or many to many relationship must: _____.
   a) Be in Second Normal Form (2NF)
   b) Be in Third Normal Form (3NF)
   c) Have a single attribute key
   d) Have a composite key

3) Tables in second normal form (2NF): _____.
   a) Eliminate all hidden dependencies
   b) Eliminate the possibility of a insertion anomalies
   c) Have a composite key
   d) Have all non key fields depend on the whole primary key

4) Which-one of the following statements about normal forms is FALSE?
   a) BCNF is stricter than 3 NF
   b) Lossless, dependency - preserving decomposition into 3 NF is always possible
   c) Loss less, dependency - preserving decomposition into BCNF is always possible
   d) Any relation with two attributes is BCNF

5) Functional Dependencies are the types of constraints that are based on _____.
   a) Key b) Key revisited
   c) Superset key d) None of these

6) Which one of the following is used to define the structure of the relation, deleting relations and relating schemas?
   a) DML(Data Manipulation Language)
   b) DDL(Data Definition Language)
   c) Query
   d) Relational Schema

7) Which one of the following provides the ability to query information from the database and to insert tuples into, delete tuples from, and modify tuples in the database?
   a) DML(Data Manipulation Language)
   b) DDL(Data Definition Language)
   c) Query
   d) Relational Schema

8) Create table employee (name varchar, id integer) What type of statement is this?
   a) DML
   b) DDL
   c) View
   d) Integrity constraint

9) Select * from employee What type of statement is this?
   a) DML
   b) DDL
   c) View
   d) Integrity constraint

10) The basic data type char(n) is a _____ length character string and varchar(n) is _____ length character.
   a) Fixed, equal
   b) Equal, variable
   c) Fixed, variable
   d) Variable, equal

11) SQL view is said to be updatable (that is, inserts, updates or deletes can be applied on the view) if which of the following conditions are satisfied by the query defining the view?
   a) The from clause has only one database relation
   b) The query does not have a group by or having clause
   c) The select clause contains only attribute names of the relation, and does not have any expressions, aggregates, or distinct specification
   d) All of the mentioned

12) Which of the following is used at the end of the view to reject the tuples which do not satisfy the condition in where clause?
   a) With
   b) Check
   c) With check
   d) All of the mentioned

13) For the view
Create view instructor_info as
select ID, name, building
from instructor, department
where instructor.dept name= department.dept name;
If we insert tuple into the view as insert into instructor info values (‘69987’, ‘White’ ‘Taylor’);
What will be the values of the other attributes in instructor and department relations?
   a) Default value
   b) Null
   c) Error statement
   d) 0

14) Create view faculty as
Select ID, name, dept name
from instructor;
Find the error in this query.
   a) Instructor
   b) Select
   c) View ...as
   d) None of the mentioned

SLR-FM-358

Seat No.	

Set S

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday,13-12-2019 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 of the following. **12**

a) Differentiate between the following.
1) update and insert
2) primary key and foreign key
3) grant and revoke
4) row and column

b) Define DBMS. Explain the DBMS languages with examples: DDL, DML, and DCL.

c) Define E-R Diagram. Draw E-R diagram with Customer, Loan and Payment sets.

d) Explain any four Aggregate functions with examples.

Q.3 Solve any Two. **16**

a) Write query for the following:
1) To create a table from a table
2) To eliminate duplicate rows
3) To add a new column in the table
4) To sort data in a table

b) What are the features of good relational design? Explain First Normal Form with suitable example.

c) Describe in detail concepts of Data Mining and Information Retrieval Explain with suitable example.

Section – II

Q.4 Solve any three of the following. **12**

a) Explain shadow paging.

b) Explain Static Hashing and Dynamic Hashing.

c) Explain conflict serializability with example.

d) How Multiple Granularity takes place in Concurrency Control?

Q.5 Solve any Two. **16**

a) Consider schedule S with transaction T1 and T2. T1 transfer Rs. 150 from account A to C and T2 adds Rs. 50 into account A. Prepare concurrent schedule with two phase locking protocol.

b) What is deadlock? Explain necessary conditions for deadlock and methods for handling it.

c) Define Failure. Explain Log based Recovery.

Seat No.	

Set **P**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

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.
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) Processors of all computers, whether micro, mini or mainframe must have ___.
   a) ALU b) Primary Storage
   c) Control unit d) All of above

2) The generation based on VLSI microprocessor _____.
   a) 1^{st} b) 2^{nd}
   c) 3^{rd} d) 4^{th}

3) Non-restoring algorithm needs more hardware than restoring algorithm.
   a) True b) False

4) Cache memory placed between _____.
   a) CPU and RAM b) RAM and ROM
   c) CPU and Hard Disk d) None of these

5) The time between the start and the completion of an event also referred to as _____.
   a) Execution time b) Delay time
   c) Start time d) None of the above

6) In the memory hierarchy, as the speed of operation increases the memory size also increases.
   a) True b) False

7) _____ have been developed specifically for pipelined systems.
   a) Utility software's b) Speed up utilities
   c) Optimizing compilers d) None of the mentioned

8) Each stage in pipelining should be completed within _____ cycle.
   a) 1 b) 2
   c) 3 d) 4

9) Which of the following is not a pipeline stage?
   a) Operand fetch b) Execute
   c) Pipeline flush d) Memory Access

10) The important feature of the VLIW is _____.
   a) ILP b) Cost effectiveness
   c) Performance d) None of the mentioned

11) The algorithm followed in most of the systems to perform out of order execution is _____.
   a) Tomasulo's algorithm
   b) Score carding
   c) Reader-writer algorithm
   d) None of the above

12) Alternative way of a snooping-based coherence protocol, is called a _____.
   a) Memory protocol
   b) Directory protocol
   c) Register protocol
   d) None of above

13) Symmetric multiprocessors (SMP) is _____.
   a) Small number of cores
   b) Share single memory with uniform memory latency
   c) Both a and b
   d) None of the above

14) Which are the Three situations in which a data hazard can occur?
   a) Read after write (RAW), a true dependency
   b) Write after read (WAR), an anti-dependency
   c) Write after write (WAW), an output dependency
   d) All of above

Seat No.	

Set **P**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

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 indicates full marks.

Section – I

Q.2 Attempt any three. **12**

a) Describe in detail the Generations of Computers and explain the upward compatibility in terms of computer.
b) Write the IEEE-754 Floating Point Formats.
c) Define Computer architecture. Illustrate the seven dimensions of an ISA.
d) What is dependability? Explain two main measures of dependability.

Q.3 Attempt any two. **16**

a) Solve 17/3 using Non Restoring Method of division Algorithm.
b) 1) Solve (+5 X +2) using booths algorithm.
2) With a neat diagram describe the Memory Map architecture of ARC processor.
c) **Write short notes.**
1) Cache Memory
2) Memory hierarchy

Section – II

Q.4 Attempt any three. **12**

a) With a neat diagram explain the classic five - stage pipeline for a RISC Processor.
b) Illustrate the Data hazard types: RAW, WAR and WAW.
c) Explain the Advanced Techniques for instruction delivery and Speculation.
d) With a neat diagram describe structural hazard in five stage pipeline.

Q.5 Attempt any two. **16**

a) Illustrate the Basic Pipeline Scheduling and Loop Unrolling technique in detail.
b) What are the techniques used to reduce branch costs? Explain the dynamic branch prediction used for same.
c) Explain following protocols under Cache Coherence and Message Passing Mechanisms.
1) Snoopy Bus Protocols
2) Directory based Protocols

Seat No.	

Set **Q**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

Day & Date: Monday, 16-12-2019 Max. Marks: 70
Time: 02:30 PM To 05:30 PM

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2) Figures to the right indicates full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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1) Each stage in pipelining should be completed within _____ cycle.
   a) 1 b) 2
   c) 3 d) 4

2) Which of the following is not a pipeline stage?
   a) Operand fetch b) Execute
   c) Pipeline flush d) Memory Access

3) The important feature of the VLIW is _____.
   a) ILP b) Cost effectiveness
   c) Performance d) None of the mentioned

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   c) Write after write (WAW), an output dependency
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8) Processors of all computers, whether micro, mini or mainframe must have ___.
   a) ALU b) Primary Storage
   c) Control unit d) All of above

9) The generation based on VLSI microprocessor _____.
   a) 1^{st} b) 2^{nd}
   c) 3^{rd} d) 4^{th}

10) Non-restoring algorithm needs more hardware than restoring algorithm.
a) True b) False

11) Cache memory placed between _____.
a) CPU and RAM b) RAM and ROM
c) CPU and Hard Disk d) None of these

12) The time between the start and the completion of an event also referred to as _____.
a) Execution time b) Delay time
c) Start time d) None of the above

13) In the memory hierarchy, as the speed of operation increases the memory size also increases.
a) True b) False

14) _____ have been developed specifically for pipelined systems.
a) Utility software's b) Speed up utilities
c) Optimizing compilers d) None of the mentioned

Seat No.	

Set **Q**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

Day & Date: Monday, 16-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Attempt any three. **12**

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1) Cache Memory
2) Memory hierarchy

Section – II

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d) With a neat diagram describe structural hazard in five stage pipeline.

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b) What are the techniques used to reduce branch costs? Explain the dynamic branch prediction used for same.
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1) Snoopy Bus Protocols
2) Directory based Protocols

Seat No.	

Set **R**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

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.
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) The time between the start and the completion of an event also referred to as _____.
   a) Execution time b) Delay time
   c) Start time d) None of the above

2) In the memory hierarchy, as the speed of operation increases the memory size also increases.
   a) True b) False

3) _____ have been developed specifically for pipelined systems.
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4) Each stage in pipelining should be completed within _____ cycle.
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   c) 3 d) 4

5) Which of the following is not a pipeline stage?
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12) The generation based on VLSI microprocessor _____.
   a) 1^{st}
   b) 2^{nd}
   c) 3^{rd}
   d) 4^{th}

13) Non-restoring algorithm needs more hardware than restoring algorithm.
   a) True
   b) False

14) Cache memory placed between _____.
   a) CPU and RAM
   b) RAM and ROM
   c) CPU and Hard Disk
   d) None of these

Seat No.	

Set **R**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

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 indicates full marks.

Section – I

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1) Cache Memory
2) Memory hierarchy

Section – II

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b) What are the techniques used to reduce branch costs? Explain the dynamic branch prediction used for same.
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2) Directory based Protocols

Seat No.	

Set **S**

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

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   a) ILP b) Cost effectiveness
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13) Each stage in pipelining should be completed within _____ cycle.
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   b) 2
   c) 3
   d) 4

14) Which of the following is not a pipeline stage?
   a) Operand fetch
   b) Execute
   c) Pipeline flush
   d) Memory Access

SLR-FM-359

Seat No.	

Set S

T.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

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 indicates full marks.

Section – I

Q.2 Attempt any three. **12**

a) Describe in detail the Generations of Computers and explain the upward compatibility in terms of computer.
b) Write the IEEE-754 Floating Point Formats.
c) Define Computer architecture. Illustrate the seven dimensions of an ISA.
d) What is dependability? Explain two main measures of dependability.

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b) 1) Solve (+5 X +2) using booths algorithm.
2) With a neat diagram describe the Memory Map architecture of ARC processor.
c) **Write short notes.**
1) Cache Memory
2) Memory hierarchy

Section – II

Q.4 Attempt any three. **12**

a) With a neat diagram explain the classic five - stage pipeline for a RISC Processor.
b) Illustrate the Data hazard types: RAW, WAR and WAW.
c) Explain the Advanced Techniques for instruction delivery and Speculation.
d) With a neat diagram describe structural hazard in five stage pipeline.

Q.5 Attempt any two. **16**

a) Illustrate the Basic Pipeline Scheduling and Loop Unrolling technique in detail.
b) What are the techniques used to reduce branch costs? Explain the dynamic branch prediction used for same.
c) Explain following protocols under Cache Coherence and Message Passing Mechanisms.
1) Snoopy Bus Protocols
2) Directory based Protocols

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM

Day & Date: Friday, 22-11-2019 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 indicate full marks.
3) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose Correct Options. 14

1) _____ is a unique tag, usually a number, identifies the file within the file system.
   a) File identifier b) File name
   c) File type d) None of the mentioned

2) To create a file _____.
   a) allocate the space in file system
   b) make an entry for new file in directory
   c) allocate the space in file system & make an entry for new file in directory
   d) none of the mentioned

3) By using the specific system call, we can _____.
   a) open the file b) read the file
   c) write into the file d) all of the mentioned

4) File type can be represented by _____.
   a) file name b) file extension
   c) file identifier d) none of the mentioned

5) What is the mounting of file system?
   a) crating of a filesystem
   b) deleting a filesystem
   c) attaching portion of the file system into a directory structure
   d) removing portion of the file system into a directory structure

6) Which of the following commands can be used to change default permissions for files and directories at the time of creation?
   a) chmod b) chown
   c) umask d) chgrp

7) Which of the following option of Is command can be used to view file inode number?
   a) - l b) - o
   c) - a d) - i

8) What is the name of the method that kernel uses to minimize the frequency of disk access by maintaining a pool of internal data buffer to increase the response time and throughput?
   a) pooling
   b) spooling
   c) buffer cache
   d) swapping

9) The address of a page table in memory is pointed by _____.
   a) stack pointer
   b) page table base register
   c) page register
   d) program counter

10) A parent process calling _____ system call will be suspended until children processes terminate.
   a) wait
   b) fork
   c) exit
   d) exec

11) What is the command to change the group ownership of a file?
   a) cgrp
   b) chgrp
   c) change
   d) group

12) What is the command to count the number of characters in a file?
   a) grep
   b) wc
   c) count
   d) cut

13) Virtual memory is normally implemented by _____.
   a) demand paging
   b) buses
   c) virtualization
   d) all of the mentioned

14) A swapper manipulates _____ whereas the pager is concerned with individual _____ of a process.
   a) the entire process, parts
   b) all the pages of a process, segments
   c) the entire process, pages
   d) none of the mentioned

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM

Day & Date: Friday, 22-11-2019 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) Assume data wherever necessary.

Section – I

Q.2 Attempt any Four. **16**

a) Write a program that creates a new process to copy files.
b) Describe the concept of Context of a process?
c) What is buffer header? Draw the diagram of buffer header & explain it's fields.
d) What is superblock? What are the fields it consists of?
e) What is system call? Explain any two system calls for the file system.

Q.3 What OPEN system call does? Write an algorithm for opening a file. **06**

Q.4 Answer any one from the following questions. **06**

a) Describe various scenarios for retrieval of a buffer.
b) Write a note on File and Record Locking.

Section – II

Q.5 Answer any four from the following questions. **12**

a) Write an algorithm for allocating a region.
b) What is a Process Group? What does setpgrp() system call.
c) Explain an algorithm for process scheduling.
d) Describe Fork Swap.
e) Explain in short Terminal Drivers.

Q.6 Answer any one from the following questions. **08**

a) Describe in detail the relationship of data structures for demand paging.
b) Explain an algorithm for the exec system call.

Q.7 Answer the following question. **08**

What is Swapping? Describe in detail swapping process out of main memory.

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM

Day & Date: Friday, 22-11-2019 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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose Correct Options. 14

1) What is the name of the method that kernel uses to minimize the frequency of disk access by maintaining a pool of internal data buffer to increase the response time and throughput?
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   a) cgrp b) chgrp
   c) change d) group

5) What is the command to count the number of characters in a file?
   a) grep b) wc
   c) count d) cut

6) Virtual memory is normally implemented by _____.
   a) demand paging b) buses
   c) virtualization d) all of the mentioned

7) A swapper manipulates _____ whereas the pager is concerned with individual _____ of a process.
   a) the entire process, parts
   b) all the pages of a process, segments
   c) the entire process, pages
   d) none of the mentioned

8) _____ is a unique tag, usually a number, identifies the file within the file system.
   a) File identifier b) File name
   c) File type d) None of the mentioned

9) To create a file _____.
   a) allocate the space in file system
   b) make an entry for new file in directory
   c) allocate the space in file system & make an entry for new file in directory
   d) none of the mentioned

10) By using the specific system call, we can _____.
   a) open the file
   b) read the file
   c) write into the file
   d) all of the mentioned

11) File type can be represented by _____.
   a) file name
   b) file extension
   c) file identifier
   d) none of the mentioned

12) What is the mounting of file system?
   a) crating of a filesystem
   b) deleting a filesystem
   c) attaching portion of the file system into a directory structure
   d) removing portion of the file system into a directory structure

13) Which of the following commands can be used to change default permissions for files and directories at the time of creation?
   a) chmod
   b) chown
   c) umask
   d) chgrp

14) Which of the following option of Is command can be used to view file inode number?
   a) - l
   b) - o
   c) - a
   d) - i

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM

Day & Date: Friday, 22-11-2019 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) Assume data wherever necessary.

Section – I

Q.2 Attempt any Four. **16**

a) Write a program that creates a new process to copy files.
b) Describe the concept of Context of a process?
c) What is buffer header? Draw the diagram of buffer header & explain it's fields.
d) What is superblock? What are the fields it consists of?
e) What is system call? Explain any two system calls for the file system.

Q.3 What OPEN system call does? Write an algorithm for opening a file. **06**

Q.4 Answer any one from the following questions. **06**

a) Describe various scenarios for retrieval of a buffer.
b) Write a note on File and Record Locking.

Section – II

Q.5 Answer any four from the following questions. **12**

a) Write an algorithm for allocating a region.
b) What is a Process Group? What does setpgrp() system call.
c) Explain an algorithm for process scheduling.
d) Describe Fork Swap.
e) Explain in short Terminal Drivers.

Q.6 Answer any one from the following questions. **08**

a) Describe in detail the relationship of data structures for demand paging.
b) Explain an algorithm for the exec system call.

Q.7 Answer the following question. **08**

What is Swapping? Describe in detail swapping process out of main memory.

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM

Day & Date: Friday, 22-11-2019 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 indicate full marks.
3) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose Correct Options. 14

1) What is the command to change the group ownership of a file?
   a) cgrp b) Chgrp
   c) change d) Group

2) What is the command to count the number of characters in a file?
   a) grep b) wc
   c) count d) cut

3) Virtual memory is normally implemented by _____.
   a) demand paging b) buses
   c) virtualization d) all of the mentioned

4) A swapper manipulates _____ whereas the pager is concerned with individual _____ of a process.
   a) the entire process, parts
   b) all the pages of a process, segments
   c) the entire process, pages
   d) none of the mentioned

5) _____ is a unique tag, usually a number, identifies the file within the file system.
   a) File identifier b) File name
   c) File type d) None of the mentioned

6) To create a file _____.
   a) allocate the space in file system
   b) make an entry for new file in directory
   c) allocate the space in file system & make an entry for new file in directory
   d) none of the mentioned

7) By using the specific system call, we can _____.
   a) open the file b) read the file
   c) write into the file d) all of the mentioned

8) File type can be represented by _____.
   a) file name b) file extension
   c) file identifier d) none of the mentioned

9) What is the mounting of file system?
   a) crating of a filesystem
   b) deleting a filesystem
   c) attaching portion of the file system into a directory structure
   d) removing portion of the file system into a directory structure

10) Which of the following commands can be used to change default permissions for files and directories at the time of creation?
   a) Chmod
   b) chown
   c) Umask
   d) chgrp

11) Which of the following option of Is command can be used to view file inode number?
   a) - l
   b) - o
   c) - a
   d) - i

12) What is the name of the method that kernel uses to minimize the frequency of disk access by maintaining a pool of internal data buffer to increase the response time and throughput?
   a) Pooling
   b) spooling
   c) buffer cache
   d) swapping

13) The address of a page table in memory is pointed by _____.
   a) stack pointer
   b) page table base register
   c) page register
   d) program counter

14) A parent process calling _____ system call will be suspended until children processes terminate.
   a) wait
   b) Fork
   c) exit
   d) Exec

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM

Day & Date: Friday, 22-11-2019 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) Assume data wherever necessary.

Section – I

Q.2 Attempt any Four. **16**

a) Write a program that creates a new process to copy files.
b) Describe the concept of Context of a process?
c) What is buffer header? Draw the diagram of buffer header & explain it's fields.
d) What is superblock? What are the fields it consists of?
e) What is system call? Explain any two system calls for the file system.

Q.3 What OPEN system call does? Write an algorithm for opening a file. **06**

Q.4 Answer any one from the following questions. **06**

a) Describe various scenarios for retrieval of a buffer.
b) Write a note on File and Record Locking.

Section – II

Q.5 Answer any four from the following questions. **12**

a) Write an algorithm for allocating a region.
b) What is a Process Group? What does setpgrp() system call.
c) Explain an algorithm for process scheduling.
d) Describe Fork Swap.
e) Explain in short Terminal Drivers.

Q.6 Answer any one from the following questions. **08**

a) Describe in detail the relationship of data structures for demand paging.
b) Explain an algorithm for the exec system call.

Q.7 Answer the following question. **08**

What is Swapping? Describe in detail swapping process out of main memory.

Seat No.	

Set **S**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM

Day & Date: Friday, 22-11-2019 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 indicate full marks.
3) Assume data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose Correct Options. 14

1) Which of the following commands can be used to change default permissions for files and directories at the time of creation?
   a) chmod b) chown
   c) umask d) chgrp

2) Which of the following option of Is command can be used to view file inode number?
   a) - l b) - o
   c) - a d) - i

3) What is the name of the method that kernel uses to minimize the frequency of disk access by maintaining a pool of internal data buffer to increase the response time and throughput?
   a) pooling b) spooling
   c) buffer cache d) swapping

4) The address of a page table in memory is pointed by _____.
   a) stack pointer b) page table base register
   c) page register d) program counter

5) A parent process calling _____ system call will be suspended until children processes terminate.
   a) wait b) fork
   c) exit d) exec

6) What is the command to change the group ownership of a file?
   a) cgrp b) chgrp
   c) change d) group

7) What is the command to count the number of characters in a file?
   a) grep b) wc
   c) count d) cut

8) Virtual memory is normally implemented by _____.
   a) demand paging b) buses
   c) Virtualization d) all of the mentioned

9) A swapper manipulates _____ whereas the pager is concerned with individual _____ of a process.
   a) the entire process, parts
   b) all the pages of a process, segments
   c) the entire process, pages
   d) none of the mentioned

10) _____ is a unique tag, usually a number, identifies the file within the file system.
   a) File identifier
   b) File name
   c) File type
   d) None of the mentioned

11) To create a file _____.
   a) allocate the space in file system
   b) make an entry for new file in directory
   c) allocate the space in file system & make an entry for new file in directory
   d) none of the mentioned

12) By using the specific system call, we can _____.
   a) open the file
   b) read the file
   c) write into the file
   d) all of the mentioned

13) File type can be represented by _____.
   a) file name
   b) file extension
   c) file identifier
   d) none of the mentioned

14) What is the mounting of file system?
   a) crating of a filesystem
   b) deleting a filesystem
   c) attaching portion of the file system into a directory structure
   d) removing portion of the file system into a directory structure

SLR-FM-360

Seat No.	

Set S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM

Day & Date: Friday, 22-11-2019 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) Assume data wherever necessary.

Section – I

Q.2 Attempt any Four. **16**

a) Write a program that creates a new process to copy files.
b) Describe the concept of Context of a process?
c) What is buffer header? Draw the diagram of buffer header & explain it's fields.
d) What is superblock? What are the fields it consists of?
e) What is system call? Explain any two system calls for the file system.

Q.3 What OPEN system call does? Write an algorithm for opening a file. **06**

Q.4 Answer any one from the following questions. **06**

a) Describe various scenarios for retrieval of a buffer.
b) Write a note on File and Record Locking.

Section – II

Q.5 Answer any four from the following questions. **12**

a) Write an algorithm for allocating a region.
b) What is a Process Group? What does setpgrp() system call.
c) Explain an algorithm for process scheduling.
d) Describe Fork Swap.
e) Explain in short Terminal Drivers.

Q.6 Answer any one from the following questions. **08**

a) Describe in detail the relationship of data structures for demand paging.
b) Explain an algorithm for the exec system call.

Q.7 Answer the following question. **08**

What is Swapping? Describe in detail swapping process out of main memory.

SLR-FM-361

Seat No.	

Set P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Saturday, 23-11-2019 Max. Marks: 70
Time: 10:00 AM To 01:00 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.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) With regard to Evolutionary development, identify the correct statement.
   a) Evolutionary development usually comes in two flavors; exploratory development, and throwaway prototyping.
   b) Very large projects are natural candidates for an evolutionary development based approach.
   c) Exploratory development is used in situations where most of the requirements are well understood in advance.
   d) One of the strong points of evolutionary development is that it facilitates easy project management, through the high volume of documentation it generates.

2) A simple way of looking at the spiral software life-cycle model is as a waterfall model with each phase proceeded by _____.
   a) Build-and-fix b) Freezing
   c) Synchronization d) Risk analysis

3) What are the Drawbacks of RAD Model?
   a) Require sufficient number of Human Resources to create enough number of teams
   b) Developers and Customers are not committed, system result in failure
   c) Both a and b
   d) None of the above

4) Which one of the following is TRUE?
   a) The requirements document also describes how the requirements that are listed in the document are implemented efficiently.
   b) Consistency and completeness of functional requirements are always achieved in practice.
   c) Prototyping is a method of requirements validation.
   d) Requirements review is carried out to find the errors in system design.

5) What are the contents we should contain in the feasibility report?
   a) A statement of user requirements.
   b) The cost and benefits of development.
   c) A conclusion and recommendations.
   d) All of the above

6) If a control switch is passed as an argument this is an example of _____ coupling.
   a) Content b) Common
   c) Control d) Data

7) Function oriented design process consists of _____.
   a) Data Flow Design b) Structural decomposition
   c) Detailed Design d) All of the above

8) A test case design technique that makes use of a knowledge of the internal program logic _____.
   a) Black Box Testing b) White Box Testing
   c) Unit Testing d) None of these

9) A stub is a dummy version of the _____ module of the module under testing.
   a) Superordinate b) Subordinate
   c) Coordinate d) All of the above

10) Which testing is concerned with behavior of whole product as per specified requirements?
   a) Acceptance testing b) Component testing
   c) System testing d) Integration testing

11) Project Planning involves defining the process to be followed _____.
   a) Estimates b) Detailed schedule
   c) Plan for quality d) All of the above

12) Which of the following items should not be included in the software project management plan?
   a) The techniques and case tools to be used
   b) The life cycle model to be used
   c) The organizational structure of the development organization, project responsibilities, managerial objectives and priorities
   d) None of the above

13) Agile Manifesto has _____ Key values and 12 principles.
   a) 5 b) 8
   c) 4 d) 12

14) An Agile approach advocates which of the following approaches?
   a) Get something “quick and dirty” delivered, to save time
   b) Get something simple released as quickly as possible
   c) Get something business-valuable delivered as quickly as possible, consistent with the right level of quality
   d) Get something delivered once it has been fully documented and the documentation has been signed off as complete

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Saturday, 23-11-2019 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 Attempt any three of the following questions. **12**

a) Define Software Engineering. Distinguished between Generic product and Customized product.
b) Explain Rational unified process model.
c) Give the structure of software requirement document in IEEE format.
d) Describe the design terms: Coupling and Cohesion with example.
e) What is software architecture? Explain Role of Software Architecture.

Q.3 Attempt any two of the following questions. **16**

a) What are the software process models? Explain with neat diagram the iterative development model.
b) Write a short note on:
1) Problem partitioning
2) Abstraction
3) Top-Down and Bottom-up Design strategies
c) What is DFD? Write the DFD for “Online food ordering system” by using DFD Conventions.

Section – II

Q.4 Attempt any three of the following questions. **12**

a) What are the two phases of testing process? Explain White-Box Testing Method.
b) Describe the Risk Management Planning in software project.
c) Write a note on software configuration management process.
d) With a neat diagram explain Iterative Project Management Life Cycle in detail.
e) Describe Adaptive Project Management Life Cycle Model with a neat diagram.

Q.5 Attempt any two of the following questions. **16**

a) What factors should be taken into account when selecting staff to work on a software development project?
b) Describe Object Oriented Software testing methods in detail.
c) What is Agile Project Management and explain its key values and principles.

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Saturday, 23-11-2019 Max. Marks: 70
Time: 10:00 AM To 01:00 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.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) A test case design technique that makes use of a knowledge of the internal program logic _____.
   a) Black Box Testing b) White Box Testing
   c) Unit Testing d) None of these

2) A stub is a dummy version of the _____ module of the module under testing.
   a) Superordinate b) Subordinate
   c) Coordinate d) All of the above

3) Which testing is concerned with behavior of whole product as per specified requirements?
   a) Acceptance testing b) Component testing
   c) System testing d) Integration testing

4) Project Planning involves defining the process to be followed _____.
   a) Estimates b) Detailed schedule
   c) Plan for quality d) All of the above

5) Which of the following items should not be included in the software project management plan?
   a) The techniques and case tools to be used
   b) The life cycle model to be used
   c) The organizational structure of the development organization, project responsibilities, managerial objectives and priorities
   d) None of the above

6) Agile Manifesto has _____ Key values and 12 principles.
   a) 5 b) 8
   c) 4 d) 12

7) An Agile approach advocates which of the following approaches?
   a) Get something “quick and dirty” delivered, to save time
   b) Get something simple released as quickly as possible
   c) Get something business-valuable delivered as quickly as possible, consistent with the right level of quality
   d) Get something delivered once it has been fully documented and the documentation has been signed off as complete

8) With regard to Evolutionary development, identify the correct statement.
   a) Evolutionary development usually comes in two flavors; exploratory development, and throwaway prototyping.
   b) Very large projects are natural candidates for an evolutionary development based approach.
   c) Exploratory development is used in situations where most of the requirements are well understood in advance.
   d) One of the strong points of evolutionary development is that it facilitates easy project management, through the high volume of documentation it generates.

9) A simple way of looking at the spiral software life-cycle model is as a waterfall model with each phase proceeded by _____.
   a) Build-and-fix
   b) Freezing
   c) Synchronization
   d) Risk analysis

10) What are the Drawbacks of RAD Model?
   a) Require sufficient number of Human Resources to create enough number of teams
   b) Developers and Customers are not committed, system result in failure
   c) Both a and b
   d) None of the above

11) Which one of the following is TRUE?
   a) The requirements document also describes how the requirements that are listed in the document are implemented efficiently.
   b) Consistency and completeness of functional requirements are always achieved in practice.
   c) Prototyping is a method of requirements validation.
   d) Requirements review is carried out to find the errors in system design.

12) What are the contents we should contain in the feasibility report?
   a) A statement of user requirements.
   b) The cost and benefits of development.
   c) A conclusion and recommendations.
   d) All of the above

13) If a control switch is passed as an argument this is an example of _____ coupling.
   a) Content
   b) Common
   c) Control
   d) Data

14) Function oriented design process consists of _____.
   a) Data Flow Design
   b) Structural decomposition
   c) Detailed Design
   d) All of the above

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Saturday, 23-11-2019 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 Attempt any three of the following questions. **12**

a) Define Software Engineering. Distinguished between Generic product and Customized product.
b) Explain Rational unified process model.
c) Give the structure of software requirement document in IEEE format.
d) Describe the design terms: Coupling and Cohesion with example.
e) What is software architecture? Explain Role of Software Architecture.

Q.3 Attempt any two of the following questions. **16**

a) What are the software process models? Explain with neat diagram the iterative development model.
b) Write a short note on:
1) Problem partitioning
2) Abstraction
3) Top-Down and Bottom-up Design strategies
c) What is DFD? Write the DFD for “Online food ordering system” by using DFD Conventions.

Section – II

Q.4 Attempt any three of the following questions. **12**

a) What are the two phases of testing process? Explain White-Box Testing Method.
b) Describe the Risk Management Planning in software project.
c) Write a note on software configuration management process.
d) With a neat diagram explain Iterative Project Management Life Cycle in detail.
e) Describe Adaptive Project Management Life Cycle Model with a neat diagram.

Q.5 Attempt any two of the following questions. **16**

a) What factors should be taken into account when selecting staff to work on a software development project?
b) Describe Object Oriented Software testing methods in detail.
c) What is Agile Project Management and explain its key values and principles.

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Saturday, 23-11-2019 Max. Marks: 70
Time: 10:00 AM To 01:00 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.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) What are the contents we should contain in the feasibility report?
   a) A statement of user requirements.
   b) The cost and benefits of development.
   c) A conclusion and recommendations.
   d) All of the above

2) If a control switch is passed as an argument this is an example of _____ coupling.
   a) Content b) Common
   c) Control d) Data

3) Function oriented design process consists of _____.
   a) Data Flow Design b) Structural decomposition
   c) Detailed Design d) All of the above

4) A test case design technique that makes use of a knowledge of the internal program logic _____.
   a) Black Box Testing b) White Box Testing
   c) Unit Testing d) None of these

5) A stub is a dummy version of the _____ module of the module under testing.
   a) Superordinate b) Subordinate
   c) Coordinate d) All of the above

6) Which testing is concerned with behavior of whole product as per specified requirements?
   a) Acceptance testing b) Component testing
   c) System testing d) Integration testing

7) Project Planning involves defining the process to be followed _____.
   a) Estimates b) Detailed schedule
   c) Plan for quality d) All of the above

8) Which of the following items should not be included in the software project management plan?
   a) The techniques and case tools to be used
   b) The life cycle model to be used
   c) The organizational structure of the development organization, project responsibilities, managerial objectives and priorities
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9) Agile Manifesto has _____ Key values and 12 principles.
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   c) 4 d) 12

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   c) Get something business-valuable delivered as quickly as possible, consistent with the right level of quality
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   b) Very large projects are natural candidates for an evolutionary development based approach.
   c) Exploratory development is used in situations where most of the requirements are well understood in advance.
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12) A simple way of looking at the spiral software life-cycle model is as a waterfall model with each phase proceeded by _____.
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   c) Synchronization d) Risk analysis

13) What are the Drawbacks of RAD Model?
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14) Which one of the following is TRUE?
   a) The requirements document also describes how the requirements that are listed in the document are implemented efficiently.
   b) Consistency and completeness of functional requirements are always achieved in practice.
   c) Prototyping is a method of requirements validation.
   d) Requirements review is carried out to find the errors in system design.

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Saturday, 23-11-2019 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 Attempt any three of the following questions. **12**

a) Define Software Engineering. Distinguished between Generic product and Customized product.
b) Explain Rational unified process model.
c) Give the structure of software requirement document in IEEE format.
d) Describe the design terms: Coupling and Cohesion with example.
e) What is software architecture? Explain Role of Software Architecture.

Q.3 Attempt any two of the following questions. **16**

a) What are the software process models? Explain with neat diagram the iterative development model.
b) Write a short note on:
1) Problem partitioning
2) Abstraction
3) Top-Down and Bottom-up Design strategies
c) What is DFD? Write the DFD for “Online food ordering system” by using DFD Conventions.

Section – II

Q.4 Attempt any three of the following questions. **12**

a) What are the two phases of testing process? Explain White-Box Testing Method.
b) Describe the Risk Management Planning in software project.
c) Write a note on software configuration management process.
d) With a neat diagram explain Iterative Project Management Life Cycle in detail.
e) Describe Adaptive Project Management Life Cycle Model with a neat diagram.

Q.5 Attempt any two of the following questions. **16**

a) What factors should be taken into account when selecting staff to work on a software development project?
b) Describe Object Oriented Software testing methods in detail.
c) What is Agile Project Management and explain its key values and principles.

Seat No.	

Set | S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Saturday, 23-11-2019 Max. Marks: 70
Time: 10:00 AM To 01:00 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.

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 testing is concerned with behavior of whole product as per specified requirements?
   a) Acceptance testing b) Component testing
   c) System testing d) Integration testing

2) Project Planning involves defining the process to be followed _____.
   a) Estimates b) Detailed schedule
   c) Plan for quality d) All of the above

3) Which of the following items should not be included in the software project management plan?
   a) The techniques and case tools to be used
   b) The life cycle model to be used
   c) The organizational structure of the development organization, project responsibilities, managerial objectives and priorities
   d) None of the above

4) Agile Manifesto has _____ Key values and 12 principles.
   a) 5 b) 8
   c) 4 d) 12

5) An Agile approach advocates which of the following approaches?
   a) Get something “quick and dirty” delivered, to save time
   b) Get something simple released as quickly as possible
   c) Get something business-valuable delivered as quickly as possible, consistent with the right level of quality
   d) Get something delivered once it has been fully documented and the documentation has been signed off as complete

6) With regard to Evolutionary development, identify the correct statement.
   a) Evolutionary development usually comes in two flavors; exploratory development, and throwaway prototyping.
   b) Very large projects are natural candidates for an evolutionary development based approach.
   c) Exploratory development is used in situations where most of the requirements are well understood in advance.
   d) One of the strong points of evolutionary development is that it facilitates easy project management, through the high volume of documentation it generates.

7) A simple way of looking at the spiral software life-cycle model is as a waterfall model with each phase proceeded by _____.
   a) Build-and-fix
   b) Freezing
   c) Synchronization
   d) Risk analysis

8) What are the Drawbacks of RAD Model?
   a) Require sufficient number of Human Resources to create enough number of teams
   b) Developers and Customers are not committed, system result in failure
   c) Both a and b
   d) None of the above

9) Which one of the following is TRUE?
   a) The requirements document also describes how the requirements that are listed in the document are implemented efficiently.
   b) Consistency and completeness of functional requirements are always achieved in practice.
   c) Prototyping is a method of requirements validation.
   d) Requirements review is carried out to find the errors in system design.

10) What are the contents we should contain in the feasibility report?
   a) A statement of user requirements.
   b) The cost and benefits of development.
   c) A conclusion and recommendations.
   d) All of the above

11) If a control switch is passed as an argument this is an example of _____ coupling.
   a) Content
   b) Common
   c) Control
   d) Data

12) Function oriented design process consists of _____.
   a) Data Flow Design
   b) Structural decomposition
   c) Detailed Design
   d) All of the above

13) A test case design technique that makes use of a knowledge of the internal program logic _____.
   a) Black Box Testing
   b) White Box Testing
   c) Unit Testing
   d) None of these

14) A stub is a dummy version of the _____ module of the module under testing.
   a) Superordinate
   b) Subordinate
   c) Coordinate
   d) All of the above

SLR-FM-361

Seat No.	

Set S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Saturday, 23-11-2019 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 Attempt any three of the following questions. **12**

a) Define Software Engineering. Distinguished between Generic product and Customized product.
b) Explain Rational unified process model.
c) Give the structure of software requirement document in IEEE format.
d) Describe the design terms: Coupling and Cohesion with example.
e) What is software architecture? Explain Role of Software Architecture.

Q.3 Attempt any two of the following questions. **16**

a) What are the software process models? Explain with neat diagram the iterative development model.
b) Write a short note on:
1) Problem partitioning
2) Abstraction
3) Top-Down and Bottom-up Design strategies
c) What is DFD? Write the DFD for “Online food ordering system” by using DFD Conventions.

Section – II

Q.4 Attempt any three of the following questions. **12**

a) What are the two phases of testing process? Explain White-Box Testing Method.
b) Describe the Risk Management Planning in software project.
c) Write a note on software configuration management process.
d) With a neat diagram explain Iterative Project Management Life Cycle in detail.
e) Describe Adaptive Project Management Life Cycle Model with a neat diagram.

Q.5 Attempt any two of the following questions. **16**

a) What factors should be taken into account when selecting staff to work on a software development project?
b) Describe Object Oriented Software testing methods in detail.
c) What is Agile Project Management and explain its key values and principles.

SLR-FM-362

Seat No.	

Set P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING AND DESIGN

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 it 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 A) Choose the correct alternatives from the options and rewrite the sentence. **08**

1) In analysis phase of OMT we consider _____ models.
   a) 7 b) 9
   c) 3 d) 2

2) _____ are real world elements in an object oriented environment, that may have a physical or a conceptual existence.
   a) Class b) Application
   c) Structure d) Object

3) Inheritance defines a _____ relationship.
   a) is-a b) for-a
   c) Into d) onto

4) Polymorphism means the ability to take _____ forms.
   a) Single b) Only two
   c) Only quadruple d) Multiple

5) In a dynamic model a state is represented by _____.
   a) rounded rectangle b) Square
   c) Diamond d) Ellipse

6) _____ are some occurrences that can trigger state transition of an object or a group of objects.
   a) States b) Links
   c) associations d) Events

7) A _____ denotes a change in the state of an object.
   a) Link b) Association
   c) Transition d) Activity

8) Interaction diagram is a combination of _____ diagrams.
   a) Use case and deployment
   b) Sequence and collaboration
   c) Collaboration and Deployment
   d) Object and class

b) **Say True or False** **06**

1) Class diagram represents instances of objects.
2) Generalization is an is-kind relation.
3) An actor instigates use cases.
4) Transitions are shown in sequence diagram.
5) White diamond is used to indicate aggregations
6) Packages are combinations of all diagrams.

SLR-FM-362

Seat No.	

Set P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING AND DESIGN

Day & Date: Monday, 25-11-2019 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 Attempt any four of the following questions. **16**

a) What are the basic stages in Object Modeling Technique?
b) Define abstraction and illustrate its use.
c) What are links? How are they different from associations?
d) Compare between Object model and dynamic model.
e) With an example bring out the exact meaning of the concept 'Aggregation'.

Q.3 Attempt any two of the following questions. **12**

a) What is a role name? Illustrate with the help of an appropriate OMT model.
b) How is the tripod combined in the object design phase? and how do we arrive at Implementation for Object diagram compiler?
c) Draw the three models of Analysis phase of OMT for a banking system.

Section – II

Q.4 Attempt any four of the following questions. **16**

a) What are the basic building blocks of Unified Modeling Language?
b) Define interfaces and packages and illustrate their use.
c) What are Instances? How are they different from Classes?
d) Compare between Component and Deployment UML diagrams.
e) With an example bring out the exact meaning of the concept 'Patterns and Framework'.

Q.5 Attempt any two of the following questions. **12**

a) Reproduce a Use case diagram for a Hospital Management System?
b) Draw a sequence diagram of an admission procedure conducted by a college.
c) Draw a deployment diagram for the work conducted in a Library of your city.

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING AND DESIGN

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 it should be solved in first 30 minutes in answer book.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 A) Choose the correct alternatives from the options and rewrite the sentence. **08**

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7) Inheritance defines a _____ relationship.
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   c) Into d) Onto

8) Polymorphism means the ability to take _____ forms.
   a) Single b) Only two
   c) Only quadruple d) Multiple

b) **Say True or False** **06**

1) Transitions are shown in sequence diagram.
2) White diamond is used to indicate aggregations
3) Packages are combinations of all diagrams.
4) Class diagram represents instances of objects.
5) Generalization is an is-kind relation.
6) An actor instigates use cases.

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Seat No.	

Set Q

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING AND DESIGN

Day & Date: Monday, 25-11-2019 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 Attempt any four of the following questions. **16**

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b) Define abstraction and illustrate its use.
c) What are links? How are they different from associations?
d) Compare between Object model and dynamic model.
e) With an example bring out the exact meaning of the concept 'Aggregation'.

Q.3 Attempt any two of the following questions. **12**

a) What is a role name? Illustrate with the help of an appropriate OMT model.
b) How is the tripod combined in the object design phase? and how do we arrive at Implementation for Object diagram compiler?
c) Draw the three models of Analysis phase of OMT for a banking system.

Section – II

Q.4 Attempt any four of the following questions. **16**

a) What are the basic building blocks of Unified Modeling Language?
b) Define interfaces and packages and illustrate their use.
c) What are Instances? How are they different from Classes?
d) Compare between Component and Deployment UML diagrams.
e) With an example bring out the exact meaning of the concept 'Patterns and Framework'.

Q.5 Attempt any two of the following questions. **12**

a) Reproduce a Use case diagram for a Hospital Management System?
b) Draw a sequence diagram of an admission procedure conducted by a college.
c) Draw a deployment diagram for the work conducted in a Library of your city.

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING AND DESIGN

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 it 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 A) Choose the correct alternatives from the options and rewrite the sentence. **08**

1) Inheritance defines a _____ relationship.
   a) is-a b) for-a
   c) Into d) onto

2) Polymorphism means the ability to take _____ forms.
   a) Single b) Only two
   c) Only quadruple d) Multiple

3) In a dynamic model a state is represented by _____.
   a) rounded rectangle b) Square
   c) Diamond d) Ellipse

4) _____ are some occurrences that can trigger state transition of an object or a group of objects.
   a) States b) Links
   c) associations d) Events

5) A _____ denotes a change in the state of an object.
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   c) Transition d) Activity

6) Interaction diagram is a combination of _____ diagrams.
   a) Use case and deployment
   b) Sequence and collaboration
   c) Collaboration and Deployment
   d) Object and class

7) In analysis phase of OMT we consider _____ models.
   a) 7 b) 9
   c) 3 d) 2

8) _____ are real world elements in an object oriented environment, that may have a physical or a conceptual existence.
   a) Class b) Application
   c) Structure d) Object

b) **Say True or False** **06**

1) Generalization is an is-kind relation.
2) An actor instigates use cases.
3) Transitions are shown in sequence diagram.
4) White diamond is used to indicate aggregations
5) Packages are combinations of all diagrams.
6) Class diagram represents instances of objects.

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING AND DESIGN

Day & Date: Monday, 25-11-2019 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 Attempt any four of the following questions. **16**

a) What are the basic stages in Object Modeling Technique?
b) Define abstraction and illustrate its use.
c) What are links? How are they different from associations?
d) Compare between Object model and dynamic model.
e) With an example bring out the exact meaning of the concept 'Aggregation'.

Q.3 Attempt any two of the following questions. **12**

a) What is a role name? Illustrate with the help of an appropriate OMT model.
b) How is the tripod combined in the object design phase? and how do we arrive at Implementation for Object diagram compiler?
c) Draw the three models of Analysis phase of OMT for a banking system.

Section – II

Q.4 Attempt any four of the following questions. **16**

a) What are the basic building blocks of Unified Modeling Language?
b) Define interfaces and packages and illustrate their use.
c) What are Instances? How are they different from Classes?
d) Compare between Component and Deployment UML diagrams.
e) With an example bring out the exact meaning of the concept 'Patterns and Framework'.

Q.5 Attempt any two of the following questions. **12**

a) Reproduce a Use case diagram for a Hospital Management System?
b) Draw a sequence diagram of an admission procedure conducted by a college.
c) Draw a deployment diagram for the work conducted in a Library of your city.

Seat No.	

Set **S**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING AND DESIGN

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 it 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 A) Choose the correct alternatives from the options and rewrite the sentence. **08**

1) A _____ denotes a change in the state of an object.
   a) Link b) Association
   c) Transition d) Activity

2) Interaction diagram is a combination of _____ diagrams.
   a) Use case and deployment
   b) Sequence and collaboration
   c) Collaboration and Deployment
   d) Object and class

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   c) 3 d) 2

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   c) Structure d) Object

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   c) Into d) onto

6) Polymorphism means the ability to take _____ forms.
   a) Single b) Only two
   c) Only quadruple d) Multiple

7) In a dynamic model a state is represented by _____.
   a) rounded rectangle b) Square
   c) Diamond d) Ellipse

8) _____ are some occurrences that can trigger state transition of an object or a group of objects.
   a) States b) Links
   c) associations d) Events

b) **Say True or False** **06**

1) Packages are combinations of all diagrams.
2) Class diagram represents instances of objects.
3) Generalization is an is-kind relation.
4) An actor instigates use cases.
5) Transitions are shown in sequence diagram.
6) White diamond is used to indicate aggregations

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Seat No.	

Set S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING AND DESIGN

Day & Date: Monday, 25-11-2019 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 Attempt any four of the following questions. **16**

a) What are the basic stages in Object Modeling Technique?
b) Define abstraction and illustrate its use.
c) What are links? How are they different from associations?
d) Compare between Object model and dynamic model.
e) With an example bring out the exact meaning of the concept 'Aggregation'.

Q.3 Attempt any two of the following questions. **12**

a) What is a role name? Illustrate with the help of an appropriate OMT model.
b) How is the tripod combined in the object design phase? and how do we arrive at Implementation for Object diagram compiler?
c) Draw the three models of Analysis phase of OMT for a banking system.

Section – II

Q.4 Attempt any four of the following questions. **16**

a) What are the basic building blocks of Unified Modeling Language?
b) Define interfaces and packages and illustrate their use.
c) What are Instances? How are they different from Classes?
d) Compare between Component and Deployment UML diagrams.
e) With an example bring out the exact meaning of the concept 'Patterns and Framework'.

Q.5 Attempt any two of the following questions. **12**

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b) Draw a sequence diagram of an admission procedure conducted by a college.
c) Draw a deployment diagram for the work conducted in a Library of your city.

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Seat No.	

Set P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ARTIFICIAL INTELLIGENCE

Day & Date: Tuesday, 26-11-2019 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 indicate full marks.
3) 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) What is Artificial intelligence?
   a) Putting your intelligence into Computer
   b) Programming with your own intelligence
   c) Making a Machine intelligent
   d) Putting more memory into Computer

2) Which is not the commonly used programming language for AI?
   a) PROLOG b) Java
   c) LISP d) Perl
   e) Java script

3) What is state space?
   a) The whole problem
   b) Your Definition to a problem
   c) Problem you design
   d) Representing your problem with variable and parameter
   e) A space where You know the solution

4) A production rule consists of _____.
   a) A set of Rule
   b) A sequence of steps
   c) Both (a) and (b)
   d) Arbitrary representation to problem
   e) Directly getting solution

5) Which search method takes less memory?
   a) Depth-First Search b) Breadth-First search
   c) Both (a) and (b) d) Linear Search
   e) Optimal search

6) A heuristic is a way of trying _____.
   a) To discover something or an idea embedded in a program
   b) To search and measure how far a node in a search tree seems to be from a goal
   c) To compare two nodes in a search tree to see if one is better than the other
   d) Only (a) and (b)
   e) Only (a), (b) and (c)

7) A* algorithm is based on _____.
   a) Breadth-First-Search
   b) Depth-First-Search
   c) Best-First-Search
   d) Hill climbing
   e) Bulkworld Problem

8) Which is the best way to go for Game playing problem?
   a) Linear approach
   b) Heuristic approach
   c) Random approach
   d) Optimal approach
   e) Stratified approach

9) How do you represent “All dogs have tails?”
   a) γ_X: dog(x)àhastail(x)
   b) γ_X: dog(x)àhastail(y)
   c) γ_X: dog(y)àhastail(x)
   d) γ_X: dog(x)àhasatail(x)
   e) γ_X: dog(x)àhasatail(y)

10) Which is not a property of representation of knowledge?
   a) Representational Verification
   b) Representational Adequacy
   c) Inferential Adequacy
   d) Inferential Efficiency
   e) Acquisitional Efficiency

11) What are you predicating by the logic: γ_X: €y: loyalto(x, y).
   a) Everyone is loyal to some one
   b) Everyone is loyal to all
   c) Everyone is not loyal to someone
   d) Everyone is loyal
   e) Everyone is not loyal

12) Which is not Familiar Connectives in First Order Logic?
   a) and
   b) iff
   c) or
   d) not
   e) either a or

13) Which is not a type of First Order Logic (FOL) Sentence?
   a) Atomic sentences
   b) Complex sentences
   c) Quantified sentence
   d) Quality Sentence
   e) Simple sentence

14) Which is not a Goal-based agent?
   a) Inference
   b) Search
   c) Planning
   d) Conclusion
   e) Dynamic Search

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Seat No.	

Set P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ARTIFICIAL INTELLIGENCE

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 indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any Three. **12**

a) What is Heuristic search? List the algorithms that use Heuristics.

b) A* may go into over and under estimations - Justify.

c) List the different Knowledge representation approaches.

d) Illustrate 'DFID' with an appropriate example.

e) What are AI systems? List their characteristics.

Q.3 Attempt any Two. **08**

a) Write and illustrate with an example the 'Hill Climbing' algorithm.

b) Compare and contrast between A* and AO* algorithms.

c) Compare between Beam search and Taboo search algorithms.

Q.4 Attempt any One **08**

a) What are the characteristics of problems? Illustrate each characteristic.

b) What is beam stack search? How is it attained?

Section – II

Q.5 Attempt any Four. **12**

a) Give the semantic network for 'Ragging is prohibited'.

b) Compare between monotonic and non-monotonic reasoning.

c) Where are measures of belief and disbelief used? Illustrate.

d) What are expert systems?

e) What are scripts? Write a brief script for an encounter.

Q.6 Attempt any Two. **08**

a) What is constraint satisfaction? State the steps involved.

b) What is fuzzy logic? How is it used?

c) Illustrate the working of cut operator in Prolog with an example.

Q.6 Attempt any One. **08**

a) State Baye's Theorem. How is it related to certainty factors?

b) Compare between procedure and declarative Knowledge.

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ARTIFICIAL INTELLIGENCE

Day & Date: Tuesday, 26-11-2019 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.
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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 is the best way to go for Game playing problem?
   a) Linear approach b) Heuristic approach
   c) Random approach d) Optimal approach
   e) Stratified approach

2) How do you represent "All dogs have tails?"
   a) γ_X: dog(x)àhastail(x) b) γ_X: dog(x)àhastail(y)
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   c) To compare two nodes in a search tree to see if one is better than the other
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14) A* algorithm is based on _____.
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   b) Depth-First-Search
   c) Best-First-Search
   d) Hill climbing
   e) Bulkworld Problem

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ARTIFICIAL INTELLIGENCE

Day & Date: Tuesday, 26-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
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Section – I

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a) What is Heuristic search? List the algorithms that use Heuristics.
b) A* may go into over and under estimations - Justify.
c) List the different Knowledge representation approaches.
d) Illustrate 'DFID' with an appropriate example.
e) What are AI systems? List their characteristics.

Q.3 Attempt any Two. **08**

a) Write and illustrate with an example the 'Hill Climbing' algorithm.
b) Compare and contrast between A* and AO* algorithms.
c) Compare between Beam search and Taboo search algorithms.

Q.4 Attempt any One **08**

a) What are the characteristics of problems? Illustrate each characteristic.
b) What is beam stack search? How is it attained?

Section – II

Q.5 Attempt any Four. **12**

a) Give the semantic network for 'Ragging is prohibited'.
b) Compare between monotonic and non-monotonic reasoning.
c) Where are measures of belief and disbelief used? Illustrate.
d) What are expert systems?
e) What are scripts? Write a brief script for an encounter.

Q.6 Attempt any Two. **08**

a) What is constraint satisfaction? State the steps involved.
b) What is fuzzy logic? How is it used?
c) Illustrate the working of cut operator in Prolog with an example.

Q.6 Attempt any One. **08**

a) State Baye's Theorem. How is it related to certainty factors?
b) Compare between procedure and declarative Knowledge.

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ARTIFICIAL INTELLIGENCE

Day & Date: Tuesday, 26-11-2019 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 indicate full marks.
3) 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 search method takes less memory?
   a) Depth-First Search b) Breadth-First search
   c) Both (a) and (b) d) Linear Search
   e) Optimal search

2) A heuristic is a way of trying _____.
   a) To discover something or an idea embedded in a program
   b) To search and measure how far a node in a search tree seems to be from a goal
   c) To compare two nodes in a search tree to see if one is better than the other
   d) Only (a) and (b)
   e) Only (a), (b) and (c)

3) A* algorithm is based on _____.
   a) Breadth-First-Search b) Depth-First-Search
   c) Best-First-Search d) Hill climbing
   e) Bulkworld Problem

4) Which is the best way to go for Game playing problem?
   a) Linear approach b) Heuristic approach
   c) Random approach d) Optimal approach
   e) Stratified approach

5) How do you represent “All dogs have tails?”
   a) γ_X: dog(x)àhastail(x) b) γ_X: dog(x)àhastail(y)
   c) γ_X: dog(y)àhastail(x) d) γ_X: dog(x)àhasatail(x)
   e) γ_X: dog(x)àhasatail(y)

6) Which is not a property of representation of knowledge?
   a) Representational Verification b) Representational Adequacy
   c) Inferential Adequacy d) Inferential Efficiency
   e) Acquisitional Efficiency

7) What are you predicating by the logic: $\forall_x$: $\exists y$: loyalto(x, y).
   a) Everyone is loyal to some one
   b) Everyone is loyal to all
   c) Everyone is not loyal to someone
   d) Everyone is loyal
   e) Everyone is not loyal

8) Which is not Familiar Connectives in First Order Logic?
   a) and
   b) iff
   c) or
   d) not
   e) either a or

9) Which is not a type of First Order Logic (FOL) Sentence?
   a) Atomic sentences
   b) Complex sentences
   c) Quantified sentence
   d) Quality Sentence
   e) Simple sentence

10) Which is not a Goal-based agent?
   a) Inference
   b) Search
   c) Planning
   d) Conclusion
   e) Dynamic Search

11) What is Artificial intelligence?
   a) Putting your intelligence into Computer
   b) Programming with your own intelligence
   c) Making a Machine intelligent
   d) Putting more memory into Computer

12) Which is not the commonly used programming language for AI?
   a) PROLOG
   b) Java
   c) LISP
   d) Perl
   e) Java script

13) What is state space?
   a) The whole problem
   b) Your Definition to a problem
   c) Problem you design
   d) Representing your problem with variable and parameter
   e) A space where You know the solution

14) A production rule consists of _____.
   a) A set of Rule
   b) A sequence of steps
   c) Both (a) and (b)
   d) Arbitrary representation to problem
   e) Directly getting solution

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ARTIFICIAL INTELLIGENCE

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 indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any Three. **12**

a) What is Heuristic search? List the algorithms that use Heuristics.
b) A* may go into over and under estimations - Justify.
c) List the different Knowledge representation approaches.
d) Illustrate 'DFID' with an appropriate example.
e) What are AI systems? List their characteristics.

Q.3 Attempt any Two. **08**

a) Write and illustrate with an example the 'Hill Climbing' algorithm.
b) Compare and contrast between A* and AO* algorithms.
c) Compare between Beam search and Taboo search algorithms.

Q.4 Attempt any One **08**

a) What are the characteristics of problems? Illustrate each characteristic.
b) What is beam stack search? How is it attained?

Section – II

Q.5 Attempt any Four. **12**

a) Give the semantic network for 'Ragging is prohibited'.
b) Compare between monotonic and non-monotonic reasoning.
c) Where are measures of belief and disbelief used? Illustrate.
d) What are expert systems?
e) What are scripts? Write a brief script for an encounter.

Q.6 Attempt any Two. **08**

a) What is constraint satisfaction? State the steps involved.
b) What is fuzzy logic? How is it used?
c) Illustrate the working of cut operator in Prolog with an example.

Q.6 Attempt any One. **08**

a) State Baye's Theorem. How is it related to certainty factors?
b) Compare between procedure and declarative Knowledge.

Seat No.	

Set | S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ARTIFICIAL INTELLIGENCE

Day & Date: Tuesday, 26-11-2019 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 indicate full marks.
3) 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 is not a property of representation of knowledge?
   a) Representational Verification b) Representational Adequacy
   c) Inferential Adequacy d) Inferential Efficiency
   e) Acquisitional Efficiency

2) What are you predicating by the logic: $\forall x$: $\exists y$: loyalto(x, y).
   a) Everyone is loyal to some one
   b) Everyone is loyal to all
   c) Everyone is not loyal to someone
   d) Everyone is loyal
   e) Everyone is not loyal

3) Which is not Familiar Connectives in First Order Logic?
   a) and b) iff
   c) or d) not
   e) either a or

4) Which is not a type of First Order Logic (FOL) Sentence?
   a) Atomic sentences b) Complex sentences
   c) Quantified sentence d) Quality Sentence
   e) Simple sentence

5) Which is not a Goal-based agent?
   a) Inference b) Search
   c) Planning d) Conclusion
   e) Dynamic Search

6) What is Artificial intelligence?
   a) Putting your intelligence into Computer
   b) Programming with your own intelligence
   c) Making a Machine intelligent
   d) Putting more memory into Computer

7) Which is not the commonly used programming language for Al?
   a) PROLOG b) Java
   c) LISP d) Perl
   e) Java script

8) What is state space?
   a) The whole problem
   b) Your Definition to a problem
   c) Problem you design
   d) Representing your problem with variable and parameter
   e) A space where You know the solution

9) A production rule consists of _____.
   a) A set of Rule
   b) A sequence of steps
   c) Both (a) and (b)
   d) Arbitrary representation to problem
   e) Directly getting solution

10) Which search method takes less memory?
   a) Depth-First Search
   b) Breadth-First search
   c) Both (a) and (b)
   d) Linear Search
   e) Optimal search

11) A heuristic is a way of trying _____.
   a) To discover something or an idea embedded in a program
   b) To search and measure how far a node in a search tree seems to be from a goal
   c) To compare two nodes in a search tree to see if one is better than the other
   d) Only (a) and (b)
   e) Only (a), (b) and (c)

12) A* algorithm is based on _____.
   a) Breadth-First-Search
   b) Depth-First-Search
   c) Best-First-Search
   d) Hill climbing
   e) Bulkworld Problem

13) Which is the best way to go for Game playing problem?
   a) Linear approach
   b) Heuristic approach
   c) Random approach
   d) Optimal approach
   e) Stratified approach

14) How do you represent “All dogs have tails?”
   a) γ_X: dog(x)àhastail(x)
   b) γ_X: dog(x)àhastail(y)
   c) γ_X: dog(y)àhastail(x)
   d) γ_X: dog(x)àhasatail(x)
   e) γ_X: dog(x)àhasatail(y)

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Seat No.	

Set S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ARTIFICIAL INTELLIGENCE

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 indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any Three. **12**

a) What is Heuristic search? List the algorithms that use Heuristics.

b) A* may go into over and under estimations - Justify.

c) List the different Knowledge representation approaches.

d) Illustrate 'DFID' with an appropriate example.

e) What are AI systems? List their characteristics.

Q.3 Attempt any Two. **08**

a) Write and illustrate with an example the 'Hill Climbing' algorithm.

b) Compare and contrast between A* and AO* algorithms.

c) Compare between Beam search and Taboo search algorithms.

Q.4 Attempt any One **08**

a) What are the characteristics of problems? Illustrate each characteristic.

b) What is beam stack search? How is it attained?

Section – II

Q.5 Attempt any Four. **12**

a) Give the semantic network for 'Ragging is prohibited'.

b) Compare between monotonic and non-monotonic reasoning.

c) Where are measures of belief and disbelief used? Illustrate.

d) What are expert systems?

e) What are scripts? Write a brief script for an encounter.

Q.6 Attempt any Two. **08**

a) What is constraint satisfaction? State the steps involved.

b) What is fuzzy logic? How is it used?

c) Illustrate the working of cut operator in Prolog with an example.

Q.6 Attempt any One. **08**

a) State Baye's Theorem. How is it related to certainty factors?

b) Compare between procedure and declarative Knowledge.

SLR-FM-364

Seat No.		Set	P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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) Figure 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) Select a component which is NOT part of Android architecture.
   a) Android framework b) Libraries
   c) Linux kernel d) Android document

2) ADB stands for _____.
   a) Android Drive Bridge b) Android Debug Bridge
   c) Android Destroy Bridge d) Android Delete Bridge

3) What does the following line of code achieve?
   Intent intent = new Intent(First Activity.this, SecondActivity.class)
   a) Creates an hidden Intent b) Creates an implicit Intent
   c) Create an explicit Intent d) Starts an activity

4) Which of the following is NOT true about the MenuItem interface?
   a) The MenuItem instance will be returned by the Menu class add(…) method.
   b) MenuItem can decide the Intent issued when clicking menu components.
   c) MenuItem can display either an icon or text.
   d) MenuItem can set a checkbox.

5) If your service is private to your own application and runs in the same process as the client (which is common), you should create your interface by extending the _____ class?
   a) Messenger b) Binder
   c) AIDL d) None of the above.

6) By default in android studio during app development, file that holds information about app's fundamental features and components is _____.
   a) Android Manifest.xml b) res/values
   c) Build.gradle d) res/layout

7) By default in android studio, during app development, directory made for xml files to hold resources like color, string etc is _____ .
   a) res/layout b) res/values
   c) AndroidManifest.xml d) Build.gradle

8) AAPT stands for _____.
   a) Android Application Packaging Tool
   b) Android Anti Packaging Tool
   c) Android Asset Packaging Tool
   d) Android Application Pack Tool

9) How does Google check for malicious software in the Android Market?
   a) Every new app is scanned by a virus scanner
   b) User report malicious software to Google
   c) Google employees verify each new app
   d) A separate company monitors the Android Market for Google

10) Android JUnit framework is used to perform _____ testing of android apps.
   a) Unit testing
   b) Functional testing
   c) Black box testing
   d) White box testing

11) If you want share the date across the all applications, you should go for?
   a) Service
   b) BroadcastReceiver
   c) Activity
   d) Content Provider

12) Once installed on a device, each Android application lives in _____?
   a) device memory
   b) external memory
   c) security sandbox
   d) SQLite database

13) Which component is not activated by an Intent?
   a) Activity
   b) Services
   c) ContentProvider
   d) BroadcastReceiver

14) Shared Preferences store values in form of _____ .
   a) Key-Value pairs
   b) Array structure
   c) Tree structure
   d) Tags

SLR-FM-364

Seat No.	

Set P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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) Figure to the right indicates full marks.

Section – I

Q.2 Attempt any three of the following questions. **12**

a) What are the main components of mobile app? Explain in short.
b) Define Broadcast Receivers and state methods use in it.
c) Explain telephony API in android.
d) Illustrate with example code in XML and JAVA to use different dialog box component.

Q.3 Attempt any one of the following questions. **08**

a) Define the procedures to navigate between activities and exchange data between them.
b) Explain Service component in Android with the help of example. Differentiate between Service and Bound Service forms of service components in Android System with example.

Q.4 Attempt any one of the following questions.

a) Describe Android App project structure and illustrate Android app execution flow. **08**
b) Write a note on:
1) Image resource in android
2) String resource in android

Section – II

Q.5 Attempt any three of the following questions. **12**

a) Write a note on Canvas and Drawable.
b) Write a short on Shared Preferences in Android.
c) List and explain debugger types available in Android app debugging.
d) Explain benefits of Robotium framework.

Q.6 Attempt any one of the following questions. **08**

a) Draw and explain in detail state diagram for MediaPlayer.
b) Explain Sensors in Android with the help of Motion Sensors and Position Sensors.

Q.7 Attempt any one of the following questions. **08**

a) Write shore note on:
1) Robotium
2) MonkeyTalk
b) Discuss View Animation, Property Animation and Drawable Animation with example.

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Seat No.		Set	Q

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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) Figure 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) AAPT stands for _____.
   a) Android Application Packaging Tool
   b) Android Anti Packaging Tool
   c) Android Asset Packaging Tool
   d) Android Application Pack Tool

2) How does Google check for malicious software in the Android Market?
   a) Every new app is scanned by a virus scanner
   b) User report malicious software to Google
   c) Google employees verify each new app
   d) A separate company monitors the Android Market for Google

3) Android JUnit framework is used to perform _____ testing of android apps.
   a) Unit testing b) Functional testing
   c) Black box testing d) White box testing

4) If you want share the date across the all applications, you should go for?
   a) Service b) BroadcastReceiver
   c) Activity d) Content Provider

5) Once installed on a device, each Android application lives in _____?
   a) device memory b) external memory
   c) security sandbox d) SQLite database

6) Which component is not activated by an Intent?
   a) Activity b) Services
   c) ContentProvider d) BroadcastReceiver

7) Shared Preferences store values in form of _____ .
   a) Key-Value pairs b) Array structure
   c) Tree structure d) Tags

8) Select a component which is NOT part of Android architecture.
   a) Android framework b) Libraries
   c) Linux kernel d) Android document

9) ADB stands for _____.
   a) Android Drive Bridge b) Android Debug Bridge
   c) Android Destroy Bridge d) Android Delete Bridge

10) What does the following line of code achieve?
Intent intent = new Intent(First Activity.this, SecondActivity.class)
   a) Creates an hidden Intent
   b) Creates an implicit Intent
   c) Create an explicit Intent
   d) Starts an activity

11) Which of the following is NOT true about the MenuItem interface?
   a) The MenuItem instance will be returned by the Menu class add(…) method.
   b) MenuItem can decide the Intent issued when clicking menu components.
   c) MenuItem can display either an icon or text.
   d) MenuItem can set a checkbox.

12) If your service is private to your own application and runs in the same process as the client (which is common), you should create your interface by extending the _____ class?
   a) Messenger
   b) Binder
   c) AIDL
   d) None of the above.

13) By default in android studio during app development, file that holds information about app's fundamental features and components is _____.
   a) Android Manifest.xml
   b) res/values
   c) Build.gradle
   d) res/layout

14) By default in android studio, during app development, directory made for xml files to hold resources like color, string etc is _____ .
   a) res/layout
   b) res/values
   c) AndroidManifest.xml
   d) Build.gradle

SLR-FM-364

Seat No.	

Set Q

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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) Figure to the right indicates full marks.

Section – I

Q.2 Attempt any three of the following questions. **12**

a) What are the main components of mobile app? Explain in short.
b) Define Broadcast Receivers and state methods use in it.
c) Explain telephony API in android.
d) Illustrate with example code in XML and JAVA to use different dialog box component.

Q.3 Attempt any one of the following questions. **08**

a) Define the procedures to navigate between activities and exchange data between them.
b) Explain Service component in Android with the help of example. Differentiate between Service and Bound Service forms of service components in Android System with example.

Q.4 Attempt any one of the following questions.

a) Describe Android App project structure and illustrate Android app execution flow. **08**
b) Write a note on:
1) Image resource in android
2) String resource in android

Section – II

Q.5 Attempt any three of the following questions. **12**

a) Write a note on Canvas and Drawable.
b) Write a short on Shared Preferences in Android.
c) List and explain debugger types available in Android app debugging.
d) Explain benefits of Robotium framework.

Q.6 Attempt any one of the following questions. **08**

a) Draw and explain in detail state diagram for MediaPlayer.
b) Explain Sensors in Android with the help of Motion Sensors and Position Sensors.

Q.7 Attempt any one of the following questions. **08**

a) Write shore note on:
1) Robotium
2) MonkeyTalk
b) Discuss View Animation, Property Animation and Drawable Animation with example.

Seat No.	

Set | R

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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) Figure 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) If your service is private to your own application and runs in the same process as the client (which is common), you should create your interface by extending the _____ class?
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10) Shared Preferences store values in form of _____ .
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   b) Array structure
   c) Tree structure
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11) Select a component which is NOT part of Android architecture.
   a) Android framework
   b) Libraries
   c) Linux kernel
   d) Android document

12) ADB stands for _____.
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13) What does the following line of code achieve?
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SLR-FM-364

Seat No.	

Set R

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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) Figure to the right indicates full marks.

Section – I

Q.2 Attempt any three of the following questions. **12**

a) What are the main components of mobile app? Explain in short.
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a) Describe Android App project structure and illustrate Android app execution flow. **08**
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Section – II

Q.5 Attempt any three of the following questions. **12**

a) Write a note on Canvas and Drawable.
b) Write a short on Shared Preferences in Android.
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d) Explain benefits of Robotium framework.

Q.6 Attempt any one of the following questions. **08**

a) Draw and explain in detail state diagram for MediaPlayer.
b) Explain Sensors in Android with the help of Motion Sensors and Position Sensors.

Q.7 Attempt any one of the following questions. **08**

a) Write shore note on:
1) Robotium
2) MonkeyTalk
b) Discuss View Animation, Property Animation and Drawable Animation with example.

SLR-FM-364

Seat No.	

Set S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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) Figure 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) Android JUnit framework is used to perform _____ testing of android apps.
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   c) Black box testing d) White box testing

2) If you want share the date across the all applications, you should go for?
   a) Service b) BroadcastReceiver
   c) Activity d) Content Provider

3) Once installed on a device, each Android application lives in _____?
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   c) security sandbox d) SQLite database

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   a) Activity b) Services
   c) ContentProvider d) BroadcastReceiver

5) Shared Preferences store values in form of _____ .
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   c) Android Destroy Bridge d) Android Delete Bridge

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   Intent intent = new Intent(First Activity.this, SecondActivity.class)
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   a) The MenuItem instance will be returned by the Menu class add(…) method.
   b) MenuItem can decide the Intent issued when clicking menu components.
   c) MenuItem can display either an icon or text.
   d) MenuItem can set a checkbox.

10) If your service is private to your own application and runs in the same process as the client (which is common), you should create your interface by extending the _____ class?
   a) Messenger
   b) Binder
   c) AIDL
   d) None of the above.

11) By default in android studio during app development, file that holds information about app's fundamental features and components is _____.
   a) Android Manifest.xml
   b) res/values
   c) Build.gradle
   d) res/layout

12) By default in android studio, during app development, directory made for xml files to hold resources like color, string etc is _____ .
   a) res/layout
   b) res/values
   c) AndroidManifest.xml
   d) Build.gradle

13) AAPT stands for _____.
   a) Android Application Packaging Tool
   b) Android Anti Packaging Tool
   c) Android Asset Packaging Tool
   d) Android Application Pack Tool

14) How does Google check for malicious software in the Android Market?
   a) Every new app is scanned by a virus scanner
   b) User report malicious software to Google
   c) Google employees verify each new app
   d) A separate company monitors the Android Market for Google

SLR-FM-364

Seat No.		Set	S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
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) Figure to the right indicates full marks.

Section – I

Q.2 Attempt any three of the following questions. **12**

a) What are the main components of mobile app? Explain in short.
b) Define Broadcast Receivers and state methods use in it.
c) Explain telephony API in android.
d) Illustrate with example code in XML and JAVA to use different dialog box component.

Q.3 Attempt any one of the following questions. **08**

a) Define the procedures to navigate between activities and exchange data between them.
b) Explain Service component in Android with the help of example. Differentiate between Service and Bound Service forms of service components in Android System with example.

Q.4 Attempt any one of the following questions.

a) Describe Android App project structure and illustrate Android app execution flow. **08**
b) Write a note on:
1) Image resource in android
2) String resource in android

Section – II

Q.5 Attempt any three of the following questions. **12**

a) Write a note on Canvas and Drawable.
b) Write a short on Shared Preferences in Android.
c) List and explain debugger types available in Android app debugging.
d) Explain benefits of Robotium framework.

Q.6 Attempt any one of the following questions. **08**

a) Draw and explain in detail state diagram for MediaPlayer.
b) Explain Sensors in Android with the help of Motion Sensors and Position Sensors.

Q.7 Attempt any one of the following questions. **08**

a) Write shore note on:
1) Robotium
2) MonkeyTalk
b) Discuss View Animation, Property Animation and Drawable Animation with example.

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Seat No.	

Set P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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) Figure must be draw wherever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes Marks: 10

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) Membership in a VLAN can be based on _____.
   a) Port numbers b) MAC addresses
   c) IP addresses d) All of these

2) _____ is just a connector.
   a) An active hub b) A passive hub
   c) Either (a) or (b) d) Neither (a) nor (b)

3) In a bridged LAN, the _____ algorithm creates a topology in which each LAN can be reached from any other LAN through one path only.
   a) Spanning tree b) Binary tree
   c) Unary tree d) None of these

4) The wireless LAN specification is defined by IEEE, called, _____ which covers the data link and physical layer.
   a) IEEEE 802.2 b) IEEE 802.11
   c) IEEE 802.3 d) IEEE 802.5

5) The IEEE 802.3 Standard defines _____ CSMA/CD as the access method for first-generation 10-Mbps Ethernet.
   a) 1-persistent b) P-persistent
   c) Non-persistent d) None of these

6) _____ uses two fiber-optic cables.
   a) 100Base-TX b) 100Base-FX
   c) 100Base-T4 d) None of these

7) Which switching technology reduces the size of a broadcast domain?
   a) ISL b) 802. 1Q
   c) VLANs d) STP

8) Which of the situations might not require multiple routing protocols in a network?
   a) When a new Layer 2-only switch is added to the network
   b) When you are migrating from one routing protocol to another
   c) When you are using routers from multiple vendors
   d) When there are host-based routers from multiple vendors

9) Which two routing protocols can be redistributed into OSPF by a Cisco router?
   a) IP ElGRP and AppleTalk EIGRP
   b) AppleTalk EIGRP and RIPv2
   c) RIPv2 and IP EIGRP
   d) IPX RIP & AppleTalk EIGRP

10) In subcategories of reserved address in IPv6, address that is used by a host to test itself without going into network is called _____.
   a) Unspecified address
   b) Loopback address
   c) Compatible address
   d) Mapped address

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

Day & Date: Thursday, 28-11-2019 Max. Marks: 40
Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any five questions from Q.No.2 to Q.No.8.
2) Figure to the right indicates full marks.

Attempt Any Five **40**

Q.2 What is VLAN? Explain in detail VLANs on switch, External routing between VLANs and VLAN configuration?

Q.3 Explain the router with routing table, routing types and host route?

Q.4 Explain the power cooling requirement for designing networks?

Q.5 Explain in detail the typical architecture of Ecommerce websites?

Q.6 Explain the Metrics and Protocol Types and Administrative Distance w.r.t routing protocol?

Q.7 State and explain the Planning a Chassis-Based Switch Installation?

Q.8 Explain in detail the Wireless Standards and Security?

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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) Figure must be draw wherever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes Marks: 10

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) _____ uses two fiber-optic cables.
   a) 100Base-TX b) 100Base-FX
   c) 100Base-T4 d) None of these

2) Which switching technology reduces the size of a broadcast domain?
   a) ISL b) 802. 1Q
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3) Which of the situations might not require multiple routing protocols in a network?
   a) When a new Layer 2-only switch is added to the network
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4) Which two routing protocols can be redistributed into OSPF by a Cisco router?
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   b) AppleTalk EIGRP and RIPv2
   c) RIPv2 and IP EIGRP
   d) IPX RIP & AppleTalk EIGRP

5) In subcategories of reserved address in IPv6, address that is used by a host to test itself without going into network is called _____.
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   a) Port numbers b) MAC addresses
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   a) An active hub b) A passive hub
   c) Either (a) or (b) d) Neither (a) nor (b)

8) In a bridged LAN, the _____ algorithm creates a topology in which each LAN can be reached from any other LAN through one path only.
   a) Spanning tree b) Binary tree
   c) Unary tree d) None of these

9) The wireless LAN specification is defined by IEEE, called, _____ which covers the data link and physical layer.
   a) IEEEE 802.2 b) IEEE 802.11
   c) IEEE 802.3 d) IEEE 802.5

10) The IEEE 802.3 Standard defines _____ CSMA/CD as the access method for first-generation 10-Mbps Ethernet.
   a) 1-persistent b) P-persistent
   c) Non-persistent d) None of these

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Seat No.	

Set Q

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

Day & Date: Thursday, 28-11-2019 Max. Marks: 40
Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any five questions from Q.No.2 to Q.No.8.
2) Figure to the right indicates full marks.

Attempt Any Five **40**

Q.2 What is VLAN? Explain in detail VLANs on switch, External routing between VLANs and VLAN configuration?

Q.3 Explain the router with routing table, routing types and host route?

Q.4 Explain the power cooling requirement for designing networks?

Q.5 Explain in detail the typical architecture of Ecommerce websites?

Q.6 Explain the Metrics and Protocol Types and Administrative Distance w.r.t routing protocol?

Q.7 State and explain the Planning a Chassis-Based Switch Installation?

Q.8 Explain in detail the Wireless Standards and Security?

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Seat No.	

Set R

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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) Figure must be draw wherever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes Marks: 10

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) Which two routing protocols can be redistributed into OSPF by a Cisco router?
   a) IP ElGRP and AppleTalk EIGRP
   b) AppleTalk EIGRP and RIPv2
   c) RIPv2 and IP EIGRP
   d) IPX RIP & AppleTalk EIGRP

2) In subcategories of reserved address in IPv6, address that is used by a host to test itself without going into network is called _____.
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   c) IEEE 802.3 d) IEEE 802.5

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   c) Non-persistent d) None of these

8) _____ uses two fiber-optic cables.
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   c) 100Base-T4 d) None of these

9) Which switching technology reduces the size of a broadcast domain?
   a) ISL
   b) 802. 1Q
   c) VLANs
   d) STP

10) Which of the situations might not require multiple routing protocols in a network?
   a) When a new Layer 2-only switch is added to the network
   b) When you are migrating from one routing protocol to another
   c) When you are using routers from multiple vendors
   d) When there are host-based routers from multiple vendors

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Seat No.	

Set R

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

Day & Date: Thursday, 28-11-2019 Max. Marks: 40
Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any five questions from Q.No.2 to Q.No.8.
2) Figure to the right indicates full marks.

Attempt Any Five **40**

Q.2 What is VLAN? Explain in detail VLANs on switch, External routing between VLANs and VLAN configuration?

Q.3 Explain the router with routing table, routing types and host route?

Q.4 Explain the power cooling requirement for designing networks?

Q.5 Explain in detail the typical architecture of Ecommerce websites?

Q.6 Explain the Metrics and Protocol Types and Administrative Distance w.r.t routing protocol?

Q.7 State and explain the Planning a Chassis-Based Switch Installation?

Q.8 Explain in detail the Wireless Standards and Security?

Seat No.	

Set | S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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) Figure must be draw wherever necessary.

MCQ/Objective Type Questions

Duration: 20 Minutes Marks: 10

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) In a bridged LAN, the _____ algorithm creates a topology in which each LAN can be reached from any other LAN through one path only.
   a) Spanning tree b) Binary tree
   c) Unary tree d) None of these

2) The wireless LAN specification is defined by IEEE, called, _____ which covers the data link and physical layer.
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   b) AppleTalk EIGRP and RIPv2
   c) RIPv2 and IP EIGRP
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   a) Unspecified address b) Loopback address
   c) Compatible address d) Mapped address

9) Membership in a VLAN can be based on _____.
   a) Port numbers
   b) MAC addresses
   c) IP addresses
   d) All of these

10) _____ is just a connector.
   a) An active hub
   b) A passive hub
   c) Either (a) or (b)
   d) Neither (a) nor (b)

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Seat No.	

Set S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

Day & Date: Thursday, 28-11-2019 Max. Marks: 40
Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any five questions from Q.No.2 to Q.No.8.
2) Figure to the right indicates full marks.

Attempt Any Five **40**

Q.2 What is VLAN? Explain in detail VLANs on switch, External routing between VLANs and VLAN configuration?

Q.3 Explain the router with routing table, routing types and host route?

Q.4 Explain the power cooling requirement for designing networks?

Q.5 Explain in detail the typical architecture of Ecommerce websites?

Q.6 Explain the Metrics and Protocol Types and Administrative Distance w.r.t routing protocol?

Q.7 State and explain the Planning a Chassis-Based Switch Installation?

Q.8 Explain in detail the Wireless Standards and Security?

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Seat No.	

Set P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
TOOLS FOR COMPUTER ARCHITECTURE

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 it 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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) SPARC (Scalable Processor Architecture) is based on _____.
   a) RISC b) CISC
   c) SAS d) None of these

2) Properties of the ARC processor are _____.
   a) It has a LOAD/STORE architecture: only the load and store instruction can access the memory
   b) The data path and address bus width are 32 bits
   c) All instructions are 32 bits
   d) All of the above

3) Branch instructions “bcs” is equal to _____.
   a) Branch on Carry Set b) Branch on equal
   c) Branch on Overflow set d) none of these

4) Which of the following are mnemonic of ARC instruction set?
   a) ld b) st
   c) andcc d) All of these

5) What are the three modules in the SPARC processor?
   a) IU, FPU, CU b) SP, DI, SI
   c) AX, BX, CX d) None of these

6) Which module of SPARC contains the general purpose registers?
   a) IU b) FPU
   c) CU d) None of these

7) Which of the following are main simulator controls?
   a) Step b) Edit
   c) Load d) All of the above

8) Which of the following instructions are not recognized by ARC Tools?
   a) ldsh b) ldub
   c) lduh d) ldmh

9) ARC assembly language file is saved as _____ in ARC Tools simulator.
   a) File.asm b) File.sim
   c) File.tasm d) File.msm

10) What is the meaning of sethi Mnemonic?
    a) Bed Turnover Rate
    b) Load the 21 most significant bits of a register
    c) Load the 22 most significant bits of a register
    d) Load the 24 most significant bits of a register

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
TOOLS FOR COMPUTER ARCHITECTURE

Day & Date: Thursday, 28-11-2019 Max. Marks: 40
Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Question No. 2.
2) Figures to the right indicate full marks.

Q.2 Answer any Four:- **40**

a) Mention the different ARC instructions and its meaning with example.

b) Explain concept of Linking and loading in ARC Processor.

c) Write an ARC subroutine that performs a swap operation on the 32 bit operands x = 35 and y = 40, which are stored in memory'.

d) The SUBCC (subtract instruction with status update) is supported by the ARC The SUBCC (subtract instruction with status update) is supported by the ARC instruction format is that of arithmetic instruction.
What are the contents of field op3 for: subcc %r1, %r2, %r3?

e) **Write short notes:**
1) Write an Instruction formats and PSR format for the ARC processor.
2) Explain concept of Assembly and Symbol table.

f) Write a note on Time Model's Statistics Window of SPARC Processor.

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
TOOLS FOR COMPUTER ARCHITECTURE

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 it 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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) Which module of SPARC contains the general purpose registers?
   a) IU b) FPU
   c) CU d) None of these

2) Which of the following are main simulator controls?
   a) Step b) Edit
   c) Load d) All of the above

3) Which of the following instructions are not recognized by ARC Tools?
   a) ldsh b) ldub
   c) lduh d) ldmh

4) ARC assembly language file is saved as _____ in ARC Tools simulator.
   a) File.asm b) File.sim
   c) File.tasm d) File.msm

5) What is the meaning of sethi Mnemonic?
   a) Bed Turnover Rate
   b) Load the 21 most significant bits of a register
   c) Load the 22 most significant bits of a register
   d) Load the 24 most significant bits of a register

6) SPARC (Scalable Processor Architecture) is based on _____.
   a) RISC b) CISC
   c) SAS d) None of these

7) Properties of the ARC processor are _____.
   a) It has a LOAD/STORE architecture: only the load and store instruction can access the memory
   b) The data path and address bus width are 32 bits
   c) All instructions are 32 bits
   d) All of the above

8) Branch instructions “bcs” is equal to _____.
   a) Branch on Carry Set b) Branch on equal
   c) Branch on Overflow set d) none of these

9) Which of the following are mnemonic of ARC instruction set?
   a) ld b) st
   c) andcc d) All of these

10) What are the three modules in the SPARC processor?
   a) IU, FPU, CU
   b) SP, DI, SI
   c) AX, BX, CX
   d) None of these

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
TOOLS FOR COMPUTER ARCHITECTURE

Day & Date: Thursday, 28-11-2019 Max. Marks: 40
Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Question No. 2.
2) Figures to the right indicate full marks.

Q.2 Answer any Four:- **40**

a) Mention the different ARC instructions and its meaning with example.

b) Explain concept of Linking and loading in ARC Processor.

c) Write an ARC subroutine that performs a swap operation on the 32 bit operands x = 35 and y = 40, which are stored in memory'.

d) The SUBCC (subtract instruction with status update) is supported by the ARC The SUBCC (subtract instruction with status update) is supported by the ARC instruction format is that of arithmetic instruction.
What are the contents of field op3 for: subcc %r1, %r2, %r3?

e) **Write short notes:**
1) Write an Instruction formats and PSR format for the ARC processor.
2) Explain concept of Assembly and Symbol table.

f) Write a note on Time Model's Statistics Window of SPARC Processor.

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
TOOLS FOR COMPUTER ARCHITECTURE

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 it 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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) ARC assembly language file is saved as _____ in ARC Tools simulator.
   a) File.asm b) File.sim
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2) What is the meaning of sethi Mnemonic?
   a) Bed Turnover Rate
   b) Load the 21 most significant bits of a register
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   c) All instructions are 32 bits
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   a) ld b) st
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7) What are the three modules in the SPARC processor?
   a) IU, FPU, CU b) SP, DI, SI
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8) Which module of SPARC contains the general purpose registers?
   a) IU b) FPU
   c) CU d) None of these

9) Which of the following are main simulator controls?
   a) Step b) Edit
   c) Load d) All of the above

10) Which of the following instructions are not recognized by ARC Tools?
   a) ldsh
   b) ldub
   c) lduh
   d) ldmh

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
TOOLS FOR COMPUTER ARCHITECTURE

Day & Date: Thursday, 28-11-2019 Max. Marks: 40
Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Question No. 2.
2) Figures to the right indicate full marks.

Q.2 Answer any Four:- **40**

a) Mention the different ARC instructions and its meaning with example.

b) Explain concept of Linking and loading in ARC Processor.

c) Write an ARC subroutine that performs a swap operation on the 32 bit operands x = 35 and y = 40, which are stored in memory'.

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What are the contents of field op3 for: subcc %r1, %r2, %r3?

e) **Write short notes:**
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2) Explain concept of Assembly and Symbol table.

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Seat No.	

Set **S**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
TOOLS FOR COMPUTER ARCHITECTURE

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 it 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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) Branch instructions “bcs” is equal to _____.
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   a) File.asm b) File.sim
   c) File.tasm d) File.msm

8) What is the meaning of sethi Mnemonic?
   a) Bed Turnover Rate
   b) Load the 21 most significant bits of a register
   c) Load the 22 most significant bits of a register
   d) Load the 24 most significant bits of a register

9) SPARC (Scalable Processor Architecture) is based on _____.
   a) RISC b) CISC
   c) SAS d) None of these

10) Properties of the ARC processor are _____.
    a) It has a LOAD/STORE architecture: only the load and store instruction can access the memory
    b) The data path and address bus width are 32 bits
    c) All instructions are 32 bits
    d) All of the above

SLR-FM-366

Seat No.	

Set S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
TOOLS FOR COMPUTER ARCHITECTURE

Day & Date: Thursday, 28-11-2019 Max. Marks: 40
Time: 10:00 AM To 12:00 PM

Instructions: 1) Attempt any four questions from Question No. 2.
2) Figures to the right indicate full marks.

Q.2 Answer any Four:- **40**

a) Mention the different ARC instructions and its meaning with example.

b) Explain concept of Linking and loading in ARC Processor.

c) Write an ARC subroutine that performs a swap operation on the 32 bit operands x = 35 and y = 40, which are stored in memory'.

d) The SUBCC (subtract instruction with status update) is supported by the ARC The SUBCC (subtract instruction with status update) is supported by the ARC instruction format is that of arithmetic instruction.
What are the contents of field op3 for: subcc %r1, %r2, %r3?

e) Write short notes:
1) Write an Instruction formats and PSR format for the ARC processor.
2) Explain concept of Assembly and Symbol table.

f) Write a note on Time Model's Statistics Window of SPARC Processor.

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPILER DEVELOPMENT TOOLS

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: 08

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 08

1) _____ Input of Lex is?
   a) Set to regular expression b) Statement
   c) Numeric data d) ASCII data

2) Yacc semantic action is a sequence of?
   a) Tokens b) Expression
   c) Statements d) Rules

3) Which of the following software tool is parser generator?
   a) Lex b) Yacc
   c) Both a and b d) None of these

4) A Lex compiler generates?
   a) Lex object code b) Transition tables
   c) Tokens d) None of above

5) YACC is a computer program for _____ operation system.
   a) Windows b) DOS
   c) Unix d) openSUSE

6) The _____ table is created by YACC.
   a) LALR parsing b) LL parsing
   c) GLR parsing d) None of the mentioned

7) The original YACC as written in _____ language.
   a) R programming language b) C programming language
   c) B programming language d) None of the mentioned

8) YACC is an acronym for _____.
   a) Yes Another Compile Compiler
   b) Yet Another Compile Compiler
   c) Yet Another Compiler Compiler
   d) Yes Another Compiler Compiler

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPILER DEVELOPMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 42
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 the following. **12**

a) How is a Lex specification given structurally?
b) Give examples of TACC ambiguities and conflicts.
c) Compare between Lex and YACC.

Q.3 Attempt the following. **30**

a) For an example grammar generate a Lex specification and probable output.
b) Generate YACC actions and outputs for the same grammar and parse sentences.

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPILER DEVELOPMENT TOOLS

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: 08

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 08

1) YACC is a computer program for _____ operation system.
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   a) Lex b) Yacc
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   a) Lex object code b) Transition tables
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Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPILER DEVELOPMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 42
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Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPILER DEVELOPMENT TOOLS

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: 08

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 08

1) Which of the following software tool is parser generator?
   a) Lex b) Yacc
   c) Both a and b d) None of these

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   a) Lex object code b) Transition tables
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   b) Yet Another Compile Compiler
   c) Yet Another Compiler Compiler
   d) Yes Another Compiler Compiler

7) _____ Input of Lex is?
   a) Set to regular expression b) Statement
   c) Numeric data d) ASCII data

8) Yacc semantic action is a sequence of?
   a) Tokens b) Expression
   c) Statements d) Rules

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPILER DEVELOPMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 42
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 the following. **12**

a) How is a Lex specification given structurally?
b) Give examples of TACC ambiguities and conflicts.
c) Compare between Lex and YACC.

Q.3 Attempt the following. **30**

a) For an example grammar generate a Lex specification and probable output.
b) Generate YACC actions and outputs for the same grammar and parse sentences.

Seat No.	

Set | S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPILER DEVELOPMENT TOOLS

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: 08

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 08

1) The original YACC as written in _____ language.
   a) R programming language b) C programming language
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Seat No.	

Set | S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
COMPILER DEVELOPMENT TOOLS

Day & Date: Thursday, 28-11-2019 Max. Marks: 42
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 the following. **12**

a) How is a Lex specification given structurally?
b) Give examples of TACC ambiguities and conflicts.
c) Compare between Lex and YACC.

Q.3 Attempt the following. **30**

a) For an example grammar generate a Lex specification and probable output.
b) Generate YACC actions and outputs for the same grammar and parse sentences.

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Seat No.	

Set P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA SCIENCE

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: 08

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 08

1) Which of the following is needed in K-means clustering?
   a) All of the mentions
   b) Initial guess as to cluster centroids
   c) Defined distance metrics
   d) Number of clusters

2) Which of the following is not an assumption of linear regression?
   a) Linear relationship b) Multivariate normality
   c) Homoscedasticity d) auto-correlation

3) Which is not an activation function in neural networks?
   a) ReLu b) PReLu
   c) Sigmoid d) Sine

4) Which is not a hyperparameter in decision trees?
   a) max_features b) min_samples_split
   c) criterion d) max_depth

5) Which of the following are some of the regularization methods?
   a) L_2 Ridge b) All of the mentions
   c) Elasticnet d) L_1 LASSO

6) Which of the following packages provides machine learning functionality?
   a) Knitr b) cacheSweave
   c) All of the mentions d) gbm/pam

7) R is technically much closer to the Scheme language than it is to the original _____ language.
   a) S b) C++
   c) C d) C#

8) Normal random numbers can be generated with rnorm() by setting seed value to: _____.
   a) 4 b) 2
   c) 3 d) 1

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA SCIENCE

Day & Date: Thursday, 28-11-2019 Max. Marks: 42
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 the following questions. **12**

a) What are Sigma Technologies? State the ir features.
b) What are the five steps involved in Data science?
c) Compare between Structured and Unstructured data.

Q.3 Attempt the following questions. **30**

a) With case studies explain the applications of Data science.
b) State the features of communication data and methods used for classification. Elaborate on each.

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA SCIENCE

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: 08

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 08

1) Which of the following are some of the regularization methods?
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   c) Sigmoid d) Sine

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Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA SCIENCE

Day & Date: Thursday, 28-11-2019 Max. Marks: 42
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 the following questions. **12**

a) What are Sigma Technologies? State the ir features.
b) What are the five steps involved in Data science?
c) Compare between Structured and Unstructured data.

Q.3 Attempt the following questions. **30**

a) With case studies explain the applications of Data science.
b) State the features of communication data and methods used for classification. Elaborate on each.

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA SCIENCE

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: 08

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 08

1) Which is not an activation function in neural networks?
   a) ReLu b) PReLu
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   d) Number of clusters

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   a) Linear relationship b) Multivariate normality
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Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA SCIENCE

Day & Date: Thursday, 28-11-2019 Max. Marks: 42
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 the following questions. **12**

a) What are Sigma Technologies? State the ir features.
b) What are the five steps involved in Data science?
c) Compare between Structured and Unstructured data.

Q.3 Attempt the following questions. **30**

a) With case studies explain the applications of Data science.
b) State the features of communication data and methods used for classification. Elaborate on each.

Seat No.	

Set **S**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA SCIENCE

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: 08

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 08

1) R is technically much closer to the Scheme language than it is to the original _____ language.
   a) S b) C++
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2) Normal random numbers can be generated with rnorm() by setting seed value to: _____.
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Seat No.	

Set | S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA SCIENCE

Day & Date: Thursday, 28-11-2019 Max. Marks: 42
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 the following questions. **12**

a) What are Sigma Technologies? State the ir features.
b) What are the five steps involved in Data science?
c) Compare between Structured and Unstructured data.

Q.3 Attempt the following questions. **30**

a) With case studies explain the applications of Data science.
b) State the features of communication data and methods used for classification. Elaborate on each.

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Seat No.	

Set P

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
USER INTERFACE TECHNOLOGIES

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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. **10**

1) In the network HTTP resources are located by _____.
   a) uniform resource identifier b) unique resource locator
   c) unique resource identifier d) none of the mentioned

2) HTTP client requests by establishing a _____ connection to a particular port on the server.
   a) user datagram protocol b) transmission control protocol
   c) broader gateway protocol d) none of the mentioned

3) In FTP protocol, client contacts server using _____ as the transport protocol.
   a) Transmission control protocol
   b) user datagram protocol
   c) datagram congestion control protocol
   d) stream control transmission protocol

4) <b> tag makes the enclosed text bold. What is other tag to make text bold?
   a) b) <dar>
   c) <black> d) <emp>

5) What is the correct HTML for making a hyperlink?
   a) ICT Trends Quiz
   b) ICT Trends Quiz
   c) <https:// abc.com
   d) url=’’https:// abc.com“>ICT Trends Quiz

6) To create a combo box (drop down box) which tag will you use?
   a) <select> b) <list>
   c) <input type="dropdown"> d) all of above

7) FTP uses One port number (21) is used for _____ and another one for _____ Direct sequence.
   a) data transfer, control connection
   b) socket connection, data transfer
   c) control connection , data transfer
   d) control connection , socket connection

8) Which attribute is used to name an element uniquely?
   a) class b) Id
   c) dot d) all of above

9) HTML (Hyper Text Markup Language) to specify _____ of web pages.
   a) style b) the content and structure
   c) both d) None

10) JavaScript is a language that helps you build _____ web pages.
   a) dynamic b) Coloring
   c) positioning d) None

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
USER INTERFACE TECHNOLOGIES

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 Solve any four. **20**

a) What are the various elements provided by HTML5 for media content?
b) Differentiate between SMTP and POP3.
c) What is HTML5?
d) Explain 2D and 3D transformation of CSS3.
e) What is responsive web design?

Q.3 Solve any two. **12**

a) Explain HTTP request response for dynamic web pages.
b) What is HTML5 API web storage?
c) Explain JSON

Q.4 Explain j query for Animation effect. **08**

Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
USER INTERFACE TECHNOLOGIES

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.
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MCQ/Objective Type Questions

Duration: 20 Minutes Marks: 10

Q.1 Choose the correct alternatives from the options and rewrite the sentence. **10**

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Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
USER INTERFACE TECHNOLOGIES

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.

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c) Explain JSON

Q.4 Explain j query for Animation effect. **08**

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
USER INTERFACE TECHNOLOGIES

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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. **10**

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   a) style b) the content and structure
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   a) Transmission control protocol
   b) user datagram protocol
   c) datagram congestion control protocol
   d) stream control transmission protocol

6) <b> tag makes the enclosed text bold. What is other tag to make text bold?
   a) b) <dar>
   c) <black> d) <emp>

7) What is the correct HTML for making a hyperlink?
   a) ICT Trends Quiz
   b) ICT Trends Quiz
   c) <https:// abc.com
   d) url=’’https:// abc.com“>ICT Trends Quiz

8) To create a combo box (drop down box) which tag will you use?
   a) <select> b) <list>
   c) <input type="dropdown"> d) all of above

9) FTP uses One port number (21) is used for _____ and another one for _____ Direct sequence.
   a) data transfer, control connection
   b) socket connection, data transfer
   c) control connection , data transfer
   d) control connection , socket connection

10) Which attribute is used to name an element uniquely?
   a) class
   b) Id
   c) dot
   d) all of above

Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
USER INTERFACE TECHNOLOGIES

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 Solve any four. **20**

a) What are the various elements provided by HTML5 for media content?
b) Differentiate between SMTP and POP3.
c) What is HTML5?
d) Explain 2D and 3D transformation of CSS3.
e) What is responsive web design?

Q.3 Solve any two. **12**

a) Explain HTTP request response for dynamic web pages.
b) What is HTML5 API web storage?
c) Explain JSON

Q.4 Explain j query for Animation effect. **08**

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Seat No.		Set	S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
USER INTERFACE TECHNOLOGIES

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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. **10**

1) In FTP protocol, client contacts server using _____ as the transport protocol.
   a) Transmission control protocol
   b) user datagram protocol
   c) datagram congestion control protocol
   d) stream control transmission protocol

2) <b> tag makes the enclosed text bold. What is other tag to make text bold?
   a) b) <dar>
   c) <black> d) <emp>

3) What is the correct HTML for making a hyperlink?
   a) ICT Trends Quiz
   b) ICT Trends Quiz
   c) <https:// abc.com
   d) url=”https:// abc.com“>ICT Trends Quiz

4) To create a combo box (drop down box) which tag will you use?
   a) <select> b) <list>
   c) <input type="dropdown"> d) all of above

5) FTP uses One port number (21) is used for _____ and another one for _____ Direct sequence.
   a) data transfer, control connection
   b) socket connection, data transfer
   c) control connection , data transfer
   d) control connection , socket connection

6) Which attribute is used to name an element uniquely?
   a) class b) Id
   c) dot d) all of above

7) HTML (Hyper Text Markup Language) to specify _____ of web pages.
   a) style b) the content and structure
   c) both d) None

8) JavaScript is a language that helps you build _____ web pages.
   a) dynamic b) Coloring
   c) positioning d) None

9) In the network HTTP resources are located by _____.
   a) uniform resource identifier b) unique resource locator
   c) unique resource identifier d) none of the mentioned

10) HTTP client requests by establishing a _____ connection to a particular port on the server.
   a) user datagram protocol b) transmission control protocol
   c) broader gateway protocol d) none of the mentioned

Seat No.	

Set | S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
USER INTERFACE TECHNOLOGIES

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 Solve any four. **20**

a) What are the various elements provided by HTML5 for media content?
b) Differentiate between SMTP and POP3.
c) What is HTML5?
d) Explain 2D and 3D transformation of CSS3.
e) What is responsive web design?

Q.3 Solve any two. **12**

a) Explain HTTP request response for dynamic web pages.
b) What is HTML5 API web storage?
c) Explain JSON

Q.4 Explain j query for Animation effect. **08**

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
AGILE PROJECT MANAGEMENT

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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) When acceptance testing is performed in Agile development?
   a) On request of customer b) After system is ready
   c) At the end of each iteration d) Daily

2) Agile Software Development is based on _____.
   a) Incremental Development
   b) Iterative Development
   c) Linear Development
   d) Both Incremental and Iterative Development

3) Agility is defined as the ability of a project team to respond rapidly to a change.
   a) True b) False

4) Which of the following is delivered at the end of the Sprint?
   a) A document containing test cases for the current sprint
   b) An architectural design of the solution
   c) An increment of Done software
   d) Wireframes designs for User Interface

5) Select the option that suits the Manifesto for Agile Software Development _____.
   a) Individuals and interactions b) Working software
   c) Customer collaboration d) All of the mentioned

6) When is a Sprint Retrospective ceremony performed?
   a) Whenever the team suggests
   b) At the end of each Sprint
   c) Whenever needed
   d) Whenever the Product Owner suggests
   e) Whenever the Scrum Master suggests

7) State True/False: "In Agile development testing is treated as a separate phase."
   a) True b) False

8) Who will test the system in agile development?
   a) software tester
   b) Developer
   c) Business Analyst
   d) All the above

9) Find what is the unit of measurement that is used to measure the size of a user story for an Agile project?
   a) Function points
   b) Story points
   c) Work breakdown points
   d) Velocity points

10) If a team can complete 10 story points In an iteration then how long will it take for the team to complete 100 story points?
   a) 10 Iterations
   b) 10 waves
   c) 20 Iterations
   d) 20 waves

Seat No.	

Set **P**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
AGILE PROJECT MANAGEMENT

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 Answer any Four: **16**

a) List and discuss the difference between traditional Waterfall model and Agile testing?
b) Explain the Iterative and Incremental Development in Agile.
c) What is difference between Epic, User stories & Tasks?
d) What is Test Driven Development (TDD)?
e) Explain Pair Programming and its benefits.

Q.3 Attempt any two: **16**

a) What is Agile Manifesto? List and explain its four key values and twelve principals.
b) Explain Task board in Agile in detail with example.
c) List and explain various Scrum roles in detail with example.

Q.4 What is refactoring? Why it is important? List and explain different refactoring techniques in Agile software development. **08**

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Seat No.	

Set Q

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
AGILE PROJECT MANAGEMENT

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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) When is a Sprint Retrospective ceremony performed?
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   d) Whenever the Product Owner suggests
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Seat No.	

Set **Q**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
AGILE PROJECT MANAGEMENT

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 Answer any Four: **16**

a) List and discuss the difference between traditional Waterfall model and Agile testing?
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c) What is difference between Epic, User stories & Tasks?
d) What is Test Driven Development (TDD)?
e) Explain Pair Programming and its benefits.

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b) Explain Task board in Agile in detail with example.
c) List and explain various Scrum roles in detail with example.

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Seat No.	

Set **R**

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
AGILE PROJECT MANAGEMENT

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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) Find what is the unit of measurement that is used to measure the size of a user story for an Agile project?
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2) If a team can complete 10 story points In an iteration then how long will it take for the team to complete 100 story points?
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Seat No.	

Set R

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
AGILE PROJECT MANAGEMENT

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 Answer any Four: **16**

a) List and discuss the difference between traditional Waterfall model and Agile testing?
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Seat No.	

Set | S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
AGILE PROJECT MANAGEMENT

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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) Agility is defined as the ability of a project team to respond rapidly to a change.
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   a) On request of customer
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   c) At the end of each iteration
   d) Daily

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   a) Incremental Development
   b) Iterative Development
   c) Linear Development
   d) Both Incremental and Iterative Development

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Seat No.		Set	S

T.E. (Part – II) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
AGILE PROJECT MANAGEMENT

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 Answer any Four: **16**

a) List and discuss the difference between traditional Waterfall model and Agile testing?
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c) What is difference between Epic, User stories & Tasks?
d) What is Test Driven Development (TDD)?
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c) List and explain various Scrum roles in detail with example.

Q.4 What is refactoring? Why it is important? List and explain different refactoring techniques in Agile software development. **08**

Seat No.	

Set **P**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday, 22-11-2019 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 indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct answer **14**

1) An outstanding functionality of SQL is its support for automatic _____ to the target data.
   a) Programming b) Functioning
   c) Navigation d) Notification

2) _____ is a special type of integrity constraint that relates two relations & maintains consistency across the relations.
   a) Entity Integrity Constraints
   b) Referential Integrity Constraints
   c) Domain Integrity Constraints
   d) Domain Constraints
   e) Key Constraints

3) _____ specifies a search condition for a group or an aggregate.
   a) GROUP BY Clause b) HAVING Clause
   c) FROM Clause d) WHERE Clause

4) Drop Table cannot be used to drop a table referenced by a _____ constraint.
   a) Local Key b) Primary Key
   c) Composite Key d) Foreign Key

5) By data integrity we mean _____.
   a) maintaining consistent data values
   b) integrated data values
   c) banning improper access to data
   d) not leaking data values

6) The property of transaction that persists all the crashes is _____.
   a) Atomicity b) Durability
   c) Isolation d) All of the mentioned

7) Transaction processing is associated with everything below except ____.
   a) Producing detail summary or exception reports
   b) Recording a business activity
   c) Confirming a action or triggering a response
   d) Maintaining a data

8) Commit and rollback are related to _____.
   a) data integrity
   b) data consistency
   c) data sharing
   d) data security

9) A sophisticated locking mechanism known as 2-phase locking which includes Growing phase and _____.
   a) Shrinking Phase
   b) Release phase
   c) Commit phase
   d) Acquire Phase

10) The _____ is responsible for ensuring correct execution in the presence of failures.
   a) Database Manager
   b) Transaction Manager
   c) Recovery/Manager
   d) Executive Manager

11) For a weak entity set to be meaningful, it must be associated with another entity set, called the _____.
   a) Identifying set
   b) Owner set
   c) Neighbour set
   d) Strong entity set

12) Which is a bottom-up approach to database design that design by examining the relationship between attributes: _____?
   a) Functional dependency
   b) Database modeling
   c) Normalization
   d) Decomposition

13) Which forms simplifies and ensures that there is minimal data aggregates and repetitive groups: _____.
   a) 1NF
   b) 2NF
   c) 3NF
   d) All of the mentioned

14) Tables in second normal form (2NF): _____.
   a) Eliminate all hidden dependencies
   b) Eliminate the possibility of a insertion anomalies
   c) Have a composite key
   d) Have all non key fields depend on the whole primary key

Seat No.	

Set **P**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday, 22-11-2019 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 any Four** **16**
- **a)** Explain the concept of keys with example.
- **b)** Explain with example the natural join operations.
- **c)** Give the formal definition of domain relational calculus.
- **d)** Explain with example generalization and specialization.
- **e)** Explain with example third normal form (3NF).

Q.3 Explain the fundamental relational algebra operations with example. **06**

OR

Explain concept of First and Second NF with example.

Q.4 Explain the concept of decomposition and dependency. **06**

Section – II

Q.5 **Answer any Four:** **16**
- **a)** What is the difference between clustering index and a secondary index?
- **b)** Explain the concept of shadow paging.
- **c)** What do you mean by concurrency control explain it?
- **d)** List the ACID properties and explain the usefulness of each.
- **e)** Explain in brief B tree index file.

Q.6 **Solve any One:** **06**
- **a)** Explain the use of Thomas write rule used in time stamp based protocol.
- **b)** Explain in detail the concept of check points in recovery systems.

Q.7 Explain Time-stamp-ordering protocol with an example. **06**

Seat No.	

Set **Q**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday, 22-11-2019 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 indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct answer **14**

1) Commit and rollback are related to _____.
   a) data integrity b) data consistency
   c) data sharing d) data security

2) A sophisticated locking mechanism known as 2-phase locking which includes Growing phase and _____.
   a) Shrinking Phase b) Release phase
   c) Commit phase d) Acquire Phase

3) The _____ is responsible for ensuring correct execution in the presence of failures.
   a) Database Manager b) Transaction Manager
   c) Recovery/Manager d) Executive Manager

4) For a weak entity set to be meaningful, it must be associated with another entity set, called the _____.
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13) The property of transaction that persists all the crashes is _____.
   a) Atomicity
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   c) Isolation
   d) All of the mentioned

14) Transaction processing is associated with everything below except ____.
   a) Producing detail summary or exception reports
   b) Recording a business activity
   c) Confirming a action or triggering a response
   d) Maintaining a data

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Seat No.	

Set Q

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday, 22-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
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Section – I

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Section – II

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e) Explain in brief B tree index file.

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a) Explain the use of Thomas write rule used in time stamp based protocol.
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Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday, 22-11-2019 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 indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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   c) Neighbour set d) Strong entity set

8) Which is a bottom-up approach to database design that design by examining the relationship between attributes: _____?
   a) Functional dependency b) Database modeling
   c) Normalization d) Decomposition

9) Which forms simplifies and ensures that there is minimal data aggregates and repetitive groups: _____.
   a) 1NF
   b) 2NF
   c) 3NF
   d) All of the mentioned

10) Tables in second normal form (2NF): _____.
   a) Eliminate all hidden dependencies
   b) Eliminate the possibility of a insertion anomalies
   c) Have a composite key
   d) Have all non key fields depend on the whole primary key

11) An outstanding functionality of SQL is its support for automatic _____ to the target data.
   a) programming
   b) Functioning
   c) navigation
   d) Notification

12) _____ is a special type of integrity constraint that relates two relations & maintains consistency across the relations.
   a) Entity Integrity Constraints
   b) Referential Integrity Constraints
   c) Domain Integrity Constraints
   d) Domain Constraints
   e) Key Constraints

13) _____ specifies a search condition for a group or an aggregate.
   a) GROUP BY Clause
   b) HAVING Clause
   c) FROM Clause
   d) WHERE Clause

14) Drop Table cannot be used to drop a table referenced by a _____ constraint.
   a) Local Key
   b) Primary Key
   c) Composite Key
   d) Foreign Key

Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday, 22-11-2019 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 any Four** **16**
- **a)** Explain the concept of keys with example.
- **b)** Explain with example the natural join operations.
- **c)** Give the formal definition of domain relational calculus.
- **d)** Explain with example generalization and specialization.
- **e)** Explain with example third normal form (3NF).

Q.3 Explain the fundamental relational algebra operations with example. **06**

OR

Explain concept of First and Second NF with example.

Q.4 Explain the concept of decomposition and dependency. **06**

Section – II

Q.5 **Answer any Four:** **16**
- **a)** What is the difference between clustering index and a secondary index?
- **b)** Explain the concept of shadow paging.
- **c)** What do you mean by concurrency control explain it?
- **d)** List the ACID properties and explain the usefulness of each.
- **e)** Explain in brief B tree index file.

Q.6 **Solve any One:** **06**
- **a)** Explain the use of Thomas write rule used in time stamp based protocol.
- **b)** Explain in detail the concept of check points in recovery systems.

Q.7 Explain Time-stamp-ordering protocol with an example. **06**

Seat No.	

Set **S**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday, 22-11-2019 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 indicate full marks.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct answer **14**

1) The _____ is responsible for ensuring correct execution in the presence of failures.
   a) Database Manager b) Transaction Manager
   c) Recovery/Manager d) Executive Manager

2) For a weak entity set to be meaningful, it must be associated with another entity set, called the _____.
   a) Identifying set b) Owner set
   c) Neighbour set d) Strong entity set

3) Which is a bottom-up approach to database design that design by examining the relationship between attributes: _____?
   a) Functional dependency b) Database modeling
   c) Normalization d) Decomposition

4) Which forms simplifies and ensures that there is minimal data aggregates and repetitive groups: _____.
   a) 1NF b) 2NF
   c) 3NF d) All of the mentioned

5) Tables in second normal form (2NF): _____.
   a) Eliminate all hidden dependencies
   b) Eliminate the possibility of a insertion anomalies
   c) Have a composite key
   d) Have all non key fields depend on the whole primary key

6) An outstanding functionality of SQL is its support for automatic _____ to the target data.
   a) programming b) Functioning
   c) navigation d) Notification

7) _____ is a special type of integrity constraint that relates two relations & maintains consistency across the relations.
   a) Entity Integrity Constraints
   b) Referential Integrity Constraints
   c) Domain Integrity Constraints
   d) Domain Constraints
   e) Key Constraints

8) _____ specifies a search condition for a group or an aggregate.
   a) GROUP BY Clause
   b) HAVING Clause
   c) FROM Clause
   d) WHERE Clause

9) Drop Table cannot be used to drop a table referenced by a _____ constraint.
   a) Local Key
   b) Primary Key
   c) Composite Key
   d) Foreign Key

10) By data integrity we mean _____.
   a) maintaining consistent data values
   b) integrated data values
   c) banning improper access to data
   d) not leaking data values

11) The property of transaction that persists all the crashes is _____.
   a) Atomicity
   b) Durability
   c) Isolation
   d) All of the mentioned

12) Transaction processing is associated with everything below except ____.
   a) Producing detail summary or exception reports
   b) Recording a business activity
   c) Confirming a action or triggering a response
   d) Maintaining a data

13) Commit and rollback are related to _____.
   a) data integrity
   b) data consistency
   c) data sharing
   d) data security

14) A sophisticated locking mechanism known as 2-phase locking which includes Growing phase and _____.
   a) Shrinking Phase
   b) Release phase
   c) Commit phase
   d) Acquire Phase

SLR-FM-371

Seat No.		Set	S

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATABASE ENGINEERING

Day & Date: Friday, 22-11-2019 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 any Four **16**

a) Explain the concept of keys with example.
b) Explain with example the natural join operations.
c) Give the formal definition of domain relational calculus.
d) Explain with example generalization and specialization.
e) Explain with example third normal form (3NF).

Q.3 Explain the fundamental relational algebra operations with example. **06**

OR

Explain concept of First and Second NF with example.

Q.4 Explain the concept of decomposition and dependency. **06**

Section – II

Q.5 Answer any Four: **16**

a) What is the difference between clustering index and a secondary index?
b) Explain the concept of shadow paging.
c) What do you mean by concurrency control explain it?
d) List the ACID properties and explain the usefulness of each.
e) Explain in brief B tree index file.

Q.6 Solve any One: **06**

a) Explain the use of Thomas write rule used in time stamp based protocol.
b) Explain in detail the concept of check points in recovery systems.

Q.7 Explain Time-stamp-ordering protocol with an example. **06**

Seat No.	

Set **P**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING & DESIGN

Day & Date: Saturday, 23-11-2019 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 drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) A solid diamond represents a stronger form of _____, known as composition.
   a) Generalization b) Abstraction
   c) Aggregation d) None

2) The Unified Modeling Language _____.
   a) is a notation useful for graphically depicting an object-oriented analysis or design model.
   b) allows one to capture design decisions of a system.
   c) promotes communication among key personnel involved in development.
   d) all of the above.

3) A state chart diagram describes: _____.
   a) Attributes of objects
   b) Nodes of the system
   c) Operations executed on a thread
   d) Events triggered by an object

4) A(n) _____ is a concept, abstraction, or thing that has a state, behavior, and identity.
   a) relationship b) attribute
   c) key d) object

5) A diagram that shows the static structure of an object-oriented model is called _____.
   a) structure diagram b) class diagram
   c) entity diagram d) none of the above

6) A(n) _____ is shown as a solid line between the participating classes.
   a) connector b) update
   c) entity d) association

7) _____ indicates how many objects participate in a given relationship.
   a) Bound b) Multiplicity
   c) Role d) Relationship

8) The Sequence diagram lists _____ horizontally, and _____ vertically, and models these messages over time.
   a) Objects, Time
   b) Time, Actors
   c) Class, Objects
   d) Time, Objects

9) A dynamic model is a collection of _____ diagrams that interact with each other via shared events.
   a) Sequence
   b) State
   c) Use case
   d) Activity

10) Unified Process is a software development methodology which is _____.
   a) Component-driven
   b) Iterative and incremental
   c) Related to Extreme Programming
   d) Done in only one iteration

11) A data store is a _____ object within a data flow diagram that stores data for later access.
   a) Active
   b) Dynamic
   c) Passive
   d) All of the above

12) _____ diagrams show the physical configurations of software and hardware.
   a) Component
   b) Deployment
   c) Collaboration
   d) None

13) _____ divide activities according to objects by arranging objects in column format and placing activities by that object within that column.
   a) Fork
   b) Join
   c) Swim lanes
   d) Lifeline

14) In UML, structural and architectural diagram does not include which of the following?
   a) Deployment diagram, component diagram
   b) Object diagram, class diagram
   c) Use case diagram
   d) None

Seat No.	

Set **P**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING & DESIGN

Day & Date: Saturday, 23-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any four of the following. **16**

a) Draw an "Event trace" diagram for a phone call.
b) Draw one-shot state diagram for chess game.
c) Explain concurrency with respect to dynamic modeling.
d) Explain features of object oriented languages.
e) Compare multiplicity with candidate keys for binary association.

Q.3 Attempt any two of the following. **12**

a) Explain the requirement of dynamic model of state diagram. Prepare a state diagram for phone line with labeled events in detail.
b) Prepare a class diagram for building using below mentioned classes showing at least 10 relationships among the following classes. Include association, aggregation and generalization. Use qualified associations and show multiplicity balls in your diagrams. Use association names where needed. As you prepare the diagrams you may add additional classes : (building, sink, freezer, refrigerator, table, light, switch, window, smoke, alarm, burglar, alarm, cabinet, bread, cheese, ice, door, kitchen)
c) State and explain following with graphical notation.
1) Association
2) N-ary Association
3) Generalization
4) Dependency

Section – II

Q.4 Attempt any four of the following. **16**

a) Give UML notations for the elements of Deployment Diagram
1) Node
2) Node Instance
3) Node Stereotypes
4) Artifact
b) Identify and draw the use case and actors to draw a use case diagram for an online shopping system.
c) What is package? Explain importing and exporting concepts with notations.
d) Explain the following with diagram.
1) Swim lanes
2) Forking and joining
e) Short note: Extension Mechanism in UML

Q.5 Attempt any two of the following. **12**

a) Describe elements and notation used to build a state diagram in UML. Draw a state diagram for the login part of an online banking system.

b) Design and draw a class diagram to models a customer order from a retail catalog.

c) Explain Sequence diagram with its graphical notations. Also draw a labeled sequence diagram for Hotel reservation and confirmation.

SLR-FM-372

Seat No.	

Set Q

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING & DESIGN

Day & Date: Saturday, 23-11-2019 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 drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

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 Sequence diagram lists _____ horizontally, and _____ vertically, and models these messages over time.
   a) Objects, Time b) Time, Actors
   c) Class, Objects d) Time, Objects

2) A dynamic model is a collection of _____ diagrams that interact with each other via shared events.
   a) Sequence b) State
   c) Use case d) Activity

3) Unified Process is a software development methodology which is _____.
   a) Component-driven
   b) Iterative and incremental
   c) Related to Extreme Programming
   d) Done in only one iteration

4) A data store is a _____ object within a data flow diagram that stores data for later access.
   a) Active b) Dynamic
   c) Passive d) All of the above

5) _____ diagrams show the physical configurations of software and hardware.
   a) Component b) Deployment
   c) Collaboration d) None

6) _____ divide activities according to objects by arranging objects in column format and placing activities by that object within that column.
   a) Fork b) Join
   c) Swim lanes d) Lifeline

7) In UML, structural and architectural diagram does not include which of the following?
   a) Deployment diagram, component diagram
   b) Object diagram, class diagram
   c) Use case diagram
   d) None

8) A solid diamond represents a stronger form of _____, known as composition.
   a) Generalization
   b) Abstraction
   c) Aggregation
   d) None

9) The Unified Modeling Language _____.
   a) is a notation useful for graphically depicting an object-oriented analysis or design model.
   b) allows one to capture design decisions of a system.
   c) promotes communication among key personnel involved in development.
   d) all of the above.

10) A state chart diagram describes: _____.
   a) Attributes of objects
   b) Nodes of the system
   c) Operations executed on a thread
   d) Events triggered by an object

11) A(n) _____ is a concept, abstraction, or thing that has a state, behavior, and identity.
   a) relationship
   b) attribute
   c) key
   d) object

12) A diagram that shows the static structure of an object-oriented model is called _____.
   a) structure diagram
   b) class diagram
   c) entity diagram
   d) none of the above

13) A(n) _____ is shown as a solid line between the participating classes.
   a) connector
   b) update
   c) entity
   d) association

14) _____ indicates how many objects participate in a given relationship.
   a) Bound
   b) Multiplicity
   c) Role
   d) Relationship

Seat No.	

Set **Q**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING & DESIGN

Day & Date: Saturday, 23-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any four of the following. **16**

a) Draw an "Event trace" diagram for a phone call.
b) Draw one-shot state diagram for chess game.
c) Explain concurrency with respect to dynamic modeling.
d) Explain features of object oriented languages.
e) Compare multiplicity with candidate keys for binary association.

Q.3 Attempt any two of the following. **12**

a) Explain the requirement of dynamic model of state diagram. Prepare a state diagram for phone line with labeled events in detail.
b) Prepare a class diagram for building using below mentioned classes showing at least 10 relationships among the following classes. Include association, aggregation and generalization. Use qualified associations and show multiplicity balls in your diagrams. Use association names where needed. As you prepare the diagrams you may add additional classes : (building, sink, freezer, refrigerator, table, light, switch, window, smoke, alarm, burglar, alarm, cabinet, bread, cheese, ice, door, kitchen)
c) State and explain following with graphical notation.
1) Association
2) N-ary Association
3) Generalization
4) Dependency

Section – II

Q.4 Attempt any four of the following. **16**

a) Give UML notations for the elements of Deployment Diagram
1) Node
2) Node Instance
3) Node Stereotypes
4) Artifact
b) Identify and draw the use case and actors to draw a use case diagram for an online shopping system.
c) What is package? Explain importing and exporting concepts with notations.
d) Explain the following with diagram.
1) Swim lanes
2) Forking and joining
e) Short note: Extension Mechanism in UML

Q.5 Attempt any two of the following. **12**

a) Describe elements and notation used to build a state diagram in UML. Draw a state diagram for the login part of an online banking system.

b) Design and draw a class diagram to models a customer order from a retail catalog.

c) Explain Sequence diagram with its graphical notations. Also draw a labeled sequence diagram for Hotel reservation and confirmation.

Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING & DESIGN

Day & Date: Saturday, 23-11-2019 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 drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) A diagram that shows the static structure of an object-oriented model is called _____.
   a) structure diagram b) class diagram
   c) entity diagram d) none of the above

2) A(n) _____ is shown as a solid line between the participating classes.
   a) connector b) update
   c) entity d) association

3) _____ indicates how many objects participate in a given relationship.
   a) Bound b) Multiplicity
   c) Role d) Relationship

4) The Sequence diagram lists _____ horizontally, and _____ vertically, and models these messages over time.
   a) Objects, Time b) Time, Actors
   c) Class, Objects d) Time, Objects

5) A dynamic model is a collection of _____ diagrams that interact with each other via shared events.
   a) Sequence b) State
   c) Use case d) Activity

6) Unified Process is a software development methodology which is _____.
   a) Component-driven
   b) Iterative and incremental
   c) Related to Extreme Programming
   d) Done in only one iteration

7) A data store is a _____ object within a data flow diagram that stores data for later access.
   a) Active b) Dynamic
   c) Passive d) All of the above

8) _____ diagrams show the physical configurations of software and hardware.
   a) Component b) Deployment
   c) Collaboration d) None

9) _____ divide activities according to objects by arranging objects in column format and placing activities by that object within that column.
   a) Fork
   b) Join
   c) Swim lanes
   d) Lifeline

10) In UML, structural and architectural diagram does not include which of the following?
   a) Deployment diagram, component diagram
   b) Object diagram, class diagram
   c) Use case diagram
   d) None

11) A solid diamond represents a stronger form of _____, known as composition.
   a) Generalization
   b) Abstraction
   c) Aggregation
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12) The Unified Modeling Language _____.
   a) is a notation useful for graphically depicting an object-oriented analysis or design model.
   b) allows one to capture design decisions of a system.
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13) A state chart diagram describes: _____.
   a) Attributes of objects
   b) Nodes of the system
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14) A(n) _____ is a concept, abstraction, or thing that has a state, behavior, and identity.
   a) relationship
   b) attribute
   c) key
   d) object

Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING & DESIGN

Day & Date: Saturday, 23-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any four of the following. **16**

a) Draw an "Event trace" diagram for a phone call.
b) Draw one-shot state diagram for chess game.
c) Explain concurrency with respect to dynamic modeling.
d) Explain features of object oriented languages.
e) Compare multiplicity with candidate keys for binary association.

Q.3 Attempt any two of the following. **12**

a) Explain the requirement of dynamic model of state diagram. Prepare a state diagram for phone line with labeled events in detail.
b) Prepare a class diagram for building using below mentioned classes showing at least 10 relationships among the following classes. Include association, aggregation and generalization. Use qualified associations and show multiplicity balls in your diagrams. Use association names where needed. As you prepare the diagrams you may add additional classes : (building, sink, freezer, refrigerator, table, light, switch, window, smoke, alarm, burglar, alarm, cabinet, bread, cheese, ice, door, kitchen)
c) State and explain following with graphical notation.
1) Association
2) N-ary Association
3) Generalization
4) Dependency

Section – II

Q.4 Attempt any four of the following. **16**

a) Give UML notations for the elements of Deployment Diagram
1) Node
2) Node Instance
3) Node Stereotypes
4) Artifact
b) Identify and draw the use case and actors to draw a use case diagram for an online shopping system.
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2) Forking and joining
e) Short note: Extension Mechanism in UML

Q.5 Attempt any two of the following. **12**

a) Describe elements and notation used to build a state diagram in UML. Draw a state diagram for the login part of an online banking system.

b) Design and draw a class diagram to models a customer order from a retail catalog.

c) Explain Sequence diagram with its graphical notations. Also draw a labeled sequence diagram for Hotel reservation and confirmation.

SLR-FM-372

Seat No.	

Set S

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING & DESIGN

Day & Date: Saturday, 23-11-2019 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 drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) Unified Process is a software development methodology which is _____.
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   b) Iterative and incremental
   c) Related to Extreme Programming
   d) Done in only one iteration

2) A data store is a _____ object within a data flow diagram that stores data for later access.
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   c) entity diagram
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   b) update
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   b) Time, Actors
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   d) Time, Objects

14) A dynamic model is a collection of _____ diagrams that interact with each other via shared events.
   a) Sequence
   b) State
   c) Use case
   d) Activity

SLR-FM-372

Seat No.	

Set S

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
OBJECT ORIENTED MODELING & DESIGN

Day & Date: Saturday, 23-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any four of the following. **16**

a) Draw an "Event trace" diagram for a phone call.
b) Draw one-shot state diagram for chess game.
c) Explain concurrency with respect to dynamic modeling.
d) Explain features of object oriented languages.
e) Compare multiplicity with candidate keys for binary association.

Q.3 Attempt any two of the following. **12**

a) Explain the requirement of dynamic model of state diagram. Prepare a state diagram for phone line with labeled events in detail.
b) Prepare a class diagram for building using below mentioned classes showing at least 10 relationships among the following classes. Include association, aggregation and generalization. Use qualified associations and show multiplicity balls in your diagrams. Use association names where needed. As you prepare the diagrams you may add additional classes : (building, sink, freezer, refrigerator, table, light, switch, window, smoke, alarm, burglar, alarm, cabinet, bread, cheese, ice, door, kitchen)
c) State and explain following with graphical notation.
1) Association
2) N-ary Association
3) Generalization
4) Dependency

Section – II

Q.4 Attempt any four of the following. **16**

a) Give UML notations for the elements of Deployment Diagram
1) Node
2) Node Instance
3) Node Stereotypes
4) Artifact
b) Identify and draw the use case and actors to draw a use case diagram for an online shopping system.
c) What is package? Explain importing and exporting concepts with notations.
d) Explain the following with diagram.
1) Swim lanes
2) Forking and joining
e) Short note: Extension Mechanism in UML

Q.5 Attempt any two of the following. **12**

a) Describe elements and notation used to build a state diagram in UML. Draw a state diagram for the login part of an online banking system.

b) Design and draw a class diagram to models a customer order from a retail catalog.

c) Explain Sequence diagram with its graphical notations. Also draw a labeled sequence diagram for Hotel reservation and confirmation.

SLR-FM-373

Seat No.	

Set P

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM CONCEPTS

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 it should be solved in first 30 minutes in answer book.
2) Figures to 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) The inode does not specify _____.
   a) owner
   b) group
   c) permission
   d) the path name that access the file

2) The Superblock is required for _____.
   a) Description of the basic size and shape of this file system
   b) This is the inode number of the first inode in the file system
   c) The number of free blocks in the file system
   d) All of the mentioned

3) An “Inode” represents _____.
   a) Buffer b) Data
   c) Files & Directories d) None of the mentioned

4) What are the 3 different layer of architecture of the unix operating system?
   a) user ,kernel, files b) kernel ,files, hardware
   c) user ,kernel, hardware d) None of the mentioned

5) Buffer cache helps to _____.
   a) Store data
   b) Improved read/write performance
   c) Allocate memory
   d) None of the mentioned

6) Grep main a.c b.c c.c is _____.
   a) Searches main in all files
   b) counts the number of “main” in the files
   c) a and b
   d) counts the number of lines in the files

7) Input for system call iput _____.
   a) pointer to in-core inode b) inode
   c) file system inode number d) none

8) The _____ identifies all open files for a process.
   a) User file descriptor table b) File table
   c) Inode table d) File allocation

9) Which of the following is not kernel data structure related to process?
   a) u area
   b) process table
   c) region table
   d) inode table

10) Process calls the _____ system call to arrange to catch interrupt signals.
   a) Catch
   b) Sigcatcher
   c) Signal
   d) Issig

11) Age of page means _____.
   a) its swap count
   b) its reference count
   c) its context switch count
   d) Memory size

12) Which system call is used to invoke other program?
   a) exec
   b) exit
   c) Fork
   d) Trap

13) Which algo. Is used to change the size of the region?
   a) Chreg
   b) Growreg
   c) Attachreg
   d) changereg

14) To open named pipe process uses _____ system call.
   a) Pipe
   b) fopen
   c) Creat
   d) open

Seat No.	

Set **P**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM CONCEPTS

Day & Date: Monday, 25-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to right indicate full marks.

Section – I

Q.2 Attempt any three of the following questions. **12**
- **a)** What is buffer header contains?
- **b)** List the data structures and their relationship when a regular file is opened.
- **c)** What are operating system services?
- **d)** What is the use of dup system call?

Q.3 Attempt any two of the following questions. **16**
- **a)** Write a note on super block.
- **b)** Explain ialloc algorithm to assign new inodes.
- **c)** Explain building block primitives. Give example of Pipe.

Section – II

Q.4 Attempt any three of the following questions. **12**
- **a)** Explain operations performed by kernel during fork.
- **b)** Explain Shell in detail.
- **c)** Explain allocreg algorithm in detail.
- **d)** Write and explain system call algo.
- **e)** Write and explain init algorithm.

Q.5 Attempt any one of the following questions. **08**
- **a)** With a neat figure explain process state transition diagram.
- **b)** Describe Image of an Executable file with the help of diagram.

Q.6 Attempt any one of the following questions. **08**
- **a)** Explain the working of signal () system call with the help of algorithm.
- **b)** Explain the data structures required for demand paging in detail.

Seat No.	

Set **Q**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM CONCEPTS

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 it should be solved in first 30 minutes in answer book.
2) Figures to 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) The _____ identifies all open files for a process.
   a) User file descriptor table b) File table
   c) Inode table d) File allocation

2) Which of the following is not kernel data structure related to process?
   a) u area b) process table
   c) region table d) inode table

3) Process calls the _____ system call to arrange to catch interrupt signals.
   a) Catch b) Sigcatcher
   c) Signal d) Issig

4) Age of page means _____.
   a) its swap count b) its reference count
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5) Which system call is used to invoke other program?
   a) exec b) exit
   c) Fork d) Trap

6) Which algo. Is used to change the size of the region?
   a) Chreg b) Growreg
   c) Attachreg d) changereg

7) To open named pipe process uses _____ system call.
   a) Pipe b) fopen
   c) Creat d) open

8) The inode does not specify _____.
   a) owner
   b) group
   c) permission
   d) the path name that access the file

9) The Superblock is required for _____.
   a) Description of the basic size and shape of this file system
   b) This is the inode number of the first inode in the file system
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   d) All of the mentioned

10) An “Inode” represents _____.
    a) Buffer
    b) Data
    c) Files & Directories
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11) What are the 3 different layer of architecture of the unix operating system?
    a) user ,kernel, files
    b) kernel ,files, hardware
    c) user ,kernel, hardware
    d) None of the mentioned

12) Buffer cache helps to _____.
    a) Store data
    b) Improved read/write performance
    c) Allocate memory
    d) None of the mentioned

13) Grep main a.c b.c c.c is _____.
    a) Searches main in all files
    b) counts the number of “main” in the files
    c) a and b
    d) counts the number of lines in the files

14) Input for system call iput _____.
    a) pointer to in-core inode
    b) inode
    c) file system inode number
    d) none

Seat No.	

Set **Q**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM CONCEPTS

Day & Date: Monday, 25-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to right indicate full marks.

Section – I

Q.2 Attempt any three of the following questions. **12**
- **a)** What is buffer header contains?
- **b)** List the data structures and their relationship when a regular file is opened.
- **c)** What are operating system services?
- **d)** What is the use of dup system call?

Q.3 Attempt any two of the following questions. **16**
- **a)** Write a note on super block.
- **b)** Explain ialloc algorithm to assign new inodes.
- **c)** Explain building block primitives. Give example of Pipe.

Section – II

Q.4 Attempt any three of the following questions. **12**
- **a)** Explain operations performed by kernel during fork.
- **b)** Explain Shell in detail.
- **c)** Explain allocreg algorithm in detail.
- **d)** Write and explain system call algo.
- **e)** Write and explain init algorithm.

Q.5 Attempt any one of the following questions. **08**
- **a)** With a neat figure explain process state transition diagram.
- **b)** Describe Image of an Executable file with the help of diagram.

Q.6 Attempt any one of the following questions. **08**
- **a)** Explain the working of signal () system call with the help of algorithm.
- **b)** Explain the data structures required for demand paging in detail.

Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM CONCEPTS

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 it should be solved in first 30 minutes in answer book.
2) Figures to 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) Buffer cache helps to _____.
   a) Store data
   b) Improved read/write performance
   c) Allocate memory
   d) None of the mentioned

2) Grep main a.c b.c c.c is _____.
   a) Searches main in all files
   b) counts the number of “main” in the files
   c) a and b
   d) counts the number of lines in the files

3) Input for system call iput _____.
   a) pointer to in-core inode b) inode
   c) file system inode number d) none

4) The _____ identifies all open files for a process.
   a) User file descriptor table b) File table
   c) Inode table d) File allocation

5) Which of the following is not kernel data structure related to process?
   a) u area b) process table
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6) Process calls the _____ system call to arrange to catch interrupt signals.
   a) Catch b) Sigcatcher
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7) Age of page means _____.
   a) its swap count b) its reference count
   c) its context switch count d) Memory size

8) Which system call is used to invoke other program?
   a) exec b) exit
   c) Fork d) Trap

9) Which algo. Is used to change the size of the region?
   a) Chreg b) Growreg
   c) Attachreg d) changereg

10) To open named pipe process uses _____ system call.
   a) Pipe
   b) fopen
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   d) open

11) The inode does not specify _____.
   a) Owner
   b) Group
   c) Permission
   d) the path name that access the file

12) The Superblock is required for _____.
   a) Description of the basic size and shape of this file system
   b) This is the inode number of the first inode in the file system
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13) An “Inode” represents _____.
   a) Buffer
   b) Data
   c) Files & Directories
   d) None of the mentioned

14) What are the 3 different layer of architecture of the unix operating system?
   a) user ,kernel, files
   b) kernel ,files, hardware
   c) user ,kernel, hardware
   d) None of the mentioned

Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM CONCEPTS

Day & Date: Monday, 25-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to right indicate full marks.

Section – I

Q.2 Attempt any three of the following questions. **12**
- **a)** What is buffer header contains?
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Q.3 Attempt any two of the following questions. **16**
- **a)** Write a note on super block.
- **b)** Explain ialloc algorithm to assign new inodes.
- **c)** Explain building block primitives. Give example of Pipe.

Section – II

Q.4 Attempt any three of the following questions. **12**
- **a)** Explain operations performed by kernel during fork.
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- **c)** Explain allocreg algorithm in detail.
- **d)** Write and explain system call algo.
- **e)** Write and explain init algorithm.

Q.5 Attempt any one of the following questions. **08**
- **a)** With a neat figure explain process state transition diagram.
- **b)** Describe Image of an Executable file with the help of diagram.

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- **a)** Explain the working of signal () system call with the help of algorithm.
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Seat No.		Set	S

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM CONCEPTS

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 it should be solved in first 30 minutes in answer book.
2) Figures to 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) Process calls the _____ system call to arrange to catch interrupt signals.
   a) Catch b) Sigcatcher
   c) Signal d) Issig

2) Age of page means _____.
   a) its swap count b) its reference count
   c) its context switch count d) Memory size

3) Which system call is used to invoke other program?
   a) exec b) exit
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4) Which algo. Is used to change the size of the region?
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   a) Store data
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   c) Allocate memory
   d) None of the mentioned

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   a) Searches main in all files
   b) counts the number of “main” in the files
   c) a and b
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12) Input for system call iput _____.
   a) pointer to in-core inode
   b) inode
   c) file system inode number
   d) none

13) The _____ identifies all open files for a process.
   a) User file descriptor table
   b) File table
   c) Inode table
   d) File allocation

14) Which of the following is not kernel data structure related to process?
   a) u area
   b) process table
   c) region table
   d) inode table

Seat No.	

Set **S**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
UNIX OPERATING SYSTEM CONCEPTS

Day & Date: Monday, 25-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to right indicate full marks.

Section – I

Q.2 Attempt any three of the following questions. **12**
- **a)** What is buffer header contains?
- **b)** List the data structures and their relationship when a regular file is opened.
- **c)** What are operating system services?
- **d)** What is the use of dup system call?

Q.3 Attempt any two of the following questions. **16**
- **a)** Write a note on super block.
- **b)** Explain ialloc algorithm to assign new inodes.
- **c)** Explain building block primitives. Give example of Pipe.

Section – II

Q.4 Attempt any three of the following questions. **12**
- **a)** Explain operations performed by kernel during fork.
- **b)** Explain Shell in detail.
- **c)** Explain allocreg algorithm in detail.
- **d)** Write and explain system call algo.
- **e)** Write and explain init algorithm.

Q.5 Attempt any one of the following questions. **08**
- **a)** With a neat figure explain process state transition diagram.
- **b)** Describe Image of an Executable file with the help of diagram.

Q.6 Attempt any one of the following questions. **08**
- **a)** Explain the working of signal () system call with the help of algorithm.
- **b)** Explain the data structures required for demand paging in detail.

SLR-FM-374

Seat No.	

Set P

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Tuesday, 26-11-2019 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 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) Waterfall software development model is _____.
   a) non iterative model b) open model
   c) iterative model d) none of these

2) Waterfall model originally proposed by _____.
   a) Kevin b) Royce
   c) Mccall d) Edwin

3) An SRS provides a reference for _____ of the final product.
   a) verification b) Justification
   c) validation d) Implementation

4) The _____ is a repository of various data flows defined in a DFD.
   a) data tree b) data constraints
   c) data replicas d) data repository

5) _____ between the modules is the strength of interconnections between modules.
   a) Coupling b) Interdependence
   c) Interface d) Cohesion

6) _____ cohesion occurs when there is no meaningful relationship among the elements of a module.
   a) Temporal b) Coincidental
   c) Sequential d) Logical

7) CMM means_____.
   a) Common Maturity Model b) Cost Maturity Model
   c) Capability Maturity Model d) All

8) _____ management is an attempt to minimize the chances of failure caused by unplanned events.
   a) Project b) Schedule
   c) Effort Estimation d) Risk

9) A detailed project schedule is never _____.
   a) static b) Variable
   c) dynamic d) Fixed

10) The weakness of the _____ model is it requires co-located teams in Agile Project Management.
a) Adaptive PMLC b) Iterative PMLC
c) Prototype d) Linear

11) The adaptive software development model has three phases _____, collaborate and Learn.
a) review b) Change
c) speculate d) quality control

12) Black box testing is also called as _____.
a) Structural Testing b) Acceptance Testing
c) Regression Testing d) Functional Testing

13) _____ is a condition that causes a system to fail in performing its required function.
a) Failure b) Fault
c) Debugging d) Error

14) Boundary value analysis belong to _____.
a) Acceptance b) Black box
c) Regression d) White Box

Seat No.	

Set **P**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicate full marks.

Section – I

Q.2 Attempt any four. **16**

a) Explain waterfall software development model in detail.
b) Describe in briefly about software configuration management process.
c) Explain DFD in detail with an example.
d) Explain about coupling and its types in design.
e) Write note on – Entity-Relationship diagram.

Q.3 Attempt any two. **12**

a) What are the different characteristics of SRS?
b) Explain basic concepts and notations used in Object Oriented Design.
c) Define software architecture and its importance in software development.

Section – II

Q.4 Attempt any four **16**

a) Explain about risk management planning.
b) Explain about Qualitative Quality Management Planning.
c) Explain CMM in detail.
d) Explain characteristics, strengths and weaknesses of Agile Adaptive PMLC model.
e) Write short note on — Unit Testing and System Testing.

Q.5 Attempt any two. **12**

a) Explain White box testing and its types in detail.
b) Describe briefly about Effort Estimation and Scheduling.
c) Explain about Agile Iterative Project Management Life cycle model in detail.

Seat No.	

Set **Q**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Tuesday, 26-11-2019 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 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**

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8) Waterfall software development model is _____.
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9) Waterfall model originally proposed by _____.
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10) An SRS provides a reference for _____ of the final product.
   a) verification b) Justification
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11) The _____ is a repository of various data flows defined in a DFD.
   a) data tree b) data constraints
   c) data replicas d) data repository

12) _____ between the modules is the strength of interconnections between modules.
   a) Coupling b) Interdependence
   c) Interface d) Cohesion

13) _____ cohesion occurs when there is no meaningful relationship among the elements of a module.
   a) Temporal b) Coincidental
   c) Sequential d) Logical

14) CMM means_____.
   a) Common Maturity Model b) Cost Maturity Model
   c) Capability Maturity Model d) All

Seat No.	

Set **Q**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicate full marks.

Section – I

Q.2 Attempt any four. **16**

a) Explain waterfall software development model in detail.

b) Describe in briefly about software configuration management process.

c) Explain DFD in detail with an example.

d) Explain about coupling and its types in design.

e) Write note on – Entity-Relationship diagram.

Q.3 Attempt any two. **12**

a) What are the different characteristics of SRS?

b) Explain basic concepts and notations used in Object Oriented Design.

c) Define software architecture and its importance in software development.

Section – II

Q.4 Attempt any four **16**

a) Explain about risk management planning.

b) Explain about Qualitative Quality Management Planning.

c) Explain CMM in detail.

d) Explain characteristics, strengths and weaknesses of Agile Adaptive PMLC model.

e) Write short note on — Unit Testing and System Testing.

Q.5 Attempt any two. **12**

a) Explain White box testing and its types in detail.

b) Describe briefly about Effort Estimation and Scheduling.

c) Explain about Agile Iterative Project Management Life cycle model in detail.

Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Tuesday, 26-11-2019 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 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) _____ between the modules is the strength of interconnections between modules.
   a) Coupling b) Interdependence
   c) Interface d) Cohesion

2) _____ cohesion occurs when there is no meaningful relationship among the elements of a module.
   a) Temporal b) Coincidental
   c) Sequential d) Logical

3) CMM means_____.
   a) Common Maturity Model b) Cost Maturity Model
   c) Capability Maturity Model d) All

4) _____ management is an attempt to minimize the chances of failure caused by unplanned events.
   a) Project b) Schedule
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6) The weakness of the _____ model is it requires co-located teams in Agile Project Management.
   a) Adaptive PMLC b) Iterative PMLC
   c) Prototype d) Linear

7) The adaptive software development model has three phases _____, collaborate and Learn.
   a) review b) Change
   c) speculate d) quality control

8) Black box testing is also called as _____.
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   c) Regression Testing d) Functional Testing

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   a) Failure b) Fault
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   c) Regression d) White Box

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13) An SRS provides a reference for _____ of the final product.
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14) The _____ is a repository of various data flows defined in a DFD.
   a) data tree b) data constraints
   c) data replicas d) data repository

Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
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Section – I

Q.2 Attempt any four. **16**

a) Explain waterfall software development model in detail.

b) Describe in briefly about software configuration management process.

c) Explain DFD in detail with an example.

d) Explain about coupling and its types in design.

e) Write note on – Entity-Relationship diagram.

Q.3 Attempt any two. **12**

a) What are the different characteristics of SRS?

b) Explain basic concepts and notations used in Object Oriented Design.

c) Define software architecture and its importance in software development.

Section – II

Q.4 Attempt any four **16**

a) Explain about risk management planning.

b) Explain about Qualitative Quality Management Planning.

c) Explain CMM in detail.

d) Explain characteristics, strengths and weaknesses of Agile Adaptive PMLC model.

e) Write short note on — Unit Testing and System Testing.

Q.5 Attempt any two. **12**

a) Explain White box testing and its types in detail.

b) Describe briefly about Effort Estimation and Scheduling.

c) Explain about Agile Iterative Project Management Life cycle model in detail.

Seat No.	

Set **S**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE ENGINEERING

Day & Date: Tuesday, 26-11-2019 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 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) The weakness of the _____ model is it requires co-located teams in Agile Project Management.
   a) Adaptive PMLC b) Iterative PMLC
   c) Prototype d) Linear

2) The adaptive software development model has three phases _____, collaborate and Learn.
   a) review b) Change
   c) speculate d) quality control

3) Black box testing is also called as _____.
   a) Structural Testing b) Acceptance Testing
   c) Regression Testing d) Functional Testing

4) _____ is a condition that causes a system to fail in performing its required function.
   a) Failure b) Fault
   c) Debugging d) Error

5) Boundary value analysis belong to _____.
   a) Acceptance b) Black box
   c) Regression d) White Box

6) Waterfall software development model is _____.
   a) non iterative model b) open model
   c) iterative model d) none of these

7) Waterfall model originally proposed by _____.
   a) Kevin b) Royce
   c) Mccall d) Edwin

8) An SRS provides a reference for _____ of the final product.
   a) verification b) Justification
   c) validation d) Implementation

9) The _____ is a repository of various data flows defined in a DFD.
   a) data tree b) data constraints
   c) data replicas d) data repository

10) _____ between the modules is the strength of interconnections between modules.
   a) Coupling b) Interdependence
   c) Interface d) Cohesion

11) _____ cohesion occurs when there is no meaningful relationship among the elements of a module.
   a) Temporal b) Coincidental
   c) Sequential d) Logical

12) CMM means_____.
   a) Common Maturity Model b) Cost Maturity Model
   c) Capability Maturity Model d) All

13) _____ management is an attempt to minimize the chances of failure caused by unplanned events.
   a) Project b) Schedule
   c) Effort Estimation d) Risk

14) A detailed project schedule is never _____.
   a) static b) Variable
   c) dynamic d) Fixed

Seat No.	

Set **S**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicate full marks.

Section – I

Q.2 Attempt any four. **16**

a) Explain waterfall software development model in detail.
b) Describe in briefly about software configuration management process.
c) Explain DFD in detail with an example.
d) Explain about coupling and its types in design.
e) Write note on – Entity-Relationship diagram.

Q.3 Attempt any two. **12**

a) What are the different characteristics of SRS?
b) Explain basic concepts and notations used in Object Oriented Design.
c) Define software architecture and its importance in software development.

Section – II

Q.4 Attempt any four **16**

a) Explain about risk management planning.
b) Explain about Qualitative Quality Management Planning.
c) Explain CMM in detail.
d) Explain characteristics, strengths and weaknesses of Agile Adaptive PMLC model.
e) Write short note on — Unit Testing and System Testing.

Q.5 Attempt any two. **12**

a) Explain White box testing and its types in detail.
b) Describe briefly about Effort Estimation and Scheduling.
c) Explain about Agile Iterative Project Management Life cycle model in detail.

Seat No.	

Set **P**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 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) The _____ provides the core operating system infrastructure such as memory management, process management etc. and various device drivers.
   a) DVM b) Kernel
   c) Libraries d) None

2) AVD stands for _____.
   a) Android Virtual Device b) Android Virtual Directory
   c) Android Virtual Disk d) None

3) _____ is a layout resource that defines the blueprint of a various elements appearing on the screen of the app.
   a) R.java b) activity_main.java
   c) activity_main.xml d) None of the choices are correct

4) _____ file is registry of several details such as list of logical components, sdk requirements, and version of the app.
   a) AndroidManifest.xml b) activity_main.xml
   c) Both a & b d) None

5) _____ debugs apps and monitors their behavior in verbose mode.
   a) DVM b) JDK
   c) DDMS d) None of these

6) Android runtime treats any activity with highest priority which is in _____ state.
   a) Pause b) Current
   c) Active d) None of these

7) During the execution of _____ the Activity is not yet rendered on screen but is about to become visible to user.
   a) onPause() b) onCreate()
   c) onResume() d) onStart()

8) Async Task allows you to perform asynchronous work on your user interface. It performs the blocking operations in a worker thread and then publishes the results on the UI thread.
   a) True b) False

9) Dialog classes in android?
   a) AlertDialog
   b) ProgressDialog
   c) DatePickerDialog
   d) All of the above

10) If you want share the data across the all applications, you should go for?
   a) Shared Preferences
   b) Internal Storage
   c) SQLite Databases
   d) Content provider

11) Which of the following is NOT a state in the life cycle of a service?
   a) Starting
   b) Running
   c) Destroyed
   d) Paused

12) Service have any user interface components.
   a) True
   b) False

13) What Built-in database is Android Shipped with?
   a) SQLite
   b) MySQL
   c) Oracle
   d) Apache

14) What is LastKnownLocation in android?
   a) To find the last location of a phone
   b) To find known location of a phone
   c) To find the last known location of a phone
   d) None of the above

SLR-FM-375

Seat No.	

Set P

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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) Figure to the right indicates full marks.

Section – I

Q.2 Answer any four from the following questions each carries. **16**

a) Define Broadcast Receivers and state use of it?
b) Define AVD and its uses?
c) Illustrate the use of src folder in Android SDK.
d) What are the various components on DDMS.
e) What are the logical components of an Android App?

Q.3 Answer any one of the following questions. **06**

Define the procedure to navigate between activities and exchange data between them.

OR

Illustrate Activity life cycle states and respective call back methods.

Q.4 Explain event handling paradigm with the help of UI element. **06**

Section – II

Q.5 Attempt any four of the following questions. **16**

a) Classify Sensors in Android.
b) Outline the features of Location services.
c) Define the role of Media Controller.
d) Differentiate between view and property animations.
e) What is SharedPreferences? Explain it with one example.

Q.6 a) Explain the states and relevant methods of Mediaplayer API. What permissions are required to do media playback over a Wi-Fi network? **06**

OR

b) Define strategies to deal with multiple screen densities and sizes in an app.

Q.7 Explain the categories of sensors available in Android devices. **06**

Seat No.	

Set | Q |

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) Async Task allows you to perform asynchronous work on your user interface. It performs the blocking operations in a worker thread and then publishes the results on the UI thread.
   a) True b) False

2) Dialog classes in android?
   a) AlertDialog b) ProgressDialog
   c) DatePickerDialog d) All of the above

3) If you want share the data across the all applications, you should go for?
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4) Which of the following is NOT a state in the life cycle of a service?
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8) The _____ provides the core operating system infrastructure such as memory management, process management etc. and various device drivers.
   a) DVM b) Kernel
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9) AVD stands for _____.
   a) Android Virtual Device b) Android Virtual Directory
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10) _____ is a layout resource that defines the blueprint of a various elements appearing on the screen of the app.
a) R.java
b) activity_main.java
c) activity_main.xml
d) None of the choices are correct

11) _____ file is registry of several details such as list of logical components, sdk requirements, and version of the app.
a) AndroidManifest.xml
b) activity_main.xml
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d) None

12) _____ debugs apps and monitors their behavior in verbose mode.
a) DVM
b) JDK
c) DDMS
d) None of these

13) Android runtime treats any activity with highest priority which is in _____ state.
a) Pause
b) Current
c) Active
d) None of these

14) During the execution of _____ the Activity is not yet rendered on screen but is about to become visible to user.
a) onPause()
b) onCreate()
c) onResume()
d) onStart()

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Seat No.	

Set Q

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MOBILE APPLICATION DEVELOPMENT

Day & Date: Wednesday, 27-11-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

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Section – I

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OR

Illustrate Activity life cycle states and respective call back methods.

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Section – II

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c) Define the role of Media Controller.
d) Differentiate between view and property animations.
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OR

b) Define strategies to deal with multiple screen densities and sizes in an app.

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Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 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) _____ debugs apps and monitors their behavior in verbose mode.
   a) DVM b) JDK
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4) Async Task allows you to perform asynchronous work on your user interface. It performs the blocking operations in a worker thread and then publishes the results on the UI thread.
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Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
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Section – I

Q.2 **Answer any four from the following questions each carries.** **16**
- **a)** Define Broadcast Receivers and state use of it?
- **b)** Define AVD and its uses?
- **c)** Illustrate the use of src folder in Android SDK.
- **d)** What are the various components on DDMS.
- **e)** What are the logical components of an Android App?

Q.3 **Answer any one of the following questions.** **06**

Define the procedure to navigate between activities and exchange data between them.

OR

Illustrate Activity life cycle states and respective call back methods.

Q.4 Explain event handling paradigm with the help of UI element. **06**

Section – II

Q.5 **Attempt any four of the following questions.** **16**
- **a)** Classify Sensors in Android.
- **b)** Outline the features of Location services.
- **c)** Define the role of Media Controller.
- **d)** Differentiate between view and property animations.
- **e)** What is SharedPreferences? Explain it with one example.

Q.6 **a)** Explain the states and relevant methods of Mediaplayer API. What permissions are required to do media playback over a Wi-Fi network? **06**

OR

b) Define strategies to deal with multiple screen densities and sizes in an app.

Q.7 Explain the categories of sensors available in Android devices. **06**

Seat No.	

Set | S

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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13) Async Task allows you to perform asynchronous work on your user interface. It performs the blocking operations in a worker thread and then publishes the results on the UI thread.
   a) True
   b) False

14) Dialog classes in android?
   a) AlertDialog
   b) ProgressDialog
   c) DatePickerDialog
   d) All of the above

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Seat No.	

Set S

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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) Figure to the right indicates full marks.

Section – I

Q.2 Answer any four from the following questions each carries. **16**

a) Define Broadcast Receivers and state use of it?
b) Define AVD and its uses?
c) Illustrate the use of src folder in Android SDK.
d) What are the various components on DDMS.
e) What are the logical components of an Android App?

Q.3 Answer any one of the following questions. **06**

Define the procedure to navigate between activities and exchange data between them.

OR

Illustrate Activity life cycle states and respective call back methods.

Q.4 Explain event handling paradigm with the help of UI element. **06**

Section – II

Q.5 Attempt any four of the following questions. **16**

a) Classify Sensors in Android.
b) Outline the features of Location services.
c) Define the role of Media Controller.
d) Differentiate between view and property animations.
e) What is SharedPreferences? Explain it with one example.

Q.6 a) Explain the states and relevant methods of Mediaplayer API. What permissions are required to do media playback over a Wi-Fi network? **06**

OR

b) Define strategies to deal with multiple screen densities and sizes in an app.

Q.7 Explain the categories of sensors available in Android devices. **06**

SLR-FM-378

Seat No.	

Set P

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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 it 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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) Multilayer switches allow for control based on _____.
   a) TCP b) UDP
   c) Both d) None

2) _____ is the external gateway protocol.
   a) RIP b) EIGRP
   c) OSPF d) BGP

3) VLANs can be configured as virtual interfaces on a _____.
   a) Hub b) layer-2 switch
   c) layer-3 switch d) Gateway

4) What are the advantages of VLANs?
   a) VLANs establish broadcast domains in switched networks
   b) VLANs allow access to network services based on department, not physical location
   c) VLANs can greatly simplify adding, moving, or changing hosts on the network
   d) All above

5) _____ routing table contains information entered manually.
   a) Static 2 b) Dynamic 3
   c) Hierarchical 4 d) none

6) Where does routing occur within TCP/IP reference model?
   a) Application b) Network
   c) Transport d) none

7) At which layer of the OSI model does Point to Point Protocol perform?
   a) Layer 2 b) Layer 3
   c) Layer 4 d) Layer 1

8) What does a Layer 2 switch use to decide source where to forward a received frame?
   a) Source MAC address b) IP address
   c) Destination IP address d) Destination MAC address

9) Firewalls often have what is commonly called a DMZ. DMZ stands for _____.
   a) DeMovement Zone b) DeMaintained Zone
   c) Data Militarized Zone d) DeMilitarized Zone

10) _____ repeats a signal

a) A repeater
b) A Hub
c) Both a & b
d) None of these

Seat No.	

Set **P**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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 Answer any FOUR from the following questions. **20**

a) What are different functions of Network Interface Cards?
b) Discuss regarding different network connection devices.
c) What parameters are required to design a good network?
d) Discuss in detail regarding functioning of Routers.
e) How the IP Routing Table directs the packets?

Q.3 Answer any two of the following question. **10**

a) Explain Rip protocol.
b) Explain VLAN configurations.
c) List the switch types. What are the benefits of fixed configuration switches?

Q.4 Write short notes **10**

Wireless Troubleshooting.

Seat No.	

Set **Q**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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 it 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

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1) Where does routing occur within TCP/IP reference model?
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6) Multilayer switches allow for control based on _____.
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7) _____ is the external gateway protocol.
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   c) VLANs can greatly simplify adding, moving, or changing hosts on the network
   d) All above

10) _____ routing table contains information entered manually.

a) Static 2
b) Dynamic 3
c) Hierarchical 4
d) none

SLR-FM-378

Seat No.	

Set Q

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

Day & Date: Thursday, 28-11-2019 Max. Marks: 40
Time: 10:00 AM To 12:00 PM

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a) What are different functions of Network Interface Cards?
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a) Explain Rip protocol.
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c) List the switch types. What are the benefits of fixed configuration switches?

Q.4 Write short notes **10**

Wireless Troubleshooting.

Seat No.	

Set **R**

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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 it 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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) Firewalls often have what is commonly called a DMZ. DMZ stands for _____.
   a) DeMovement Zone b) DeMaintained Zone
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2) _____ repeats a signal
   a) A repeater b) A Hub
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   c) Transport d) none

9) At which layer of the OSI model does Point to Point Protocol perform?
   a) Layer 2 b) Layer 3
   c) Layer 4 d) Layer 1

10) What does a Layer 2 switch use to decide source where to forward a received frame?

a) Source MAC address
b) IP address
c) Destination IP address
d) Destination MAC address

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Seat No.	

Set R

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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 Answer any FOUR from the following questions. **20**

a) What are different functions of Network Interface Cards?
b) Discuss regarding different network connection devices.
c) What parameters are required to design a good network?
d) Discuss in detail regarding functioning of Routers.
e) How the IP Routing Table directs the packets?

Q.3 Answer any two of the following question. **10**

a) Explain Rip protocol.
b) Explain VLAN configurations.
c) List the switch types. What are the benefits of fixed configuration switches?

Q.4 Write short notes **10**

Wireless Troubleshooting.

Seat No.		Set	S

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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 it 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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. 10

1) VLANs can be configured as virtual interfaces on a _____.
   a) Hub b) layer-2 switch
   c) layer-3 switch d) Gateway

2) What are the advantages of VLANs?
   a) VLANs establish broadcast domains in switched networks
   b) VLANs allow access to network services based on department, not physical location
   c) VLANs can greatly simplify adding, moving, or changing hosts on the network
   d) All above

3) _____ routing table contains information entered manually.
   a) Static 2 b) Dynamic 3
   c) Hierarchical 4 d) none

4) Where does routing occur within TCP/IP reference model?
   a) Application b) Network
   c) Transport d) none

5) At which layer of the OSI model does Point to Point Protocol perform?
   a) Layer 2 b) Layer 3
   c) Layer 4 d) Layer 1

6) What does a Layer 2 switch use to decide source where to forward a received frame?
   a) Source MAC address b) IP address
   c) Destination IP address d) Destination MAC address

7) Firewalls often have what is commonly called a DMZ. DMZ stands for _____.
   a) DeMovement Zone b) DeMaintained Zone
   c) Data Militarized Zone d) DeMilitarized Zone

8) _____ repeats a signal
   a) A repeater b) A Hub
   c) Both a & b d) None of these

9) Multilayer switches allow for control based on _____.
   a) TCP b) UDP
   c) Both d) None

10) _____ is the external gateway protocol.

a) RIP
b) EIGRP
c) OSPF
d) BGP

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Seat No.	

Set S

T.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK SETUP AND MANAGEMENT

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 Answer any FOUR from the following questions. **20**

a) What are different functions of Network Interface Cards?
b) Discuss regarding different network connection devices.
c) What parameters are required to design a good network?
d) Discuss in detail regarding functioning of Routers.
e) How the IP Routing Table directs the packets?

Q.3 Answer any two of the following question. **10**

a) Explain Rip protocol.
b) Explain VLAN configurations.
c) List the switch types. What are the benefits of fixed configuration switches?

Q.4 Write short notes **10**

Wireless Troubleshooting.

SLR-FM-379

Seat No.	

Set P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-019 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.
3) Assume data wherever 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) Mobile commerce is the use of wireless devices to conduct e-commerce transactions from any location.
   a) True b) False

2) A data dictionary is an automated or manual file that stores definitions of data elements and their characteristics.
   a) True b) False

3) _____ is a system where operations like data extraction, transformation and loading operations are executed.
   a) Data staging b) Data integration
   c) ETL d) None of the mentioned

4) _____ is a category of applications and technologies for presenting and analyzing corporate and external data.
   a) Data warehouse b) MIS
   c) EIS d) All of the mentioned

5) Which of the following areas are affected by BI?
   a) Revenue b) CRM
   c) Sales d) All of the mentioned

6) BI can catalyze a business's success in terms of _____.
   a) Distinguish the products and services that drive revenues
   b) Rank customers and locations based on profitability
   c) Ranks customers and locations based on probability
   d) All of the mentioned

7) Business intelligence (BI) is a broad category of application programs which includes _____.
   a) Decision support b) Data mining
   c) OLAP d) All of the mentioned

8) Supply chain are a form of these because they automate the flow of information across organizational boundaries.
   a) Enterprise applications
   b) Execute support systems
   c) Inter-organizational system
   d) Knowledge management system

9) Are leaders of teams of programmers and analysts, project managers, physical facility managers, telecommunications managers, or database specialists?
   a) Chief Information Officer (CIO) b) Information system managers
   c) Business d) Programmers

10) Senior Manager who oversees the use of information technology in the firm _____.
   a) Information system managers b) Business
   c) Programmers d) Chief Information Officer (CIO)

11) Which of the following relates to enterprise interoperability?
   a) DFD b) Information flow diagram
   c) XML d) Entity relationship diagram

12) Part of e-business that deals with the buying and selling of goods and services over the internet. Is Electronic Commerce (e-commerce?)
   a) True b) False

13) Are representatives of departments outside of the information systems group for whom applications are developed _____.
   a) Data Workers b) Enterprise Applications
   c) End Users d) Senior Management

14) A contemporary term for data and software tools for organizing, analyzing and providing access to data to help managers and other enterprise users make more informed decisions. Is Business Intelligence?
   a) True b) False

SLR-FM-379

Seat No.	

Set P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-019 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.
3) Assume data wherever necessary.

Section – I

Q.2 Answer any FOUR from the following questions. **12**

a) What is new in Management Information Systems?
b) How information technology improves business processes?
c) Describe various enterprise social networking software capabilities.
d) What is an organization? Draw and elaborate the behavioral view of an Organization.
e) Identify and describe three ethical principles.

Q.3 Answer any ONE from the following questions. **08**

a) How do the value chain and value web models help businesses identify opportunities for strategic information system applications?
b) Describe how promoting synergies and core competencies enhances competitive advantage.

Q.4 Answer the following questions. **08**

List and describe the five steps in an ethical analysis.
Define privacy and fair information practices.

Section – II

Q.5 Answer any FOUR from the following question **12**

a) What are the challenges of managing IT infrastructure and management Solutions?
b) Draw a diagram of components of data warehouse?
c) Define data mining, describing how it differs from OLAP and the types of information it provides.
d) Define a digital market and digital goods and describe their distinguishing features.
e) How has e-commerce affected business-to-business transactions?

Q.6 Answer any ONE from the following questions **08**

a) Define and describe Net marketplaces and explain how they differ from private industrial networks (private exchanges).
b) List and describe four business objectives, four system functionalities, and four information requirements of a typical e-commerce Web site.

Q.7 Answer the following question **08**

List and describe important types of m-commerce services and applications.

Seat No.	

Set **Q**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-019 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.
3) Assume data wherever 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) Supply chain are a form of these because they automate the flow of information across organizational boundaries.
   a) Enterprise applications
   b) Execute support systems
   c) Inter-organizational system
   d) Knowledge management system

2) Are leaders of teams of programmers and analysts, project managers, physical facility managers, telecommunications managers, or database specialists?
   a) Chief Information Officer (CIO) b) Information system managers
   c) Business d) Programmers

3) Senior Manager who oversees the use of information technology in the firm _____.
   a) Information system managers b) Business
   c) Programmers d) Chief Information Officer (CIO)

4) Which of the following relates to enterprise interoperability?
   a) DFD b) Information flow diagram
   c) XML d) Entity relationship diagram

5) Part of e-business that deals with the buying and selling of goods and services over the internet. Is Electronic Commerce (e-commerce?)
   a) True b) False

6) Are representatives of departments outside of the information systems group for whom applications are developed _____.
   a) Data Workers b) Enterprise Applications
   c) End Users d) Senior Management

7) A contemporary term for data and software tools for organizing, analyzing and providing access to data to help managers and other enterprise users make more informed decisions. Is Business Intelligence?
   a) True b) False

8) Mobile commerce is the use of wireless devices to conduct e-commerce transactions from any location.
   a) True b) False

9) A data dictionary is an automated or manual file that stores definitions of data elements and their characteristics.
   a) True b) False

10) _____ is a system where operations like data extraction, transformation and loading operations are executed.
   a) Data staging b) Data integration
   c) ETL d) None of the mentioned

11) _____ is a category of applications and technologies for presenting and analyzing corporate and external data.
   a) Data warehouse b) MIS
   c) EIS d) All of the mentioned

12) Which of the following areas are affected by BI?
   a) Revenue b) CRM
   c) Sales d) All of the mentioned

13) BI can catalyze a business's success in terms of _____.
   a) Distinguish the products and services that drive revenues
   b) Rank customers and locations based on profitability
   c) Ranks customers and locations based on probability
   d) All of the mentioned

14) Business intelligence (BI) is a broad category of application programs which includes _____.
   a) Decision support b) Data mining
   c) OLAP d) All of the mentioned

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Seat No.	

Set Q

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Answer any FOUR from the following questions. **12**

a) What is new in Management Information Systems?
b) How information technology improves business processes?
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d) What is an organization? Draw and elaborate the behavioral view of an Organization.
e) Identify and describe three ethical principles.

Q.3 Answer any ONE from the following questions. **08**

a) How do the value chain and value web models help businesses identify opportunities for strategic information system applications?
b) Describe how promoting synergies and core competencies enhances competitive advantage.

Q.4 Answer the following questions. **08**

List and describe the five steps in an ethical analysis.
Define privacy and fair information practices.

Section – II

Q.5 Answer any FOUR from the following question **12**

a) What are the challenges of managing IT infrastructure and management Solutions?
b) Draw a diagram of components of data warehouse?
c) Define data mining, describing how it differs from OLAP and the types of information it provides.
d) Define a digital market and digital goods and describe their distinguishing features.
e) How has e-commerce affected business-to-business transactions?

Q.6 Answer any ONE from the following questions **08**

a) Define and describe Net marketplaces and explain how they differ from private industrial networks (private exchanges).
b) List and describe four business objectives, four system functionalities, and four information requirements of a typical e-commerce Web site.

Q.7 Answer the following question **08**

List and describe important types of m-commerce services and applications.

Seat No.	

Set **R**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-019 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.
3) Assume data wherever 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 of the following areas are affected by BI?
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4) Supply chain are a form of these because they automate the flow of information across organizational boundaries.
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   c) Inter-organizational system
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5) Are leaders of teams of programmers and analysts, project managers, physical facility managers, telecommunications managers, or database specialists?
   a) Chief Information Officer (CIO) b) Information system managers
   c) Business d) Programmers

6) Senior Manager who oversees the use of information technology in the firm _____.
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7) Which of the following relates to enterprise interoperability?
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8) Part of e-business that deals with the buying and selling of goods and services over the internet. Is Electronic Commerce (e-commerce?)
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9) Are representatives of departments outside of the information systems group for whom applications are developed _____.
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   c) End Users d) Senior Management

10) A contemporary term for data and software tools for organizing, analyzing and providing access to data to help managers and other enterprise users make more informed decisions. Is Business Intelligence?
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13) _____ is a system where operations like data extraction, transformation and loading operations are executed.
   a) Data staging b) Data integration
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SLR-FM-379

Seat No.	

Set R

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Answer any FOUR from the following questions. **12**

a) What is new in Management Information Systems?
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Define privacy and fair information practices.

Section – II

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List and describe important types of m-commerce services and applications.

Seat No.		Set	S

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-019 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.
3) Assume data wherever 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) Senior Manager who oversees the use of information technology in the firm _____.
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   c) Inter-organizational system
   d) Knowledge management system

14) Are leaders of teams of programmers and analysts, project managers, physical facility managers, telecommunications managers, or database specialists?
   a) Chief Information Officer (CIO)
   b) Information system managers
   c) Business
   d) Programmers

SLR-FM-379

Seat No.	

Set S

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-019 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.
3) Assume data wherever necessary.

Section – I

Q.2 Answer any FOUR from the following questions. **12**

a) What is new in Management Information Systems?
b) How information technology improves business processes?
c) Describe various enterprise social networking software capabilities.
d) What is an organization? Draw and elaborate the behavioral view of an Organization.
e) Identify and describe three ethical principles.

Q.3 Answer any ONE from the following questions. **08**

a) How do the value chain and value web models help businesses identify opportunities for strategic information system applications?
b) Describe how promoting synergies and core competencies enhances competitive advantage.

Q.4 Answer the following questions. **08**

List and describe the five steps in an ethical analysis.
Define privacy and fair information practices.

Section – II

Q.5 Answer any FOUR from the following question **12**

a) What are the challenges of managing IT infrastructure and management Solutions?
b) Draw a diagram of components of data warehouse?
c) Define data mining, describing how it differs from OLAP and the types of information it provides.
d) Define a digital market and digital goods and describe their distinguishing features.
e) How has e-commerce affected business-to-business transactions?

Q.6 Answer any ONE from the following questions **08**

a) Define and describe Net marketplaces and explain how they differ from private industrial networks (private exchanges).
b) List and describe four business objectives, four system functionalities, and four information requirements of a typical e-commerce Web site.

Q.7 Answer the following question **08**

List and describe important types of m-commerce services and applications.

SLR-FM-380

Seat No.	

Set P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ADVANCED DATABASE SYSTEM

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 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) If a relation r is fragmented and divided in to a number of fragments as r_1 , $r_{2,.....}$ r_n according to its attributes, then it is _____.
   a) Horizontal fragmentation b) Vertical fragmentation
   c) Both d) Cannot say

2) Site reintegration in distributed database is nothing but _____.
   a) Separating a failed site from a network
   b) Selecting a new coordinator
   c) Rejoining of a failed site after its recovery
   d) Connecting the whole network after the failure of its server

3) Point queries and range queries are complicated to process in _____ partitioning technique.
   a) Round Robin b) Hash
   c) Range d) All

4) In parallel database, if query processing occurs only in one or few partitions and other partitions are not in use then it is named as _____.
   a) Partition skew b) attribute value skew
   c) Execution skew d) data skew

5) In interquery parallelism _____.
   a) Different queries are executing in parallel
   b) Single query is executing in parallel
   c) Individual operation of a query executes in parallel
   d) Different operation of a query executes in parallel

6) In OODB, *final & not final* indicates the _____.
   a) structure type creation b) subtype creation
   c) object creation d) complex type creation

7) In OLAP implementation MOLAP is _____.
   a) Multivalued OLAP b) Multiattributed OLAP
   c) Multidimensional OLAP d) Multiple OLAP

8) The operation of changing dimensions used in a cross-tab is referred as __.
   a) slicing b) dicing
   c) pivoting d) dimensioning

9) In query processing for selection operation A3, A4 & A5 algorithms are __.
   a) basic algorithms
   b) using indices
   c) complex selections
   d) comparison selections

10) $\sigma\theta_1 \cap \theta_1(E) =$ _____.
   a) $\sigma\theta_1(E) \cap \theta_1(E)$
   b) $\sigma\theta_1(E) \cup \theta_1(E)$
   c) $\sigma\theta_1(\sigma\theta 2(E))$
   d) All

11) The estimated cost of hash join requires _____ block transfers for relations r & s.
   a) b_r+b_s
   b) $n_r*b_r+b_s$
   c) $3(b_r+b_s)+4n_h$
   d) $2(b_r+b_s)$

12) The protocol which allows global transactions to read but not to update local data items is _____.
   a) local-read-write protocol
   b) local-read protocol
   c) global-read-write protocol
   d) global-read protocol

13) Which of the following is not the Dameon process that runs on a hadoop cluster?
   a) JobTracker
   b) DataNode
   c) TaskTracker
   d) TaskNode

14) Which of the following is not a phase of Reducer?
   a) Map
   b) Reduce
   c) Shuffle
   d) Sort

Seat No.	

Set **P**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ADVANCED DATABASE SYSTEM

Day & Date: Tuesday,10-12-2019 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 **Write short notes. (any three)** **12**
- **a)** Shared lock & distributed lock manager approach
- **b)** Partitioning techniques
- **c)** Data cube and its operations
- **d)** Decision tree classifier

Q.3 **Attempt any one.** **08**
What is distributed database system? Elaborate distributed transaction processing with its system architecture and failure modes.

OR

What is Data warehouse? Elaborate its components and issues with neat diagram.

Q.4 What is interoperation parallelism? Illustrate its techniques with examples. **08**

Section – II

Q.5 **Write short notes. (any three)** **12**
- **a)** Unnesting
- **b)** Complex selection algorithms for conjunction
- **c)** Merge join
- **d)** Complex data types in Object oriented databases

Q.6 **Attempt any one.** **08**
What is query processing? How the cost of a query is measured? Explain the cost calculation of a Selection operation.

OR

Explain Hadoop architecture with its HDFS example.

Q.7 List and explain Equivalence rules for query optimization. **08**

Seat No.	

Set **Q**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ADVANCED DATABASE SYSTEM

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 Book.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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   a) slicing b) dicing
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3) $\sigma\theta_1 \cap \theta_1(E) =$ _____.
   a) $\sigma\theta_1(E) \cap \theta_1(E)$ b) $\sigma\theta_1(E) \cup \theta_1(E)$
   c) $\sigma\theta_1(\sigma\theta 2(E))$ d) All

4) The estimated cost of hash join requires _____ block transfers for relations r & s.
   a) b_r+b_s b) $n_r*b_r+b_s$
   c) $3(b_r+b_s)+4n_h$ d) $2(b_r+b_s)$

5) The protocol which allows global transactions to read but not to update local data items is _____.
   a) local-read-write protocol b) local-read protocol
   c) global-read-write protocol d) global-read protocol

6) Which of the following is not the Dameon process that runs on a hadoop cluster?
   a) JobTracker b) DataNode
   c) TaskTracker d) TaskNode

7) Which of the following is not a phase of Reducer?
   a) Map b) Reduce
   c) Shuffle d) Sort

8) If a relation r is fragmented and divided in to a number of fragments as r_1 , $r_{2,\ldots\ldots}$ r_n according to its attributes, then it is _____.
   a) Horizontal fragmentation b) Vertical fragmentation
   c) Both d) Cannot say

9) Site reintegration in distributed database is nothing but _____.
   a) Separating a failed site from a network
   b) Selecting a new coordinator
   c) Rejoining of a failed site after its recovery
   d) Connecting the whole network after the failure of its server

10) Point queries and range queries are complicated to process in _____ partitioning technique.
   a) Round Robin
   b) Hash
   c) Range
   d) All

11) In parallel database, if query processing occurs only in one or few partitions and other partitions are not in use then it is named as _____.
   a) Partition skew
   b) attribute value skew
   c) Execution skew
   d) data skew

12) In interquery parallelism _____.
   a) Different queries are executing in parallel
   b) Single query is executing in parallel
   c) Individual operation of a query executes in parallel
   d) Different operation of a query executes in parallel

13) In OODB, *final & not final* indicates the _____.
   a) structure type creation
   b) subtype creation
   c) object creation
   d) complex type creation

14) In OLAP implementation MOLAP is _____.
   a) Multivalued OLAP
   b) Multiattributed OLAP
   c) Multidimensional OLAP
   d) Multiple OLAP

Seat No.	

Set **Q**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ADVANCED DATABASE SYSTEM

Day & Date: Tuesday,10-12-2019 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 **Write short notes. (any three)** **12**
- **a)** Shared lock & distributed lock manager approach
- **b)** Partitioning techniques
- **c)** Data cube and its operations
- **d)** Decision tree classifier

Q.3 **Attempt any one.** **08**
What is distributed database system? Elaborate distributed transaction processing with its system architecture and failure modes.

OR

What is Data warehouse? Elaborate its components and issues with neat diagram.

Q.4 What is interoperation parallelism? Illustrate its techniques with examples. **08**

Section – II

Q.5 **Write short notes. (any three)** **12**
- **a)** Unnesting
- **b)** Complex selection algorithms for conjunction
- **c)** Merge join
- **d)** Complex data types in Object oriented databases

Q.6 **Attempt any one.** **08**
What is query processing? How the cost of a query is measured? Explain the cost calculation of a Selection operation.

OR

Explain Hadoop architecture with its HDFS example.

Q.7 List and explain Equivalence rules for query optimization. **08**

Seat No.	

Set **R**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ADVANCED DATABASE SYSTEM

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 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) In interquery parallelism _____.
   a) Different queries are executing in parallel
   b) Single query is executing in parallel
   c) Individual operation of a query executes in parallel
   d) Different operation of a query executes in parallel

2) In OODB, *final & not final* indicates the _____.
   a) structure type creation b) subtype creation
   c) object creation d) complex type creation

3) In OLAP implementation MOLAP is _____.
   a) Multivalued OLAP b) Multiattributed OLAP
   c) Multidimensional OLAP d) Multiple OLAP

4) The operation of changing dimensions used in a cross-tab is referred as __.
   a) slicing b) dicing
   c) pivoting d) dimensioning

5) In query processing for selection operation A3, A4 & A5 algorithms are __.
   a) basic algorithms b) using indices
   c) complex selections d) comparison selections

6) $\sigma\theta_1 \cap \theta_1(E) =$ _____.
   a) $\sigma\theta_1(E) \cap \theta_1(E)$ b) $\sigma\theta_1(E) \cup \theta_1(E)$
   c) $\sigma\theta_1(\sigma\theta 2(E))$ d) All

7) The estimated cost of hash join requires _____ block transfers for relations r & s.
   a) b_r+b_s b) $n_r*b_r+b_s$
   c) $3(b_r+b_s)+4n_h$ d) $2(b_r+b_s)$

8) The protocol which allows global transactions to read but not to update local data items is _____.
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9) Which of the following is not the Dameon process that runs on a hadoop cluster?
   a) JobTracker b) DataNode
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10) Which of the following is not a phase of Reducer?
   a) Map
   b) Reduce
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11) If a relation r is fragmented and divided in to a number of fragments as r_1 , $r_{2,\ldots\ldots\ldots}$ r_n according to its attributes, then it is _____.
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13) Point queries and range queries are complicated to process in _____ partitioning technique.
   a) Round Robin
   b) Hash
   c) Range
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14) In parallel database, if query processing occurs only in one or few partitions and other partitions are not in use then it is named as _____.
   a) Partition skew
   b) attribute value skew
   c) Execution skew
   d) data skew

SLR-FM-380

Seat No.	

Set R

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ADVANCED DATABASE SYSTEM

Day & Date: Tuesday,10-12-2019 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 **Write short notes. (any three)** **12**
- **a)** Shared lock & distributed lock manager approach
- **b)** Partitioning techniques
- **c)** Data cube and its operations
- **d)** Decision tree classifier

Q.3 **Attempt any one.** **08**

What is distributed database system? Elaborate distributed transaction processing with its system architecture and failure modes.

OR

What is Data warehouse? Elaborate its components and issues with neat diagram.

Q.4 What is interoperation parallelism? Illustrate its techniques with examples. **08**

Section – II

Q.5 **Write short notes. (any three)** **12**
- **a)** Unnesting
- **b)** Complex selection algorithms for conjunction
- **c)** Merge join
- **d)** Complex data types in Object oriented databases

Q.6 **Attempt any one.** **08**

What is query processing? How the cost of a query is measured? Explain the cost calculation of a Selection operation.

OR

Explain Hadoop architecture with its HDFS example.

Q.7 List and explain Equivalence rules for query optimization. **08**

Seat No.	

Set **S**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ADVANCED DATABASE SYSTEM

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 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) $\sigma\theta_1 \cap \theta_1(E) =$ _____.
   a) $\sigma\theta_1(E) \cap \theta_1(E)$ b) $\sigma\theta_1(E) \cup \theta_1(E)$
   c) $\sigma\theta_1(\sigma\theta 2(E))$ d) All

2) The estimated cost of hash join requires _____ block transfers for relations r & s.
   a) b_r+b_s b) $n_r*b_r+b_s$
   c) $3(b_r+b_s)+4n_h$ d) $2(b_r+b_s)$

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5) Which of the following is not a phase of Reducer?
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6) If a relation r is fragmented and divided in to a number of fragments as r_1 , $r_{2,\ldots\ldots}$ r_n according to its attributes, then it is _____.
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   b) Selecting a new coordinator
   c) Rejoining of a failed site after its recovery
   d) Connecting the whole network after the failure of its server

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   c) Range d) All

9) In parallel database, if query processing occurs only in one or few partitions and other partitions are not in use then it is named as _____.
   a) Partition skew
   b) attribute value skew
   c) Execution skew
   d) data skew

10) In interquery parallelism _____.
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   b) Single query is executing in parallel
   c) Individual operation of a query executes in parallel
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11) In OODB, *final & not final* indicates the _____.
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   b) subtype creation
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   d) complex type creation

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   b) Multiattributed OLAP
   c) Multidimensional OLAP
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13) The operation of changing dimensions used in a cross-tab is referred as __.
   a) slicing
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   c) pivoting
   d) dimensioning

14) In query processing for selection operation A3, A4 & A5 algorithms are __.
   a) basic algorithms
   b) using indices
   c) complex selections
   d) comparison selections

SLR-FM-380

Seat No.	

Set S

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
ADVANCED DATABASE SYSTEM

Day & Date: Tuesday,10-12-2019 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 **Write short notes. (any three)** **12**
- **a)** Shared lock & distributed lock manager approach
- **b)** Partitioning techniques
- **c)** Data cube and its operations
- **d)** Decision tree classifier

Q.3 **Attempt any one.** **08**

What is distributed database system? Elaborate distributed transaction processing with its system architecture and failure modes.

OR

What is Data warehouse? Elaborate its components and issues with neat diagram.

Q.4 What is interoperation parallelism? Illustrate its techniques with examples. **08**

Section – II

Q.5 **Write short notes. (any three)** **12**
- **a)** Unnesting
- **b)** Complex selection algorithms for conjunction
- **c)** Merge join
- **d)** Complex data types in Object oriented databases

Q.6 **Attempt any one.** **08**

What is query processing? How the cost of a query is measured? Explain the cost calculation of a Selection operation.

OR

Explain Hadoop architecture with its HDFS example.

Q.7 List and explain Equivalence rules for query optimization. **08**

Seat No.	

Set **P**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

Day & Date: Thursday, 12-12-2019 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) Which of the following are objective of software testing?
   a) Determines that software product satisfy specified requirements
   b) Demonstrate that software products are fit for use
   c) Detect defects
   d) All the above

2) In which of the following situation defects arise?
   a) No knowledge of system
   b) System is used in wrong way and May have coded wrongly
   c) Incorrect setup of testing environment
   d) All the above

3) Which of the following is non functional testing for an e-commerce website?
   a) People can buy goods
   b) People can return faulty goods
   c) Security of system during transaction
   d) 1000 people can log into system at same time

4) Testing done without planning and Documentation is called _____.
   a) Unit testing b) Regression testing
   c) Adhoc testing d) None of the mentioned

5) Which is/are characteristic/s of stress testing?
   a) It is a type of non functional testing
   b) It involves testing beyond normal operational capacity, often to a breaking point, in order to observe the results
   c) It put great emphasis on robustness, availability, and error handling under a heavy load, rather than on what would be considered correct behavior under normal circumstances
   d) All of the above

6) Verifying that whether software components are functioning correctly and identifying the defects in them is objective of which level of testing?
   a) Integration testing b) Acceptance testing
   c) Unit testing d) System Testing

7) Which of the following are types of acceptance system?
   a) Alpha testing
   b) Beta testing
   c) Contract acceptance testing
   d) All the above

8) What are the objectives behind writing and executing the test cases?
   a) Find the defects in software products
   b) Verify that the software meets the end user requirements
   c) Improve software quality
   d) All of the above

9) What are test items?
   a) Functions of the software
   b) Requirements stated in the Design stage
   c) Both a and b
   d) None of these

10) Software quality assurance consists of the auditing and reporting functions of management.
   a) True b) False

11) Who identifies, documents, and verifies that corrections have been made to the software?
   a) Project manager b) Project team
   c) SQA group d) All of the mentioned

12) The Selenium RC is used _____.
   a) To run your test against different browsers (except HtmlUnit) on different operating systems
   b) To create tests with little or no prior knowledge in programming
   c) To test a web application against Firefox only
   d) To run a huge test suite, that can be executed on multiple machines

13) Selenium IDE supports auto complete mode when creating tests. This feature serves following purposes: _____.
   a) It helps the tester to enter commands more quickly
   b) It restricts the user from entering invalid commands
   c) Both a and b
   d) None

14) When Testing should be stopped?
   a) When manager asks to stop
   b) When time runs out
   c) When enough money are spend on testing
   d) It depends on risk associated with that project

Seat No.	

Set **P**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

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 indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any three **12**

a) What is software Testing? Describe the Challenges in Testing.

b) Describe the following:
1) Defect Management Process
2) Skills Required by Tester

c) How to write test cases using Equivalence Partitioning testing technique, illustrate with a example?

d) Define the following testing levels: GUI Testing, Compatibility Testing, Performance Testing and Security Testing.

Q.3 Attempt any two. **16**

a) What are the Principles of Software Testing? Describe Test Team Approach, Attitude towards Testing and Test Policy for software testing.

b) Describe in detail White-Box Testing Techniques-Data Coverage and Code Coverage.

c) Define the different Testing levels in detail.
1) Alpha Testing
2) Beta Testing
3) Gamma Testing
4) Big-Bang Testing

Section – II

Q.4 Attempt any three. **12**

a) Mention a few typical testing resources that should be considered when test planning.

b) Why is defining the software's quality and reliability goals an important part of test Planning?

c) Describe the SQA Processes and Product Characteristics.

d) What's the difference between a tool and automation?

Q.5 Attempt any two. **16**

a) Describe Realities of using test tools and automation by considering selenium testing tool.

b) Illustrate in detail Formal Approaches to SQA and Statistical SQA with examples.

c) Describe the test case terms:
1) Reporting Bugs
2) Bug-Tracking Systems

Seat No.	

Set **Q**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

Day & Date: Thursday, 12-12-2019 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) What are the objectives behind writing and executing the test cases?
   a) Find the defects in software products
   b) Verify that the software meets the end user requirements
   c) Improve software quality
   d) All of the above

2) What are test items?
   a) Functions of the software
   b) Requirements stated in the Design stage
   c) Both a and b
   d) None of these

3) Software quality assurance consists of the auditing and reporting functions of management.
   a) True b) False

4) Who identifies, documents, and verifies that corrections have been made to the software?
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   c) SQA group d) All of the mentioned

5) The Selenium RC is used _____.
   a) To run your test against different browsers (except HtmlUnit) on different operating systems
   b) To create tests with little or no prior knowledge in programming
   c) To test a web application against Firefox only
   d) To run a huge test suite, that can be executed on multiple machines

6) Selenium IDE supports auto complete mode when creating tests. This feature serves following purposes: _____.
   a) It helps the tester to enter commands more quickly
   b) It restricts the user from entering invalid commands
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   d) None

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   b) When time runs out
   c) When enough money are spend on testing
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8) Which of the following are objective of software testing?
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   d) 1000 people can log into system at same time

11) Testing done without planning and Documentation is called _____.
   a) Unit testing
   b) Regression testing
   c) Adhoc testing
   d) None of the mentioned

12) Which is/are characteristic/s of stress testing?
   a) It is a type of non functional testing
   b) It involves testing beyond normal operational capacity, often to a breaking point, in order to observe the results
   c) It put great emphasis on robustness, availability, and error handling under a heavy load, rather than on what would be considered correct behavior under normal circumstances
   d) All of the above

13) Verifying that whether software components are functioning correctly and identifying the defects in them is objective of which level of testing?
   a) Integration testing
   b) Acceptance testing
   c) Unit testing
   d) System Testing

14) Which of the following are types of acceptance system?
   a) Alpha testing
   b) Beta testing
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   d) All the above

Seat No.	

Set **Q**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

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 indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any three **12**

a) What is software Testing? Describe the Challenges in Testing.

b) Describe the following:
1) Defect Management Process
2) Skills Required by Tester

c) How to write test cases using Equivalence Partitioning testing technique, illustrate with a example?

d) Define the following testing levels: GUI Testing, Compatibility Testing, Performance Testing and Security Testing.

Q.3 Attempt any two. **16**

a) What are the Principles of Software Testing? Describe Test Team Approach, Attitude towards Testing and Test Policy for software testing.

b) Describe in detail White-Box Testing Techniques-Data Coverage and Code Coverage.

c) Define the different Testing levels in detail.
1) Alpha Testing
2) Beta Testing
3) Gamma Testing
4) Big-Bang Testing

Section – II

Q.4 Attempt any three. **12**

a) Mention a few typical testing resources that should be considered when test planning.

b) Why is defining the software's quality and reliability goals an important part of test Planning?

c) Describe the SQA Processes and Product Characteristics.

d) What's the difference between a tool and automation?

Q.5 Attempt any two. **16**

a) Describe Realities of using test tools and automation by considering selenium testing tool.

b) Illustrate in detail Formal Approaches to SQA and Statistical SQA with examples.

c) Describe the test case terms:
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2) Bug-Tracking Systems

Seat No.	

Set **R**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

Day & Date: Thursday, 12-12-2019 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) Which is/are characteristic/s of stress testing?
   a) It is a type of non functional testing
   b) It involves testing beyond normal operational capacity, often to a breaking point, in order to observe the results
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2) Verifying that whether software components are functioning correctly and identifying the defects in them is objective of which level of testing?
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   c) Unit testing d) System Testing

3) Which of the following are types of acceptance system?
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   b) Beta testing
   c) Contract acceptance testing
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4) What are the objectives behind writing and executing the test cases?
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Seat No.	

Set **R**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

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 indicate full marks.
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Section – I

Q.2 Attempt any three **12**

a) What is software Testing? Describe the Challenges in Testing.

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Section – II

Q.4 Attempt any three. **12**

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c) Describe the test case terms:
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2) Bug-Tracking Systems

Seat No.	

Set | S

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

Day & Date: Thursday, 12-12-2019 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) Software quality assurance consists of the auditing and reporting functions of management.
   a) True b) False

2) Who identifies, documents, and verifies that corrections have been made to the software?
   a) Project manager b) Project team
   c) SQA group d) All of the mentioned

3) The Selenium RC is used _____.
   a) To run your test against different browsers (except HtmlUnit) on different operating systems
   b) To create tests with little or no prior knowledge in programming
   c) To test a web application against Firefox only
   d) To run a huge test suite, that can be executed on multiple machines

4) Selenium IDE supports auto complete mode when creating tests. This feature serves following purposes: _____.
   a) It helps the tester to enter commands more quickly
   b) It restricts the user from entering invalid commands
   c) Both a and b
   d) None

5) When Testing should be stopped?
   a) When manager asks to stop
   b) When time runs out
   c) When enough money are spend on testing
   d) It depends on risk associated with that project

6) Which of the following are objective of software testing?
   a) Determines that software product satisfy specified requirements
   b) Demonstrate that software products are fit for use
   c) Detect defects
   d) All the above

7) In which of the following situation defects arise?
   a) No knowledge of system
   b) System is used in wrong way and May have coded wrongly
   c) Incorrect setup of testing environment
   d) All the above

8) Which of the following is non functional testing for an e-commerce website?
   a) People can buy goods
   b) People can return faulty goods
   c) Security of system during transaction
   d) 1000 people can log into system at same time

9) Testing done without planning and Documentation is called _____.
   a) Unit testing
   b) Regression testing
   c) Adhoc testing
   d) None of the mentioned

10) Which is/are characteristic/s of stress testing?
   a) It is a type of non functional testing
   b) It involves testing beyond normal operational capacity, often to a breaking point, in order to observe the results
   c) It put great emphasis on robustness, availability, and error handling under a heavy load, rather than on what would be considered correct behavior under normal circumstances
   d) All of the above

11) Verifying that whether software components are functioning correctly and identifying the defects in them is objective of which level of testing?
   a) Integration testing
   b) Acceptance testing
   c) Unit testing
   d) System Testing

12) Which of the following are types of acceptance system?
   a) Alpha testing
   b) Beta testing
   c) Contract acceptance testing
   d) All the above

13) What are the objectives behind writing and executing the test cases?
   a) Find the defects in software products
   b) Verify that the software meets the end user requirements
   c) Improve software quality
   d) All of the above

14) What are test items?
   a) Functions of the software
   b) Requirements stated in the Design stage
   c) Both a and b
   d) None of these

SLR-FM-381

Seat No.	

Set S

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

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 indicate full marks.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any three **12**

a) What is software Testing? Describe the Challenges in Testing.

b) Describe the following:
1) Defect Management Process
2) Skills Required by Tester

c) How to write test cases using Equivalence Partitioning testing technique, illustrate with a example?

d) Define the following testing levels: GUI Testing, Compatibility Testing, Performance Testing and Security Testing.

Q.3 Attempt any two. **16**

a) What are the Principles of Software Testing? Describe Test Team Approach, Attitude towards Testing and Test Policy for software testing.

b) Describe in detail White-Box Testing Techniques-Data Coverage and Code Coverage.

c) Define the different Testing levels in detail.
1) Alpha Testing
2) Beta Testing
3) Gamma Testing
4) Big-Bang Testing

Section – II

Q.4 Attempt any three. **12**

a) Mention a few typical testing resources that should be considered when test planning.

b) Why is defining the software's quality and reliability goals an important part of test Planning?

c) Describe the SQA Processes and Product Characteristics.

d) What's the difference between a tool and automation?

Q.5 Attempt any two. **16**

a) Describe Realities of using test tools and automation by considering selenium testing tool.

b) Illustrate in detail Formal Approaches to SQA and Statistical SQA with examples.

c) Describe the test case terms:
1) Reporting Bugs
2) Bug-Tracking Systems

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Seat No.		Set	P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING

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) Assume suitable data if necessary.
3) Figure must be draw wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. 14

1) Which type of antenna is used for edge excited cells?
   a) Omnidirectional antenna b) Grid antenna
   c) Sectored directional antenna d) Dipole antenna

2) TDD is effective for _____.
   a) Fixed wireless access and users are stationary
   b) Dynamic wireless access and users are stationary
   c) Fixed wireless access and users are moving
   d) Dynamic wireless access and users are moving

3) Dwell time does not depend on which of the following factor?
   a) Propagation
   b) Interference
   c) Distance between subscriber and base station
   d) Mobile station

4) Which of the following is not an objective for channel assignment strategies?
   a) Efficient utilization of spectrum b) Increase of capacity
   c) Minimize the interference d) Maximize the interference

5) Which of the following is not a property of spread spectrum techniques?
   a) Interference rejection capability
   b) Multipath fading
   c) Frequency planning elimination
   d) Multiple user, multiple access interface

6) Path loss in free space model is defined as difference of _____.
   a) Effective transmitted power and gain
   b) Effective received power and distance between T-R
   c) Gain and received power
   d) Effective transmitter power and receiver power

7) Which is the process of encoding information from a message source in suitable manner for transmission?
   a) Modulation b) Demodulation
   c) Encryption d) Decryption

8) Which of the following specifies a set of media access control (MAC) and physical layer specifications for implementing WLANs?
   a) IEEE 802.16 b) IEEE 802.3
   c) IEEE 802.11 d) IEEE 802.15

9) What is borrowing strategy in fixed channel assignments?
   a) Borrowing channels from neighbouring cell
   b) Borrowing channels from neighbouring cluster
   c) Borrowing channels from same cell
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10) What is the case of reflection, in course of second medium being a perfect dielectric?
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   c) No loss of energy in absorption
   d) Total energy transmitted into second medium

11) Frequency hopping involves a periodic change of transmission _____.
   a) Signal b) Frequency
   c) Phase d) Amplitude

12) Why neighbouring stations are assigned different group of channels in cellular system?
   a) To minimize interference
   b) To minimize area
   c) To maximize throughput
   d) To maximize capacity of each cell

13) _____ carries digitally encoded user data.
   a) Traffic channels b) Control channels
   c) Signaling channels d) Forward channels

14) Which of the following antenna radiates power with unit gain uniformly in all directions?
   a) Directional antenna b) Dipole antenna
   c) Isotropic antenna d) Loop antenna

SLR-FM-382

Seat No.	

Set P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING

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

Q.2 Attempt any three **12**
- **a)** What is handover? Explain all the scenarios in GSM?
- **b)** Explain the signal propagation with path loss of radio signals?
- **c)** What is multiplexing? Draw and illustrate types of multiplexing?
- **d)** What are the advantages, disadvantages for cellular system also explain it with cell clusters?
- **e)** Explain all the benefits of wireless networks and mobile communications?

Q.3 Draw and explain the functional architecture of GSM? **08**

OR

Explain with neat diagram the functional architecture of GPRS and WCDMA?

Q.4 Attempt any two **08**
- **a)** DSSS and FHSS
- **b)** Antennas
- **c)** Mobility Management

Section – II

Q.5 Attempt any three **12**
- **a)** Explain the mechanism used in traditional TCP?
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- **c)** What is MANET, explain it with mobile IP?
- **d)** State and explain the challenges of wireless network?
- **e)** Explain the AODV mobile Adhoc network?

Q.6 Draw and explain the system and protocol architecture of 802.11 standards? **08**

OR

Explain with example all the mobility models in MANET?

Q.7 Attempt any two **08**
- **a)** Infrastructure and ad-hoc networks
- **b)** cellular IP in mobile computing
- **c)** Location aided routing

Seat No.	

Set **Q**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING

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) Assume suitable data if necessary.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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   c) Encryption
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Seat No.	

Set Q

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING

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

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Section – II

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OR

Explain with example all the mobility models in MANET?

Q.7 Attempt any two **08**
- **a)** Infrastructure and ad-hoc networks
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Seat No.	

Set **R**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING

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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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SLR-FM-382

Seat No.	

Set R

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING

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

Q.2 Attempt any three **12**

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Q.4 Attempt any two **08**

a) DSSS and FHSS
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Section – II

Q.5 Attempt any three **12**

a) Explain the mechanism used in traditional TCP?
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Explain with example all the mobility models in MANET?

Q.7 Attempt any two **08**

a) Infrastructure and ad-hoc networks
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c) Location aided routing

Seat No.		Set	S

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING

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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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SLR-FM-382

Seat No.	

Set S

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING

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

Q.2 **Attempt any three** **12**
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Explain with neat diagram the functional architecture of GPRS and WCDMA?

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- **a)** DSSS and FHSS
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- **c)** Mobility Management

Section – II

Q.5 **Attempt any three** **12**
- **a)** Explain the mechanism used in traditional TCP?
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OR

Explain with example all the mobility models in MANET?

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- **a)** Infrastructure and ad-hoc networks
- **b)** cellular IP in mobile computing
- **c)** Location aided routing

Seat No.	

Set | P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA MINING

Day & Date: Tuesday, 17-12-2019 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) 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**

1) Which of the following is not a data mining functionality?
   a) Characterization and Discrimination
   b) Classification and regression
   c) Selection and interpretation
   d) Clustering and Analysis

2) _____ is a summarization of the general characteristics or features of a target class of data.
   a) Data Characterization b) Data Classification
   c) Data discrimination d) Data selection

3) The various aspects of data mining methodologies is/are _____.
   i) Mining various and new kinds of knowledge
   ii) Mining knowledge in multidimensional space
   iii) Pattern evaluation and pattern or constraint-guided mining
   iv) Handling uncertainty, noise, or incompleteness of data
   a) i. ii and iv only b) ii. iii and iv only
   c) i. II and iii only d) All i. ii. iii and iv

4) The full form of KDD is _____.
   a) Knowledge Database b) Knowledge Discovery Database
   c) Knowledge Data House d) Knowledge Data Definition

5) Which of the following activities is NOT a data mining task?
   a) Predicting the future stock price of a company using historical records
   b) Monitoring and predicting failures in a hydropower plant
   c) Extracting the frequencies of a sound wave
   d) Monitoring the heart rate of a patient for abnormalities

6) Which of the following is not a data pre-processing methods?
   a) Data Visualization b) Data Discretization
   c) Data Cleaning d) Data Reduction

7) The difference between supervised learning and unsupervised learning is given by _____.
   a) unlike unsupervised learning, supervised learning needs labeled data
   b) unlike unsupervised learning, supervised learning can be used to detect outliers
   c) there is no difference
   d) unlike supervised leaning, unsupervised learning can form new classes

8) Which data mining task can be used for predicting wind velocities as a function of temperature, humidity, air pressure, etc.?
   a) Cluster Analysis
   b) Regression
   c) Classification
   d) Sequential pattern discovery

9) The number of iterations in Apriori _____
   a) increases with the size of the data
   b) decreases with the increase in size of the data
   c) increases with the size of the maximum frequent set
   d) decreases with increase in size of the maximum frequent set

10) Which of the following are interestingness measures for association rules?
   a) recall
   b) lift
   c) accuracy
   d) compactness

11) This clustering algorithm terminates when mean values computed for the current iteration of the algorithm are identical to the computed mean values for the previous iteration
   a) K-Means clustering
   b) conceptual clustering
   c) expectation maximization
   d) agglomerative clustering

12) If a customer is spending more than expected, the customer's intrinsic value is _____ their actual value.
   a) greater than
   b) less than
   c) less than or equal to
   d) equal to

13) A data mining algorithm is unstable if _____.
   a) test set accuracy depends on the ordering of test set instances
   b) the algorithm builds models unable to classify outliers
   c) the algorithm is highly sensitive to small changes in the training data
   d) test set accuracy depends on the choice of input attributes

14) This step of the KDD process model deals with noisy data _____.
   a) creating a target dataset
   b) data preprocessing
   c) data transformation
   d) data mining

Seat No.	

Set | P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA MINING

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 Attempt any three. **12**

a) What are major issues in data mining?
b) What are major tasks in Data Preprocessing?
c) What are the issues in classification? Explain with example.

Q.3 Attempt any two. **16**

a) 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

b) Give an example of classification using prediction.
c) Explain with an example Bayesian classification.

Section – II

Q.4 Attempt any three **12**

a) How do you measure the quality of rules?
b) What are advanced association rule techniques?
c) Explain - Harvest System.

Q.5 Attempt any two **16**

a) What do you mean by partitioning?
b) Give examples for different clustering attributes.
c) Explain sampling algorithm with an example.

Seat No.	

Set | Q

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA MINING

Day & Date: Tuesday, 17-12-2019 Max. Marks: 70
Time: 02:30 PM To 05:30 PM

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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

1) Which data mining task can be used for predicting wind velocities as a function of temperature, humidity, air pressure, etc.?
   a) Cluster Analysis b) Regression
   c) Classification d) Sequential pattern discovery

2) The number of iterations in Apriori _____
   a) increases with the size of the data
   b) decreases with the increase in size of the data
   c) increases with the size of the maximum frequent set
   d) decreases with increase in size of the maximum frequent set

3) Which of the following are interestingness measures for association rules?
   a) recall b) lift
   c) accuracy d) compactness

4) This clustering algorithm terminates when mean values computed for the current iteration of the algorithm are identical to the computed mean values for the previous iteration
   a) K-Means clustering b) conceptual clustering
   c) expectation maximization d) agglomerative clustering

5) If a customer is spending more than expected, the customer's intrinsic value is _____ their actual value.
   a) greater than b) less than
   c) less than or equal to d) equal to

6) A data mining algorithm is unstable if _____.
   a) test set accuracy depends on the ordering of test set instances
   b) the algorithm builds models unable to classify outliers
   c) the algorithm is highly sensitive to small changes in the training data
   d) test set accuracy depends on the choice of input attributes

7) This step of the KDD process model deals with noisy data _____.
   a) creating a target dataset b) data preprocessing
   c) data transformation d) data mining

8) Which of the following is not a data mining functionality?
   a) Characterization and Discrimination
   b) Classification and regression
   c) Selection and interpretation
   d) Clustering and Analysis

9) _____ is a summarization of the general characteristics or features of a target class of data.
   a) Data Characterization
   b) Data Classification
   c) Data discrimination
   d) Data selection

10) The various aspects of data mining methodologies is/are _____.
   i) Mining various and new kinds of knowledge
   ii) Mining knowledge in multidimensional space
   iii) Pattern evaluation and pattern or constraint-guided mining
   iv) Handling uncertainty, noise, or incompleteness of data
   a) i. ii and iv only
   b) ii. iii and iv only
   c) i. II and iii only
   d) All i. ii. iii and iv

11) The full form of KDD is _____.
   a) Knowledge Database
   b) Knowledge Discovery Database
   c) Knowledge Data House
   d) Knowledge Data Definition

12) Which of the following activities is NOT a data mining task?
   a) Predicting the future stock price of a company using historical records
   b) Monitoring and predicting failures in a hydropower plant
   c) Extracting the frequencies of a sound wave
   d) Monitoring the heart rate of a patient for abnormalities

13) Which of the following is not a data pre-processing methods?
   a) Data Visualization
   b) Data Discretization
   c) Data Cleaning
   d) Data Reduction

14) The difference between supervised learning and unsupervised learning is given by _____.
   a) unlike unsupervised learning, supervised learning needs labeled data
   b) unlike unsupervised learning, supervised learning can be used to detect outliers
   c) there is no difference
   d) unlike supervised leaning, unsupervised learning can form new classes

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Seat No.	

Set Q

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA MINING

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 Attempt any three. **12**

a) What are major issues in data mining?
b) What are major tasks in Data Preprocessing?
c) What are the issues in classification? Explain with example.

Q.3 Attempt any two. **16**

a) 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

b) Give an example of classification using prediction.
c) Explain with an example Bayesian classification.

Section – II

Q.4 Attempt any three **12**

a) How do you measure the quality of rules?
b) What are advanced association rule techniques?
c) Explain - Harvest System.

Q.5 Attempt any two **16**

a) What do you mean by partitioning?
b) Give examples for different clustering attributes.
c) Explain sampling algorithm with an example.

Seat No.	

Set | R

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA MINING

Day & Date: Tuesday, 17-12-2019 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) 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

1) Which of the following activities is NOT a data mining task?
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5) The number of iterations in Apriori _____
   a) increases with the size of the data
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6) Which of the following are interestingness measures for association rules?
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8) If a customer is spending more than expected, the customer's intrinsic value is _____ their actual value.
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   b) less than
   c) Iess than or equal to
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9) A data mining algorithm is unstable if _____.
   a) test set accuracy depends on the ordering of test set instances
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10) This step of the KDD process model deals with noisy data _____.
   a) creating a target dataset
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   c) data transformation
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   b) Classification and regression
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12) _____ is a summarization of the general characteristics or features of a target class of data.
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   b) Data Classification
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   d) Data selection

13) The various aspects of data mining methodologies is/are _____.
   i) Mining various and new kinds of knowledge
   ii) Mining knowledge in multidimensional space
   iii) Pattern evaluation and pattern or constraint-guided mining
   iv) Handling uncertainty, noise, or incompleteness of data
   a) i. ii and iv only
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   c) i. II and iii only
   d) All i. ii. iii and iv

14) The full form of KDD is _____.
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   b) Knowledge Discovery Database
   c) Knowledge Data House
   d) Knowledge Data Definition

Seat No.	

Set **R**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA MINING

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 Attempt any three. **12**

a) What are major issues in data mining?
b) What are major tasks in Data Preprocessing?
c) What are the issues in classification? Explain with example.

Q.3 Attempt any two. **16**

a) 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

b) Give an example of classification using prediction.
c) Explain with an example Bayesian classification.

Section – II

Q.4 Attempt any three **12**

a) How do you measure the quality of rules?
b) What are advanced association rule techniques?
c) Explain - Harvest System.

Q.5 Attempt any two **16**

a) What do you mean by partitioning?
b) Give examples for different clustering attributes.
c) Explain sampling algorithm with an example.

Seat No.		Set	S

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA MINING

Day & Date: Tuesday, 17-12-2019 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) 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

1) Which of the following are interestingness measures for association rules?
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   a) K-Means clustering b) conceptual clustering
   c) expectation maximization d) agglomerative clustering

3) If a customer is spending more than expected, the customer's intrinsic value is _____ their actual value.
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   c) less than or equal to d) equal to

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   b) the algorithm builds models unable to classify outliers
   c) the algorithm is highly sensitive to small changes in the training data
   d) test set accuracy depends on the choice of input attributes

5) This step of the KDD process model deals with noisy data _____.
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   c) data transformation d) data mining

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   a) Characterization and Discrimination
   b) Classification and regression
   c) Selection and interpretation
   d) Clustering and Analysis

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   a) Data Characterization b) Data Classification
   c) Data discrimination d) Data selection

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   i) Mining various and new kinds of knowledge
   ii) Mining knowledge in multidimensional space
   iii) Pattern evaluation and pattern or constraint-guided mining
   iv) Handling uncertainty, noise, or incompleteness of data
   a) i. ii and iv only
   b) ii. iii and iv only
   c) i. II and iii only
   d) All i. ii. iii and iv

9) The full form of KDD is _____.
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   b) Knowledge Discovery Database
   c) Knowledge Data House
   d) Knowledge Data Definition

10) Which of the following activities is NOT a data mining task?
   a) Predicting the future stock price of a company using historical records
   b) Monitoring and predicting failures in a hydropower plant
   c) Extracting the frequencies of a sound wave
   d) Monitoring the heart rate of a patient for abnormalities

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   b) Data Discretization
   c) Data Cleaning
   d) Data Reduction

12) The difference between supervised learning and unsupervised learning is given by _____.
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   a) Cluster Analysis
   b) Regression
   c) Classification
   d) Sequential pattern discovery

14) The number of iterations in Apriori _____
   a) increases with the size of the data
   b) decreases with the increase in size of the data
   c) increases with the size of the maximum frequent set
   d) decreases with increase in size of the maximum frequent set

Seat No.	

Set **S**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DATA MINING

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 Attempt any three. **12**

a) What are major issues in data mining?
b) What are major tasks in Data Preprocessing?
c) What are the issues in classification? Explain with example.

Q.3 Attempt any two. **16**

a) 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

b) Give an example of classification using prediction.
c) Explain with an example Bayesian classification.

Section – II

Q.4 Attempt any three **12**

a) How do you measure the quality of rules?
b) What are advanced association rule techniques?
c) Explain - Harvest System.

Q.5 Attempt any two **16**

a) What do you mean by partitioning?
b) Give examples for different clustering attributes.
c) Explain sampling algorithm with an example.

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Seat No.	

Set P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) In distributed systems, link and site failure is detected by _____.
   a) polling b) Handshaking
   c) token passing d) none of these

2) Logical extension of computation migration is _____.
   a) process migration b) system migration
   c) thread migration d) data migration

3) Which are the two complementary deadlock-prevention schemes using timestamps?
   a) The wait-die & wound-wait scheme
   b) The wait-n-watch scheme
   c) The wound-wait scheme
   d) The wait-wound & wound-wait scheme

4) For proper synchronization in distributed systems _____.
   a) prevention from the deadlock is must
   b) prevention from the starvation is must
   c) prevention from the deadlock & starvation is must
   d) none of the mentioned

5) Single coordinator approach has the following disadvantages _____.
   a) Bottleneck b) Slow response
   c) Deadlock d) One request per second

6) The file once created cannot be changed is called _____.
   a) Immutable file b) Mutex file
   c) Mutable file d) None of these

7) What are the different ways in which clients and servers are dispersed across machines?
   a) Servers may not run on dedicated machines
   b) Servers and clients can be on same machines
   c) Distribution cannot be interposed between an OS and the file system
   d) OS cannot be distributed with the file system a part of that distribution

8) What are the characteristics of stateless server?
   a) Easier to implement
   b) They are not fault-tolerant upon client or server failures
   c) They store all information file server
   d) They are redundant to keep data safe

9) What are not the characteristics of a DFS?
   a) Login transparency and access transparency
   b) Files need not contain information about their physical location
   c) No Multiplicity of users
   d) No Multiplicity if files

10) What are the characteristics of tightly coupled system?
   i) Different clock
   ii) Use communication links
   iii) Same clock
   iv) Distributed systems
   a) i
   b) i and iv
   c) i, ii and iii
   d) ii, iii and iv

11) The Zero Capacity queue _____.
   a) is referred to as a message system with buffering
   b) is referred to as a message system with no buffering
   c) is referred to as a link
   d) none of the mentioned

12) What is not a major reason for building distributed systems?
   a) Resource sharing
   b) Computation speedup
   c) Reliability
   d) Simplicity

13) Bounded capacity and Unbounded capacity queues are referred to as _____.
   a) Programmed buffering
   b) Automatic buffering
   c) User defined buffering
   d) No buffering

14) According to the ring algorithm, links between processes are _____.
   a) Bidirectional
   b) Unidirectional
   c) Both bidirectional and unidirectional
   d) None of these

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Seat No.	

Set P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
3) Assume suitable data if necessary.
4) Figures must be draw wherever necessary.

Section – I

Q.2 Attempt any three **12**

a) Describe all the issue for designing distributed computing.
b) Draw and explain all the buffering mechanisms for message passing.
c) State and explain the call semantics of RPC.
d) Draw and explain the implementation of logical clocks by using counters and physical clocks.

Q.3 **a)** What is process migration? Describe desirable features of a good process migration. **08**

OR

Explain with example the client server binding in distributed environment.

Q.4 Explain in detail with example failure handling in MPS. **08**

Section – II

Q.5 Solve any three **12**

a) Explain the consistency models of shared memory.
b) Describe classification of mutual exclusion algorithms and its preliminaries.
c) Explain with example the algorithm for implementing Distributed Shared Memory.
d) Explain in detail log structured file system.

Q.6 **a)** Explain with example Lamport and Recart-Agrawala algorithms. **08**

OR

Explain all the mechanisms for building Distributed File System.

Q.7 State and describe design issues of Distributed Shared Memory. **08**

Seat No.	

Set **Q**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) What are the characteristics of stateless server?
   a) Easier to implement
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   d) They are redundant to keep data safe

2) What are not the characteristics of a DFS?
   a) Login transparency and access transparency
   b) Files need not contain information about their physical location
   c) No Multiplicity of users
   d) No Multiplicity if files

3) What are the characteristics of tightly coupled system?
   i) Different clock
   ii) Use communication links
   iii) Same clock
   iv) Distributed systems
   a) i b) i and iv
   c) i, ii and iii d) ii, iii and iv

4) The Zero Capacity queue _____.
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7) According to the ring algorithm, links between processes are _____.
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   b) Unidirectional
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14) What are the different ways in which clients and servers are dispersed across machines?
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SLR-FM-384

Seat No.	

Set Q

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
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4) Figures must be draw wherever necessary.

Section – I

Q.2 Attempt any three **12**

a) Describe all the issue for designing distributed computing.
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OR

Explain with example the client server binding in distributed environment.

Q.4 Explain in detail with example failure handling in MPS. **08**

Section – II

Q.5 Solve any three **12**

a) Explain the consistency models of shared memory.
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Q.6 **a)** Explain with example Lamport and Recart-Agrawala algorithms. **08**

OR

Explain all the mechanisms for building Distributed File System.

Q.7 State and describe design issues of Distributed Shared Memory. **08**

Seat No.	

Set **R**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) Single coordinator approach has the following disadvantages _____.
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2) The file once created cannot be changed is called _____.
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   a) i b) i and iv
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   b) Computation speedup
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Seat No.	

Set **R**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
3) Assume suitable data if necessary.
4) Figures must be draw wherever necessary.

Section – I

Q.2 **Attempt any three** **12**
- **a)** Describe all the issue for designing distributed computing.
- **b)** Draw and explain all the buffering mechanisms for message passing.
- **c)** State and explain the call semantics of RPC.
- **d)** Draw and explain the implementation of logical clocks by using counters and physical clocks.

Q.3 **a)** What is process migration? Describe desirable features of a good process migration. **08**

OR

Explain with example the client server binding in distributed environment.

Q.4 Explain in detail with example failure handling in MPS. **08**

Section – II

Q.5 **Solve any three** **12**
- **a)** Explain the consistency models of shared memory.
- **b)** Describe classification of mutual exclusion algorithms and its preliminaries.
- **c)** Explain with example the algorithm for implementing Distributed Shared Memory.
- **d)** Explain in detail log structured file system.

Q.6 **a)** Explain with example Lamport and Recart-Agrawala algorithms. **08**

OR

Explain all the mechanisms for building Distributed File System.

Q.7 State and describe design issues of Distributed Shared Memory. **08**

Seat No.	

Set **S**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. 14

1) What are the characteristics of tightly coupled system?
   i) Different clock
   ii) Use communication links
   iii) Same clock
   iv) Distributed systems
   a) i b) i and iv
   c) i, ii and iii d) ii, iii and iv

2) The Zero Capacity queue _____.
   a) is referred to as a message system with buffering
   b) is referred to as a message system with no buffering
   c) is referred to as a link
   d) none of the mentioned

3) What is not a major reason for building distributed systems?
   a) Resource sharing b) Computation speedup
   c) Reliability d) Simplicity

4) Bounded capacity and Unbounded capacity queues are referred to as _____.
   a) Programmed buffering b) Automatic buffering
   c) User defined buffering d) No buffering

5) According to the ring algorithm, links between processes are _____.
   a) Bidirectional
   b) Unidirectional
   c) Both bidirectional and unidirectional
   d) None of these

6) In distributed systems, link and site failure is detected by _____.
   a) polling b) Handshaking
   c) token passing d) none of these

7) Logical extension of computation migration is _____.
   a) process migration b) system migration
   c) thread migration d) data migration

8) Which are the two complementary deadlock-prevention schemes using timestamps?
   a) The wait-die & wound-wait scheme
   b) The wait-n-watch scheme
   c) The wound-wait scheme
   d) The wait-wound & wound-wait scheme

9) For proper synchronization in distributed systems _____.
   a) prevention from the deadlock is must
   b) prevention from the starvation is must
   c) prevention from the deadlock & starvation is must
   d) none of the mentioned

10) Single coordinator approach has the following disadvantages _____.
   a) Bottleneck
   b) Slow response
   c) Deadlock
   d) One request per second

11) The file once created cannot be changed is called _____.
   a) Immutable file
   b) Mutex file
   c) Mutable file
   d) None of these

12) What are the different ways in which clients and servers are dispersed across machines?
   a) Servers may not run on dedicated machines
   b) Servers and clients can be on same machines
   c) Distribution cannot be interposed between an OS and the file system
   d) OS cannot be distributed with the file system a part of that distribution

13) What are the characteristics of stateless server?
   a) Easier to implement
   b) They are not fault-tolerant upon client or server failures
   c) They store all information file server
   d) They are redundant to keep data safe

14) What are not the characteristics of a DFS?
   a) Login transparency and access transparency
   b) Files need not contain information about their physical location
   c) No Multiplicity of users
   d) No Multiplicity if files

SLR-FM-384

Seat No.	

Set S

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
3) Assume suitable data if necessary.
4) Figures must be draw wherever necessary.

Section – I

Q.2 Attempt any three **12**

a) Describe all the issue for designing distributed computing.
b) Draw and explain all the buffering mechanisms for message passing.
c) State and explain the call semantics of RPC.
d) Draw and explain the implementation of logical clocks by using counters and physical clocks.

Q.3 **a)** What is process migration? Describe desirable features of a good process migration. **08**

OR

Explain with example the client server binding in distributed environment.

Q.4 Explain in detail with example failure handling in MPS. **08**

Section – II

Q.5 Solve any three **12**

a) Explain the consistency models of shared memory.
b) Describe classification of mutual exclusion algorithms and its preliminaries.
c) Explain with example the algorithm for implementing Distributed Shared Memory.
d) Explain in detail log structured file system.

Q.6 **a)** Explain with example Lamport and Recart-Agrawala algorithms. **08**

OR

Explain all the mechanisms for building Distributed File System.

Q.7 State and describe design issues of Distributed Shared Memory. **08**

Set No.		Set	P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MICROCONTROLLER & EMBEDDED SYSTEMS

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) Figure to the right indicates full marks.
3) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. 14

1) 8051 series has how many 16 bit registers?
   a) 2 b) 3
   c) 1 d) 0

2) When 8051 wakes up then 0x00 is loaded to which register?
   a) DPTR b) SP
   c) PC d) PSW

3) When the microcontroller executes some arithmetic operations, then the flag bits of which register are affected?
   a) DPTR b) SP
   c) PC d) PSW

4) How are the status of the carry, auxiliary carry and parity flag affected if the following instructions are executed by 8051 microcontroller _____?

```
MOV A,#9C
ADD A,#64H
```

   a) CY=0, AC=0, P=0 b) CY=1, AC=1, P=0
   c) CY=0, AC=1, P=0 d) CY=1, AC=1, P=1

5) The internal RAM memory of the 8051 is _____.
   a) 32 bytes b) 64 bytes
   c) 128 bytes d) 256 bytes

6) On power up, the 8051 uses which RAM locations for register R0- R7 _____.
   a) 00-2F b) 00-07
   c) 00-7F d) 00-0F

7) How many bytes of bit addressable memory is present in 8051 based microcontrollers?
   a) 8 bytes b) 32 bytes
   c) 16 bytes d) 128 bytes

8) Embedded hardware/software systems are basically designed to _____.
   a) Regulate physical variable
   b) Change the state of some devices
   c) Measure/Read the state of the variable/device
   d) All of these

9) Which of the following processor architecture supports easier instruction pipelining?
   a) Harvard
   b) Von Neumann
   c) Both a & b
   d) None of these

10) Which of the following is one time programmable memory?
   a) SRAM
   b) PROM
   c) FLASH
   d) NVRAM

11) Which of the following memory type is best suited for development purpose?
   a) EEPROM
   b) FLASH
   c) UVEPROM
   d) Both (a) and (b)

12) UART stands for _____.
   a) Universal Asynchronous Receiver Transmitter
   b) Universal Analog Receiver Transmitter
   c) Unique Asynchronous Receiver Transmitter
   d) None of these

13) What is the theoretical maximum data rate supported by GPRS is _____.
   a) 8 Mbps
   b) 12 Mbps
   c) 171.2 Mbps
   d) None of the above

14) Quality attributes of an embedded system are _____.
   a) Functional requirements
   b) Non-functional requirements
   c) both
   d) None of these

SLR-FM-386

Seat No.	

Set P

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MICROCONTROLLER & EMBEDDED 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) Figure to the right indicates full marks.
3) Assume suitable data wherever necessary.

Section – I

Q.2 Answer any three. **12**

a) Compare between Harvard & Von-Neumann CPU architecture.
b) Explain memory organization of 8051 microcontroller.
c) Explain with examples any two arithmetic instructions of 8051 microcontroller.
d) Explain in detail interrupt structure of 8051 microprocessor.
e) Write an assembly language program for 8-bit subtraction using 8051 microcontroller.

Q.3 Attempt any one. **08**

a) Draw and explain the architecture of 8051 microcontroller in detail.
b) Explain interfacing of 8051 with keyboard

Q.4 With proper diagram, explain the interfacing of temperature sensor with 8051 microcontroller. **08**

Section – II

Q.5 Answer any three. **12**

a) What is hardware software co-design? Explain the fundamental issues in hardware software co-design.
b) What is computational model? Explain its role in hardware software co-design.
c) Explain multiprocessing, multitasking and multiprogramming.
d) What are the advantages and disadvantages of using user level threads?
e) Explain the task control block (TCB)? Explain the structure of TCB.

Q.6 Answer any one. **08**

a) Explain the semaphore based process synchronization under Windows OS.
b) Explain various process interaction models in detail

Q.7 Discuss embedded system design details for digital camera application. **08**

Set No.	

Set **Q**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MICROCONTROLLER & EMBEDDED SYSTEMS

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) Figure to the right indicates full marks.
3) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. 14

1) Embedded hardware/software systems are basically designed to _____.
   a) Regulate physical variable
   b) Change the state of some devices
   c) Measure/Read the state of the variable/device
   d) All of these

2) Which of the following processor architecture supports easier instruction pipelining?
   a) Harvard b) Von Neumann
   c) Both a & b d) None of these

3) Which of the following is one time programmable memory?
   a) SRAM b) PROM
   c) FLASH d) NVRAM

4) Which of the following memory type is best suited for development purpose?
   a) EEPROM b) FLASH
   c) UVEPROM d) Both (a) and (b)

5) UART stands for _____.
   a) Universal Asynchronous Receiver Transmitter
   b) Universal Analog Receiver Transmitter
   c) Unique Asynchronous Receiver Transmitter
   d) None of these

6) What is the theoretical maximum data rate supported by GPRS is _____.
   a) 8 Mbps b) 12 Mbps
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7) Quality attributes of an embedded system are _____.
   a) Functional requirements b) Non-functional requirements
   c) both d) None of these

8) 8051 series has how many 16 bit registers?
   a) 2 b) 3
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9) When 8051 wakes up then 0x00 is loaded to which register?
   a) DPTR b) SP
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10) When the microcontroller executes some arithmetic operations, then the flag bits of which register are affected?
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```
MOV A,#9C
ADD A,#64H
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   a) CY=0, AC=0, P=0 b) CY=1, AC=1, P=0
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12) The internal RAM memory of the 8051 is _____.
   a) 32 bytes b) 64 bytes
   c) 128 bytes d) 256 bytes

13) On power up, the 8051 uses which RAM locations for register R0- R7 _____.
   a) 00-2F b) 00-07
   c) 00-7F d) 00-0F

14) How many bytes of bit addressable memory is present in 8051 based microcontrollers?
   a) 8 bytes b) 32 bytes
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SLR-FM-386

Seat No.	

Set Q

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MICROCONTROLLER & EMBEDDED 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) Figure to the right indicates full marks.
3) Assume suitable data wherever necessary.

Section – I

Q.2 Answer any three. **12**

a) Compare between Harvard & Von-Neumann CPU architecture.
b) Explain memory organization of 8051 microcontroller.
c) Explain with examples any two arithmetic instructions of 8051 microcontroller.
d) Explain in detail interrupt structure of 8051 microprocessor.
e) Write an assembly language program for 8-bit subtraction using 8051 microcontroller.

Q.3 Attempt any one. **08**

a) Draw and explain the architecture of 8051 microcontroller in detail.
b) Explain interfacing of 8051 with keyboard

Q.4 With proper diagram, explain the interfacing of temperature sensor with 8051 microcontroller. **08**

Section – II

Q.5 Answer any three. **12**

a) What is hardware software co-design? Explain the fundamental issues in hardware software co-design.
b) What is computational model? Explain its role in hardware software co-design.
c) Explain multiprocessing, multitasking and multiprogramming.
d) What are the advantages and disadvantages of using user level threads?
e) Explain the task control block (TCB)? Explain the structure of TCB.

Q.6 Answer any one. **08**

a) Explain the semaphore based process synchronization under Windows OS.
b) Explain various process interaction models in detail

Q.7 Discuss embedded system design details for digital camera application. **08**

Set No.	

Set **R**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MICROCONTROLLER & EMBEDDED SYSTEMS

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) Figure to the right indicates full marks.
3) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) The internal RAM memory of the 8051 is _____.
   a) 32 bytes b) 64 bytes
   c) 128 bytes d) 256 bytes

2) On power up, the 8051 uses which RAM locations for register R0- R7 _____.
   a) 00-2F b) 00-07
   c) 00-7F d) 00-0F

3) How many bytes of bit addressable memory is present in 8051 based microcontrollers?
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4) Embedded hardware/software systems are basically designed to _____.
   a) Regulate physical variable
   b) Change the state of some devices
   c) Measure/Read the state of the variable/device
   d) All of these

5) Which of the following processor architecture supports easier instruction pipelining?
   a) Harvard b) Von Neumann
   c) Both a & b d) None of these

6) Which of the following is one time programmable memory?
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   c) FLASH d) NVRAM

7) Which of the following memory type is best suited for development purpose?
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   c) UVEPROM d) Both (a) and (b)

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   a) Universal Asynchronous Receiver Transmitter
   b) Universal Analog Receiver Transmitter
   c) Unique Asynchronous Receiver Transmitter
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9) What is the theoretical maximum data rate supported by GPRS is _____.
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   c) 171.2 Mbps
   d) None of the above

10) Quality attributes of an embedded system are _____.
   a) Functional requirements
   b) Non-functional requirements
   c) both
   d) None of these

11) 8051 series has how many 16 bit registers?
   a) 2
   b) 3
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   d) 0

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   a) DPTR
   b) SP
   c) PC
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```

   a) CY=0, AC=0, P=0
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   c) CY=0, AC=1, P=0
   d) CY=1, AC=1, P=1

Seat No.	

Set **R**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MICROCONTROLLER & EMBEDDED 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) Figure to the right indicates full marks.
3) Assume suitable data wherever necessary.

Section – I

Q.2 Answer any three. **12**

a) Compare between Harvard & Von-Neumann CPU architecture.
b) Explain memory organization of 8051 microcontroller.
c) Explain with examples any two arithmetic instructions of 8051 microcontroller.
d) Explain in detail interrupt structure of 8051 microprocessor.
e) Write an assembly language program for 8-bit subtraction using 8051 microcontroller.

Q.3 Attempt any one. **08**

a) Draw and explain the architecture of 8051 microcontroller in detail.
b) Explain interfacing of 8051 with keyboard

Q.4 With proper diagram, explain the interfacing of temperature sensor with 8051 microcontroller. **08**

Section – II

Q.5 Answer any three. **12**

a) What is hardware software co-design? Explain the fundamental issues in hardware software co-design.
b) What is computational model? Explain its role in hardware software co-design.
c) Explain multiprocessing, multitasking and multiprogramming.
d) What are the advantages and disadvantages of using user level threads?
e) Explain the task control block (TCB)? Explain the structure of TCB.

Q.6 Answer any one. **08**

a) Explain the semaphore based process synchronization under Windows OS.
b) Explain various process interaction models in detail

Q.7 Discuss embedded system design details for digital camera application. **08**

Set No.	

Set **S**

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MICROCONTROLLER & EMBEDDED SYSTEMS

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) Figure to the right indicates full marks.
3) Assume suitable data wherever necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) Which of the following is one time programmable memory?
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   c) FLASH d) NVRAM

2) Which of the following memory type is best suited for development purpose?
   a) EEPROM b) FLASH
   c) UVEPROM d) Both (a) and (b)

3) UART stands for _____.
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   b) Universal Analog Receiver Transmitter
   c) Unique Asynchronous Receiver Transmitter
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   c) both d) None of these

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   c) 1 d) 0

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   c) PC d) PSW

8) When the microcontroller executes some arithmetic operations, then the flag bits of which register are affected?
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9) How are the status of the carry, auxiliary carry and parity flag affected if the following instructions are executed by 8051 microcontroller _____?

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c) CY=0, AC=1, P=0
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10) The internal RAM memory of the 8051 is _____.

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b) 64 bytes
c) 128 bytes
d) 256 bytes

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b) 00-07
c) 00-7F
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12) How many bytes of bit addressable memory is present in 8051 based microcontrollers?

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b) 32 bytes
c) 16 bytes
d) 128 bytes

13) Embedded hardware/software systems are basically designed to _____.

a) Regulate physical variable
b) Change the state of some devices
c) Measure/Read the state of the variable/device
d) All of these

14) Which of the following processor architecture supports easier instruction pipelining?

a) Harvard
b) Von Neumann
c) Both a & b
d) None of these

SLR-FM-386

Seat No.	

Set S

B.E. (Part – I) (New) (CBCS) Examination Nov/Dec-2019
Information Technology
MICROCONTROLLER & EMBEDDED 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) Figure to the right indicates full marks.
3) Assume suitable data wherever necessary.

Section – I

Q.2 Answer any three. **12**

a) Compare between Harvard & Von-Neumann CPU architecture.
b) Explain memory organization of 8051 microcontroller.
c) Explain with examples any two arithmetic instructions of 8051 microcontroller.
d) Explain in detail interrupt structure of 8051 microprocessor.
e) Write an assembly language program for 8-bit subtraction using 8051 microcontroller.

Q.3 Attempt any one. **08**

a) Draw and explain the architecture of 8051 microcontroller in detail.
b) Explain interfacing of 8051 with keyboard

Q.4 With proper diagram, explain the interfacing of temperature sensor with 8051 microcontroller. **08**

Section – II

Q.5 Answer any three. **12**

a) What is hardware software co-design? Explain the fundamental issues in hardware software co-design.
b) What is computational model? Explain its role in hardware software co-design.
c) Explain multiprocessing, multitasking and multiprogramming.
d) What are the advantages and disadvantages of using user level threads?
e) Explain the task control block (TCB)? Explain the structure of TCB.

Q.6 Answer any one. **08**

a) Explain the semaphore based process synchronization under Windows OS.
b) Explain various process interaction models in detail

Q.7 Discuss embedded system design details for digital camera application. **08**

Seat No.	

Set **P**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 should be solved in first 30 minutes in answer Book.
2) Figures drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) The golden rule of design is understand your _____.
   a) Customer b) Needs
   c) Material d) Memory

2) What is design?
   a) Achieving goods within constraints
   b) Achieving goals within constraints
   c) Arriving goals within constraints
   d) Arriving goals within common

3) Learnability, flexibility and robustness are three main usability principles that can be considered as general headings for standards and guidelines generation. Which of the following are also high level usability categories that can guide standards and guidelines generation?
   1) Effectiveness
   2) Efficiency
   3) Fault tolerance
   4) Satisfaction

   Select correct option:
   a) (1) & (2) b) (1), (2) & (4)
   c) (2) & (3) d) (2) & (4)

4) Visually impaired persons can interact with outside world using their _____.
   a) Sense of sight
   b) Sense of hearing
   c) Both sense of touch and sense of hearing
   d) Sense of touch

5) _____ is a very general goal of Usability and refers to how good a system at doing what it is suppose to do.
   a) Effectiveness b) Efficiency
   c) Utility d) None of the above

6) What is a semantic network?
   a) A model of long-term memory
   b) A record of our memory of events
   c) The part of the brain which allows us to remember things
   d) A mechanism for improving memory

7) Which are the most significant senses for the average person when it comes to interacting with a computer?
   a) Sight and hearing
   b) Hearing, touch and smell
   c) Hearing and touch
   d) Sight, hearing and touch

8) Which of the following is true about Short-Term memory?
   a) Short-term memory has a Limited capacity
   b) Short-term memory has an unlimited capacity
   c) Short-term memory has no capacity
   d) Short-term memory has large but limited capacity

9) Over a short period of time, we find it easier to remember the string of numbers “404 894 6743” because _____.
   a) Numbers are easier to remember than arbitrary characters
   b) The grouping of the numbers is significant
   c) Ten numbers is not that many to have to remember from working memory
   d) None of these

10) Evaluation tests the _____, _____, and _____ of an interactive system.
   a) Usability, functionality and acceptability
   b) Appearance, working and functionality
   c) Effectiveness, GUI and acceptability
   d) Usability ,effectiveness, functionality

11) The biological response to physical stimuli is called _____.
   a) Affect
   b) Effect
   c) Emotion
   d) Attitude

12) HCI deals with: _____.
   a) Design of interactive system only
   b) Evaluation of interactive system only
   c) Implementation of interactive system only
   d) All of the given choices

13) Physical and device models represent _____ skills.
   a) Human motor
   b) Linguistic
   c) a and b
   d) None of the above

14) Which of the given statements correctly defines effectiveness in terms of one of the usability goals?
   a) It is a very general goal and refers to how good a system at doing what it is supposed to do
   b) It refers to the way a system supports users in carrying out their tasks
   c) It involves protecting the users from dangerous conditions
   d) It involves protecting the users from undesired situations

Seat No.	

Set **P**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
HUMAN COMPUTER INTERACTION

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 indicates full marks.

Section – I

Q.2 Attempt any four of the following **16**

a) Explain Cathode Ray Tube with diagram.
b) What is WIMP? Discuss the elements of WIMP in detail.
c) What are paradigms and metaphor give examples.
d) What are text entry devices available in computer? What is meant by chord Keyboards?
e) Differentiate deductive reasoning, inductive reasoning and abductive reasoning.

Q.3 Answer any two of the following. **12**

a) What are the input and output channels of human? Draw and explain the structure of human Memory.
b) State the Golden rule of Design. Draw and explain the process of design in detail.
c) Mention 7 stages of Donald Norman's model in interaction?

Section – II

Q.4 Attempt any four of the following. **16**

a) Define cognitive complexity theory. Give example.
b) Define stakeholder. Describe different categories of stakeholders.
c) Discuss the elements of windowing system.
d) Explain in detail about linguistic models.
e) Explain
1) Task analysis
2) Task decomposition

Q.5 Answer any two of the following. **12**

a) Explain in detail about evaluation through expert analysis and evaluation through participation?
b) Describe briefly
1) Knowledge based analysis
2) Sensor based interaction
c) Describe the following:
1) Dialog and dialog design notation
2) Textual dialog notation and diagrammatic notations
3) Dialog semantics

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 should be solved in first 30 minutes in answer Book.
2) Figures drawn by pencil, ruler only indicate full marks.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) Which of the following is true about Short-Term memory?
   a) Short-term memory has a Limited capacity
   b) Short-term memory has an unlimited capacity
   c) Short-term memory has no capacity
   d) Short-term memory has large but limited capacity

2) Over a short period of time, we find it easier to remember the string of numbers “404 894 6743” because _____.
   a) Numbers are easier to remember than arbitrary characters
   b) The grouping of the numbers is significant
   c) Ten numbers is not that many to have to remember from working memory
   d) None of these

3) Evaluation tests the _____, _____, and _____ of an interactive system.
   a) Usability, functionality and acceptability
   b) Appearance, working and functionality
   c) Effectiveness, GUI and acceptability
   d) Usability ,effectiveness, functionality

4) The biological response to physical stimuli is called _____.
   a) Affect b) Effect
   c) Emotion d) Attitude

5) HCI deals with: _____.
   a) Design of interactive system only
   b) Evaluation of interactive system only
   c) Implementation of interactive system only
   d) All of the given choices

6) Physical and device models represent _____ skills.
   a) Human motor b) Linguistic
   c) a and b d) None of the above

7) Which of the given statements correctly defines effectiveness in terms of one of the usability goals?
   a) It is a very general goal and refers to how good a system at doing what it is supposed to do
   b) It refers to the way a system supports users in carrying out their tasks
   c) It involves protecting the users from dangerous conditions
   d) It involves protecting the users from undesired situations

8) The golden rule of design is understand your _____.
   a) Customer
   b) Needs
   c) Material
   d) Memory

9) What is design?
   a) Achieving goods within constraints
   b) Achieving goals within constraints
   c) Arriving goals within constraints
   d) Arriving goals within common

10) Learnability, flexibility and robustness are three main usability principles that can be considered as general headings for standards and guidelines generation. Which of the following are also high level usability categories that can guide standards and guidelines generation?
   1) Effectiveness
   2) Efficiency
   3) Fault tolerance
   4) Satisfaction

   Select correct option:
   a) (1) & (2)
   b) (1), (2) & (4)
   c) (2) & (3)
   d) (2) & (4)

11) Visually impaired persons can interact with outside world using their _____.
   a) Sense of sight
   b) Sense of hearing
   c) Both sense of touch and sense of hearing
   d) Sense of touch

12) _____ is a very general goal of Usability and refers to how good a system at doing what it is suppose to do.
   a) Effectiveness
   b) Efficiency
   c) Utility
   d) None of the above

13) What is a semantic network?
   a) A model of long-term memory
   b) A record of our memory of events
   c) The part of the brain which allows us to remember things
   d) A mechanism for improving memory

14) Which are the most significant senses for the average person when it comes to interacting with a computer?
   a) Sight and hearing
   b) Hearing, touch and smell
   c) Hearing and touch
   d) Sight, hearing and touch

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
HUMAN COMPUTER INTERACTION

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 indicates full marks.

Section – I

Q.2 Attempt any four of the following **16**

a) Explain Cathode Ray Tube with diagram.
b) What is WIMP? Discuss the elements of WIMP in detail.
c) What are paradigms and metaphor give examples.
d) What are text entry devices available in computer? What is meant by chord Keyboards?
e) Differentiate deductive reasoning, inductive reasoning and abductive reasoning.

Q.3 Answer any two of the following. **12**

a) What are the input and output channels of human? Draw and explain the structure of human Memory.
b) State the Golden rule of Design. Draw and explain the process of design in detail.
c) Mention 7 stages of Donald Norman's model in interaction?

Section – II

Q.4 Attempt any four of the following. **16**

a) Define cognitive complexity theory. Give example.
b) Define stakeholder. Describe different categories of stakeholders.
c) Discuss the elements of windowing system.
d) Explain in detail about linguistic models.
e) Explain
1) Task analysis
2) Task decomposition

Q.5 Answer any two of the following. **12**

a) Explain in detail about evaluation through expert analysis and evaluation through participation?
b) Describe briefly
1) Knowledge based analysis
2) Sensor based interaction
c) Describe the following:
1) Dialog and dialog design notation
2) Textual dialog notation and diagrammatic notations
3) Dialog semantics

Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 should be solved in first 30 minutes in answer Book.
2) Figures drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) _____ is a very general goal of Usability and refers to how good a system at doing what it is suppose to do.
   a) Effectiveness b) Efficiency
   c) Utility d) None of the above

2) What is a semantic network?
   a) A model of long-term memory
   b) A record of our memory of events
   c) The part of the brain which allows us to remember things
   d) A mechanism for improving memory

3) Which are the most significant senses for the average person when it comes to interacting with a computer?
   a) Sight and hearing b) Hearing, touch and smell
   c) Hearing and touch d) Sight, hearing and touch

4) Which of the following is true about Short-Term memory?
   a) Short-term memory has a Limited capacity
   b) Short-term memory has an unlimited capacity
   c) Short-term memory has no capacity
   d) Short-term memory has large but limited capacity

5) Over a short period of time, we find it easier to remember the string of numbers “404 894 6743” because _____.
   a) Numbers are easier to remember than arbitrary characters
   b) The grouping of the numbers is significant
   c) Ten numbers is not that many to have to remember from working memory
   d) None of these

6) Evaluation tests the _____, _____, and _____ of an interactive system.
   a) Usability, functionality and acceptability
   b) Appearance, working and functionality
   c) Effectiveness, GUI and acceptability
   d) Usability ,effectiveness, functionality

7) The biological response to physical stimuli is called _____.
   a) Affect b) Effect
   c) Emotion d) Attitude

8) HCI deals with: _____.
   a) Design of interactive system only
   b) Evaluation of interactive system only
   c) Implementation of interactive system only
   d) All of the given choices

9) Physical and device models represent _____ skills.
   a) Human motor
   b) Linguistic
   c) a and b
   d) None of the above

10) Which of the given statements correctly defines effectiveness in terms of one of the usability goals?
   a) It is a very general goal and refers to how good a system at doing what it is supposed to do
   b) It refers to the way a system supports users in carrying out their tasks
   c) It involves protecting the users from dangerous conditions
   d) It involves protecting the users from undesired situations

11) The golden rule of design is understand your _____.
   a) Customer
   b) Needs
   c) Material
   d) Memory

12) What is design?
   a) Achieving goods within constraints
   b) Achieving goals within constraints
   c) Arriving goals within constraints
   d) Arriving goals within common

13) Learnability, flexibility and robustness are three main usability principles that can be considered as general headings for standards and guidelines generation. Which of the following are also high level usability categories that can guide standards and guidelines generation?
   1) Effectiveness
   2) Efficiency
   3) Fault tolerance
   4) Satisfaction

   Select correct option:
   a) (1) & (2)
   b) (1), (2) & (4)
   c) (2) & (3)
   d) (2) & (4)

14) Visually impaired persons can interact with outside world using their _____.
   a) Sense of sight
   b) Sense of hearing
   c) Both sense of touch and sense of hearing
   d) Sense of touch

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Seat No.	

Set R

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
HUMAN COMPUTER INTERACTION

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 indicates full marks.

Section – I

Q.2 Attempt any four of the following **16**

a) Explain Cathode Ray Tube with diagram.
b) What is WIMP? Discuss the elements of WIMP in detail.
c) What are paradigms and metaphor give examples.
d) What are text entry devices available in computer? What is meant by chord Keyboards?
e) Differentiate deductive reasoning, inductive reasoning and abductive reasoning.

Q.3 Answer any two of the following. **12**

a) What are the input and output channels of human? Draw and explain the structure of human Memory.
b) State the Golden rule of Design. Draw and explain the process of design in detail.
c) Mention 7 stages of Donald Norman's model in interaction?

Section – II

Q.4 Attempt any four of the following. **16**

a) Define cognitive complexity theory. Give example.
b) Define stakeholder. Describe different categories of stakeholders.
c) Discuss the elements of windowing system.
d) Explain in detail about linguistic models.
e) Explain
1) Task analysis
2) Task decomposition

Q.5 Answer any two of the following. **12**

a) Explain in detail about evaluation through expert analysis and evaluation through participation?
b) Describe briefly
1) Knowledge based analysis
2) Sensor based interaction
c) Describe the following:
1) Dialog and dialog design notation
2) Textual dialog notation and diagrammatic notations
3) Dialog semantics

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Seat No.	

Set S

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 should be solved in first 30 minutes in answer Book.
2) Figures drawn by pencil, ruler only indicate full marks.
3) Do not use pen to draw and label the diagrams.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. 14

1) Evaluation tests the _____, _____, and _____ of an interactive system.
   a) Usability, functionality and acceptability
   b) Appearance, working and functionality
   c) Effectiveness, GUI and acceptability
   d) Usability ,effectiveness, functionality

2) The biological response to physical stimuli is called _____.
   a) Affect b) Effect
   c) Emotion d) Attitude

3) HCI deals with: _____.
   a) Design of interactive system only
   b) Evaluation of interactive system only
   c) Implementation of interactive system only
   d) All of the given choices

4) Physical and device models represent _____ skills.
   a) Human motor b) Linguistic
   c) a and b d) None of the above

5) Which of the given statements correctly defines effectiveness in terms of one of the usability goals?
   a) It is a very general goal and refers to how good a system at doing what it is supposed to do
   b) It refers to the way a system supports users in carrying out their tasks
   c) It involves protecting the users from dangerous conditions
   d) It involves protecting the users from undesired situations

6) The golden rule of design is understand your _____.
   a) Customer b) Needs
   c) Material d) Memory

7) What is design?
   a) Achieving goods within constraints
   b) Achieving goals within constraints
   c) Arriving goals within constraints
   d) Arriving goals within common

8) Learnability, flexibility and robustness are three main usability principles that can be considered as general headings for standards and guidelines generation. Which of the following are also high level usability categories that can guide standards and guidelines generation?
   1) Effectiveness
   2) Efficiency
   3) Fault tolerance
   4) Satisfaction

   Select correct option:

   a) (1) & (2) b) (1), (2) & (4)
   c) (2) & (3) d) (2) & (4)

9) Visually impaired persons can interact with outside world using their _____.
   a) Sense of sight
   b) Sense of hearing
   c) Both sense of touch and sense of hearing
   d) Sense of touch

10) _____ is a very general goal of Usability and refers to how good a system at doing what it is suppose to do.
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11) What is a semantic network?
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   b) A record of our memory of events
   c) The part of the brain which allows us to remember things
   d) A mechanism for improving memory

12) Which are the most significant senses for the average person when it comes to interacting with a computer?
   a) Sight and hearing b) Hearing, touch and smell
   c) Hearing and touch d) Sight, hearing and touch

13) Which of the following is true about Short-Term memory?
   a) Short-term memory has a Limited capacity
   b) Short-term memory has an unlimited capacity
   c) Short-term memory has no capacity
   d) Short-term memory has large but limited capacity

14) Over a short period of time, we find it easier to remember the string of numbers “404 894 6743” because _____.
   a) Numbers are easier to remember than arbitrary characters
   b) The grouping of the numbers is significant
   c) Ten numbers is not that many to have to remember from working memory
   d) None of these

Seat No.	

Set **S**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
HUMAN COMPUTER INTERACTION

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 indicates full marks.

Section – I

Q.2 Attempt any four of the following **16**

a) Explain Cathode Ray Tube with diagram.
b) What is WIMP? Discuss the elements of WIMP in detail.
c) What are paradigms and metaphor give examples.
d) What are text entry devices available in computer? What is meant by chord Keyboards?
e) Differentiate deductive reasoning, inductive reasoning and abductive reasoning.

Q.3 Answer any two of the following. **12**

a) What are the input and output channels of human? Draw and explain the structure of human Memory.
b) State the Golden rule of Design. Draw and explain the process of design in detail.
c) Mention 7 stages of Donald Norman's model in interaction?

Section – II

Q.4 Attempt any four of the following. **16**

a) Define cognitive complexity theory. Give example.
b) Define stakeholder. Describe different categories of stakeholders.
c) Discuss the elements of windowing system.
d) Explain in detail about linguistic models.
e) Explain
1) Task analysis
2) Task decomposition

Q.5 Answer any two of the following. **12**

a) Explain in detail about evaluation through expert analysis and evaluation through participation?
b) Describe briefly
1) Knowledge based analysis
2) Sensor based interaction
c) Describe the following:
1) Dialog and dialog design notation
2) Textual dialog notation and diagrammatic notations
3) Dialog semantics

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Seat No.	

Set P

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-2019 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 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) Decision support system involve all of the following type of analytical modeling activities except _____.
   a) What if analysis b) Sensitivity analysis
   c) Goal-seeking analysis d) Heuristics

2) Which of the following is not true of information?
   a) Information involves placing data in some form of meaningful context.
   b) Information is produced as a byproduct of a transformation process
   c) Information involves transforming data using a defined process
   d) helps to reduce uncertainty, thereby improving decision behavior

3) The _____ can help you choose a product.
   a) Office automation system
   b) Management Information System
   c) Transaction processing
   d) Decision Support System

4) A storage device that is connected directly to a network is an example of _____.
   a) Network attached storage b) Storage area network
   c) Direct attached storage d) RAID

5) Knowledge derived from recorded facts is _____.
   a) Data b) Information
   c) Truth d) All of the above

6) If you are a _____ recipient of sensitive information, such as might be overheard or contained in a misdirected email, this would not be illegal, but might be unethical to use it.
   a) Active b) Passive
   c) Proper d) Business

7) Which of these system uses multidimensional data analysis?
   a) DSS b) MIS
   c) ESS d) All of these

8) Supply chain decision support pertaining to specific products produced at specific plants in a specific quantity falls under _____.
   a) Supply chain decision support at strategic level
   b) Supply chain decision support at operational level
   c) Supply chain decision support at tactial level
   d) Either at strategic level or at tactical level

9) The expert system uses a(n) _____ to select the most appropriate response.
   a) Inference
   b) Decision support system
   c) Knowledge base
   d) data source

10) The criteria used to access how user and business needs are met in software _____.
   a) Compatibility
   b) Security
   c) Scalability
   d) Functionality

11) Building and sustaining long term business with customers is the aim of _____.
   a) Customer Relationship Management
   b) Customer Acquisition
   c) Customer Management
   d) Electronic-CRM

12) E-Commerce is not suitable for _____.
   a) Sale/Purchasing of expensive jewelry
   b) Sale/Purchase of Mobile phones
   c) Online Job searching
   d) Sale/Purchase of branded clothes

13) Confidentiality, ____ and availability are the basic principles of information security.
   a) Integrity
   b) Portability
   c) Modularity
   d) Efficiency

14) To easily modify the existing system it is necessary to _____.
   a) Use good software tools
   b) Use the best hardware available
   c) Design the system which can be changed at low cost
   d) Keep the programming team happy

Seat No.	

Set **P**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

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 right indicate full marks.

Section – I

Q.2 Answer any four of the following questions. **16**

a) What is information system? Explain the dimensions of information system.
b) What is collaboration? Explain few business benefits of collaboration and teamwork.
c) How information systems impact organizations and business firm?
d) Write a note on Information rights.
e) List and explain ethics in a information society.
f) Write a note on Green computing.

Q.3 Answer any two of the following questions. **12**

a) Explain the tools and technologies for collaboration and teamwork.
b) Why it is required to have security and control in Information technology.
c) Explain the components of information technology infrastructure.

Section – II

Q.4 Answer any FOUR of the following questions. **16**

a) Why e-commerce is different? Explain types of e- commerce.
b) Write a note on intelligent techniques to manage knowledge.
c) Explain types of knowledge management systems.
d) Explain Rapid Application Development.
e) What is change management?
f) What are the critical success factors in selecting projects?

Q.7 Answer any two of the following questions. **12**

a) Explain Customer Relationship Management with diagram.
b) What is Business Intelligence (BI)? Explain management strategies for developing BI capabilities.
c) Explain how you manage global systems.

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-2019 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 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) Supply chain decision support pertaining to specific products produced at specific plants in a specific quantity falls under _____.
   a) Supply chain decision support at strategic level
   b) Supply chain decision support at operational level
   c) Supply chain decision support at tactial level
   d) Either at strategic level or at tactical level

2) The expert system uses a(n) _____ to select the most appropriate response.
   a) Inference b) Decision support system
   c) Knowledge base d) data source

3) The criteria used to access how user and business needs are met in software _____.
   a) Compatibility b) Security
   c) Scalability d) Functionality

4) Building and sustaining long term business with customers is the aim of _____.
   a) Customer Relationship Management
   b) Customer Acquisition
   c) Customer Management
   d) Electronic-CRM

5) E-Commerce is not suitable for _____.
   a) Sale/Purchasing of expensive jewelry
   b) Sale/Purchase of Mobile phones
   c) Online Job searching
   d) Sale/Purchase of branded clothes

6) Confidentiality, ____ and availability are the basic principles of information security.
   a) Integrity b) Portability
   c) Modularity d) Efficiency

7) To easily modify the existing system it is necessary to _____.
   a) Use good software tools
   b) Use the best hardware available
   c) Design the system which can be changed at low cost
   d) Keep the programming team happy

8) Decision support system involve all of the following type of analytical modeling activities except _____.
   a) What if analysis
   b) Sensitivity analysis
   c) Goal-seeking analysis
   d) Heuristics

9) Which of the following is not true of information?
   a) Information involves placing data in some form of meaningful context.
   b) Information is produced as a byproduct of a transformation process
   c) Information involves transforming data using a defined process
   d) helps to reduce uncertainty, thereby improving decision behavior

10) The _____ can help you choose a product.
   a) Office automation system
   b) Management Information System
   c) Transaction processing
   d) Decision Support System

11) A storage device that is connected directly to a network is an example of _____.
   a) Network attached storage
   b) Storage area network
   c) Direct attached storage
   d) RAID

12) Knowledge derived from recorded facts is _____.
   a) Data
   b) Information
   c) Truth
   d) All of the above

13) If you are a _____ recipient of sensitive information, such as might be overheard or contained in a misdirected email, this would not be illegal, but might be unethical to use it.
   a) Active
   b) Passive
   c) Proper
   d) Business

14) Which of these system uses multidimensional data analysis?
   a) DSS
   b) MIS
   c) ESS
   d) All of these

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Seat No.	

Set Q

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

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 right indicate full marks.

Section – I

Q.2 Answer any four of the following questions. **16**

a) What is information system? Explain the dimensions of information system.
b) What is collaboration? Explain few business benefits of collaboration and teamwork.
c) How information systems impact organizations and business firm?
d) Write a note on Information rights.
e) List and explain ethics in a information society.
f) Write a note on Green computing.

Q.3 Answer any two of the following questions. **12**

a) Explain the tools and technologies for collaboration and teamwork.
b) Why it is required to have security and control in Information technology.
c) Explain the components of information technology infrastructure.

Section – II

Q.4 Answer any FOUR of the following questions. **16**

a) Why e-commerce is different? Explain types of e- commerce.
b) Write a note on intelligent techniques to manage knowledge.
c) Explain types of knowledge management systems.
d) Explain Rapid Application Development.
e) What is change management?
f) What are the critical success factors in selecting projects?

Q.7 Answer any two of the following questions. **12**

a) Explain Customer Relationship Management with diagram.
b) What is Business Intelligence (BI)? Explain management strategies for developing BI capabilities.
c) Explain how you manage global systems.

Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-2019 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 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) Knowledge derived from recorded facts is _____.
   a) Data b) Information
   c) Truth d) All of the above

2) If you are a _____ recipient of sensitive information, such as might be overheard or contained in a misdirected email, this would not be illegal, but might be unethical to use it.
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   c) Proper d) Business

3) Which of these system uses multidimensional data analysis?
   a) DSS b) MIS
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   b) Supply chain decision support at operational level
   c) Supply chain decision support at tactial level
   d) Either at strategic level or at tactical level

5) The expert system uses a(n) _____ to select the most appropriate response.
   a) Inference b) Decision support system
   c) Knowledge base d) data source

6) The criteria used to access how user and business needs are met in software _____.
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7) Building and sustaining long term business with customers is the aim of _____.
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   b) Customer Acquisition
   c) Customer Management
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8) E-Commerce is not suitable for _____.
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   b) Sale/Purchase of Mobile phones
   c) Online Job searching
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9) Confidentiality, ____ and availability are the basic principles of information security.
   a) Integrity
   b) Portability
   c) Modularity
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10) To easily modify the existing system it is necessary to _____.
   a) Use good software tools
   b) Use the best hardware available
   c) Design the system which can be changed at low cost
   d) Keep the programming team happy

11) Decision support system involve all of the following type of analytical modeling activities except _____.
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   c) Goal-seeking analysis
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12) Which of the following is not true of information?
   a) Information involves placing data in some form of meaningful context.
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   c) Information involves transforming data using a defined process
   d) helps to reduce uncertainty, thereby improving decision behavior

13) The _____ can help you choose a product.
   a) Office automation system
   b) Management Information System
   c) Transaction processing
   d) Decision Support System

14) A storage device that is connected directly to a network is an example of _____.
   a) Network attached storage
   b) Storage area network
   c) Direct attached storage
   d) RAID

Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

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 right indicate full marks.

Section – I

Q.2 Answer any four of the following questions. **16**

a) What is information system? Explain the dimensions of information system.
b) What is collaboration? Explain few business benefits of collaboration and teamwork.
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Q.3 Answer any two of the following questions. **12**

a) Explain the tools and technologies for collaboration and teamwork.
b) Why it is required to have security and control in Information technology.
c) Explain the components of information technology infrastructure.

Section – II

Q.4 Answer any FOUR of the following questions. **16**

a) Why e-commerce is different? Explain types of e- commerce.
b) Write a note on intelligent techniques to manage knowledge.
c) Explain types of knowledge management systems.
d) Explain Rapid Application Development.
e) What is change management?
f) What are the critical success factors in selecting projects?

Q.7 Answer any two of the following questions. **12**

a) Explain Customer Relationship Management with diagram.
b) What is Business Intelligence (BI)? Explain management strategies for developing BI capabilities.
c) Explain how you manage global systems.

Seat No.	

Set | S

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

Day & Date: Saturday, 07-12-2019 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 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) The criteria used to access how user and business needs are met in software _____.
   a) Compatibility b) Security
   c) Scalability d) Functionality

2) Building and sustaining long term business with customers is the aim of _____.
   a) Customer Relationship Management
   b) Customer Acquisition
   c) Customer Management
   d) Electronic-CRM

3) E-Commerce is not suitable for _____.
   a) Sale/Purchasing of expensive jewelry
   b) Sale/Purchase of Mobile phones
   c) Online Job searching
   d) Sale/Purchase of branded clothes

4) Confidentiality, ____ and availability are the basic principles of information security.
   a) Integrity b) Portability
   c) Modularity d) Efficiency

5) To easily modify the existing system it is necessary to _____.
   a) Use good software tools
   b) Use the best hardware available
   c) Design the system which can be changed at low cost
   d) Keep the programming team happy

6) Decision support system involve all of the following type of analytical modeling activities except _____.
   a) What if analysis b) Sensitivity analysis
   c) Goal-seeking analysis d) Heuristics

7) Which of the following is not true of information?
   a) Information involves placing data in some form of meaningful context.
   b) Information is produced as a byproduct of a transformation process
   c) Information involves transforming data using a defined process
   d) helps to reduce uncertainty, thereby improving decision behavior

8) The _____ can help you choose a product.
   a) Office automation system
   b) Management Information System
   c) Transaction processing
   d) Decision Support System

9) A storage device that is connected directly to a network is an example of _____.
   a) Network attached storage
   b) Storage area network
   c) Direct attached storage
   d) RAID

10) Knowledge derived from recorded facts is _____.
   a) Data
   b) Information
   c) Truth
   d) All of the above

11) If you are a _____ recipient of sensitive information, such as might be overheard or contained in a misdirected email, this would not be illegal, but might be unethical to use it.
   a) Active
   b) Passive
   c) Proper
   d) Business

12) Which of these system uses multidimensional data analysis?
   a) DSS
   b) MIS
   c) ESS
   d) All of these

13) Supply chain decision support pertaining to specific products produced at specific plants in a specific quantity falls under _____.
   a) Supply chain decision support at strategic level
   b) Supply chain decision support at operational level
   c) Supply chain decision support at tactial level
   d) Either at strategic level or at tactical level

14) The expert system uses a(n) _____ to select the most appropriate response.
   a) Inference
   b) Decision support system
   c) Knowledge base
   d) data source

SLR-FM-388

Seat No.	

Set S

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MANAGEMENT INFORMATION SYSTEM

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 right indicate full marks.

Section – I

Q.2 Answer any four of the following questions. **16**

a) What is information system? Explain the dimensions of information system.
b) What is collaboration? Explain few business benefits of collaboration and teamwork.
c) How information systems impact organizations and business firm?
d) Write a note on Information rights.
e) List and explain ethics in a information society.
f) Write a note on Green computing.

Q.3 Answer any two of the following questions. **12**

a) Explain the tools and technologies for collaboration and teamwork.
b) Why it is required to have security and control in Information technology.
c) Explain the components of information technology infrastructure.

Section – II

Q.4 Answer any FOUR of the following questions. **16**

a) Why e-commerce is different? Explain types of e- commerce.
b) Write a note on intelligent techniques to manage knowledge.
c) Explain types of knowledge management systems.
d) Explain Rapid Application Development.
e) What is change management?
f) What are the critical success factors in selecting projects?

Q.7 Answer any two of the following questions. **12**

a) Explain Customer Relationship Management with diagram.
b) What is Business Intelligence (BI)? Explain management strategies for developing BI capabilities.
c) Explain how you manage global systems.

SLR-FM-389

Seat No.	

Set P

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED DATA BASE SYSTEM

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 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) Data that are shipped to a client on behalf of a transaction can reside at the client even after the transaction completes is called _____.
   a) Data caching b) Lock caching
   c) Data fetching d) Data distribution

2) Site reintegration in distributed database is nothing but _____.
   a) Separating a failed site from a network
   b) Selecting a new coordinator
   c) Rejoining of a failed site after its recovery
   d) Connecting the whole network after the failure of its server

3) In interquery parallelism _____.
   a) Different queries are executing in parallel
   b) Single query is executing in parallel
   c) Individual operation of a query executes in parallel
   d) Different operation of a query executes in parallel

4) The protocol which allows global transactions to read but not to update local data items is _____.
   a) Local-read-write protocol b) Local-read protocol
   c) Global-read-write protocol d) Global-read protocol

5) If one of the sites containing relation r fails then the relation r can be found at another site. This mechanism is _____.
   a) Data fragmentation
   b) Data replication
   c) Data integration
   d) Data configuration

6) The query
   Create type Student under Person ….
   Is using a
   a) table inheritance b) multiple inheritance
   c) type inheritance d) attribute inheritance

7) Duplication elimination, projection, set operations can be done by _____.
   a) Sorting b) Hashing
   c) Both d) None

8) Sorting of the relation that do not fit in memory is called _____.
   a) Parallel sort
   b) External sort
   c) Range sort
   d) Merge sort

9) Translation of a queries in high level database language in to expressions that can be used at the physical level is called _____.
   a) query optimization
   b) query transformation
   c) query processing
   d) query execution

10) The process that receive user queries, execute them and results are sent back are called _____.
   a) Data server process
   b) Server process
   c) User process
   d) Database writer process

11) In data analysis & mining, Decision Support System is used for making _____.
   a) Query decisions
   b) Data analysis decisions
   c) Business decisions
   d) Table creation decisions

12) Large volumes of data are processed by Hadoop _____
   a) Using a lot of machines in parallel. This optimizes data processing
   b) Shipping the code to the data instead of sending the date to the code
   c) Using sophisticated caching techniques on name node to speed processing of data
   d) All of the above

13) $\sigma_{\theta_1 \cap \theta_1}(E) =$ _____.
   a) $\sigma_{\theta_1}(E) \cap \theta_1(E)$
   b) $\sigma_{\theta_1}(E) \cup \theta_1(E)$
   c) $\sigma_{\theta_1}(\sigma_{\theta 2}(E))$
   d) All

14) Which of the following is not the Dameon process that runs on hadoop cluster?
   a) JobTracker
   b) DataNode
   c) TaskTracker
   d) TaskNode

Seat No.	

Set **P**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED DATA BASE SYSTEM

Day & Date: Tuesday, 10-12-2019 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 of the following questions. **12**

a) Shared lock & distributed lock manager approach.
b) Complex datatypes.
c) Parallel sort.
d) Persistent C ++ system.

Q.3 Attempt any one of the following questions. **08**

Illustrate with example Query transformation and semi join strategy in distributed query processing.

OR

Explain Objects, Object - identity and reference types in SQL with example illustration.

Q.4 Attempt any one of the following questions. **08**

What is interoperation parallelism? Illustrate its techniques with examples.

OR

What is I/O Parallelism? Explain and compare the partitioning techniques in it.

Section – II

Q.5 Attempt any three of the following questions. **12**

a) Decision tree classifier
b) Association and clustering
c) Transaction processing monitors
d) Database connectivity and OOD standards

Q.6 Attempt any one of the following questions. **08**

What is Datawarehouse? Elaborate its components and issues with neat diagram.

OR

Explain query processing of selection operation using indices with all its algorithms.

Q.7 Attempt any one of the following questions. **08**

Differentiate between SQL, NoSQL & New SQL with example & use.

OR

What is performance tuning? Explain tunable parameters & tuning of hardware.

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED DATA BASE SYSTEM

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 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) Sorting of the relation that do not fit in memory is called _____.
   a) Parallel sort b) External sort
   c) Range sort d) Merge sort

2) Translation of a queries in high level database language in to expressions that can be used at the physical level is called _____.
   a) query optimization b) query transformation
   c) query processing d) query execution

3) The process that receive user queries, execute them and results are sent back are called _____.
   a) Data server process b) Server process
   c) User process d) Database writer process

4) In data analysis & mining, Decision Support System is used for making _____.
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5) Large volumes of data are processed by Hadoop _____
   a) Using a lot of machines in parallel. This optimizes data processing
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6) $\sigma_{\theta_1 \cap \theta_1}(E) =$ _____.
   a) $\sigma_{\theta_1}(E) \cap \theta_1(E)$ b) $\sigma_{\theta_1}(E) \cup \theta_1(E)$
   c) $\sigma_{\theta_1}(\sigma_{\theta 2}(E))$ d) All

7) Which of the following is not the Dameon process that runs on hadoop cluster?
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9) Site reintegration in distributed database is nothing but _____.
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10) In interquery parallelism _____.
   a) Different queries are executing in parallel
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   c) Individual operation of a query executes in parallel
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11) The protocol which allows global transactions to read but not to update local data items is _____.
   a) Local-read-write protocol
   b) Local-read protocol
   c) Global-read-write protocol
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12) If one of the sites containing relation r fails then the relation r can be found at another site. This mechanism is _____.
   a) Data fragmentation
   b) Data replication
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   d) Data configuration

13) The query
   Create type Student under Person ….
   Is using a
   a) table inheritance
   b) multiple inheritance
   c) type inheritance
   d) attribute inheritance

14) Duplication elimination, projection, set operations can be done by _____.
   a) Sorting
   b) Hashing
   c) Both
   d) None

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED DATA BASE SYSTEM

Day & Date: Tuesday, 10-12-2019 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 of the following questions. **12**

a) Shared lock & distributed lock manager approach.
b) Complex datatypes.
c) Parallel sort.
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Illustrate with example Query transformation and semi join strategy in distributed query processing.

OR

Explain Objects, Object - identity and reference types in SQL with example illustration.

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Section – II

Q.5 Attempt any three of the following questions. **12**

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What is Datawarehouse? Elaborate its components and issues with neat diagram.

OR

Explain query processing of selection operation using indices with all its algorithms.

Q.7 Attempt any one of the following questions. **08**

Differentiate between SQL, NoSQL & New SQL with example & use.

OR

What is performance tuning? Explain tunable parameters & tuning of hardware.

Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED DATA BASE SYSTEM

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 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

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   c) Data integration
   d) Data configuration

2) The query
   Create type Student under Person ….
   Is using a
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Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED DATA BASE SYSTEM

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory
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Section – I

Q.2 Attempt any three of the following questions. **12**

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c) Parallel sort.
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Illustrate with example Query transformation and semi join strategy in distributed query processing.

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Section – II

Q.5 Attempt any three of the following questions. **12**

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What is performance tuning? Explain tunable parameters & tuning of hardware.

Seat No.	

Set | S

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED DATA BASE SYSTEM

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 book.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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   d) Merge sort

14) Translation of a queries in high level database language in to expressions that can be used at the physical level is called _____.
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   b) query transformation
   c) query processing
   d) query execution

SLR-FM-389

Seat No.	

Set S

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED DATA BASE SYSTEM

Day & Date: Tuesday, 10-12-2019 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 of the following questions. **12**

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What is I/O Parallelism? Explain and compare the partitioning techniques in it.

Section – II

Q.5 Attempt any three of the following questions. **12**

a) Decision tree classifier
b) Association and clustering
c) Transaction processing monitors
d) Database connectivity and OOD standards

Q.6 Attempt any one of the following questions. **08**

What is Datawarehouse? Elaborate its components and issues with neat diagram.

OR

Explain query processing of selection operation using indices with all its algorithms.

Q.7 Attempt any one of the following questions. **08**

Differentiate between SQL, NoSQL & New SQL with example & use.

OR

What is performance tuning? Explain tunable parameters & tuning of hardware.

Seat No.	

Set | P

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

Day & Date: Thursday, 12-12-2019 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 and rewrite the sentence. 14

1) To check whether we are developing the right product according to the customer requirements or not.It is a static process _____.
   a) Validation b) Verification
   c) Quality Assurance d) Quality Control

2) Defects are less costly, if detected in which of the following phases _____.
   a) Coding b) Design
   c) Requirements Gathering d) Implementation

3) Which of the following techniques is NOT a White box technique?
   a) Statement Testing and coverage
   b) Decision Testing and coverage
   c) Condition Coverage
   d) Boundary value analysis

4) To test a function, the programmer has to write a _____, which calls the function and passes it test data.
   a) Stub b) Driver
   c) Proxy d) None

5) Executing the same test case by giving the number of inputs on same build called as _____.
   a) Regression Testing b) Re Testing
   c) Ad hoc Testing d) Sanity Testing

6) Retesting the entire application after a change has been made called as _____.
   a) Full Regression Testing b) Unit Regression
   c) Regional Regression d) Retesting

7) What are the Types of Integration Testing?
   a) Big Bang Testing b) Bottom Up Testing
   c) Top Down Testing d) All the above

8) The Planning phase of a formal review includes the following _____.
   a) Explaining the objectives
   b) Selecting the personnel, allocating roles
   c) Follow up
   d) Individual Meeting preparations

9) Test cases are designed during _____.
   a) Test recording
   b) Test planning
   c) Test configuration
   d) Test specification

10) It measures the quality of a product It is a specific part of the QA procedure, It is a corrective process, It applies for particular product & Deals with the product _____.
   a) Validation
   b) Verification
   c) Quality Assurance
   d) Quality Control

11) Which of the following is NOT part of system testing?
   a) Top-down integration testing
   b) Performance, load and stress testing
   c) Requirements-based testing
   d) Usability testing

12) Its goal is to simulate what your users might do. That type of automation tool is called a _____.
   a) Regression testing
   b) Test monkey
   c) Both a and b
   d) None

13) Selenium IDE supports autocomplete mode when creating tests. This feature serves following purposes _____.
   a) It helps the tester to enter commands more quickly
   b) It restricts the user from entering invalid commands
   c) Both a and b
   d) None

14) Selenium IDE supports _____ Browser only to create and execute Test Cases.
   a) Google Chrome
   b) Internet Explorer
   c) Mozilla Firefox
   d) Opera

Seat No.	

Set **P**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

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 Attempt any three. **12**

a) What is software Testing? Mention the different approaches to Testing.
b) What are the misconception about Testing?
c) Differentiate between Black-Box and White box Testing Technique.
d) Define the following testing levels: Integration Testing and Big-Bang Testing.

Q.3 Attempt any two. **16**

a) What are the Principle of Software Testing? Mention the different Test Policy, Strategy, Planning for software testing.
b) Describe in detail Static and Dynamic Testing.
c) Define the different testing levels in detail
1) Performance Testing
2) Volume Testing
3) Stress Testing
4) Load Testing

Section – II

Q.4 Attempt any three. **12**

a) Mention a few typical testing resources that should be considered when test planning.
b) What are the four reasons for test case planning?
c) How to Achieve Software Quality in testing process.
d) Write a short note on Random Testing.

Q.5 Attempt any two. **16**

a) Write the Benefits of Automation and Tools in software testing.
b) Write the minimum 8 Test Cases for Login Form which includes username and password fields.
c) Describe the test case terms Reporting Bugs and Bug-Tracking Systems in detail.

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

Day & Date: Thursday, 12-12-2019 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 and rewrite the sentence. 14

1) The Planning phase of a formal review includes the following _____.
   a) Explaining the objectives
   b) Selecting the personnel, allocating roles
   c) Follow up
   d) Individual Meeting preparations

2) Test cases are designed during _____.
   a) Test recording b) Test planning
   c) Test configuration d) Test specification

3) It measures the quality of a product It is a specific part of the QA procedure, It is a corrective process, It applies for particular product & Deals with the product _____.
   a) Validation b) Verification
   c) Quality Assurance d) Quality Control

4) Which of the following is NOT part of system testing?
   a) Top-down integration testing
   b) Performance, load and stress testing
   c) Requirements-based testing
   d) Usability testing

5) Its goal is to simulate what your users might do. That type of automation tool is called a _____.
   a) Regression testing b) Test monkey
   c) Both a and b d) None

6) Selenium IDE supports autocomplete mode when creating tests. This feature serves following purposes _____.
   a) It helps the tester to enter commands more quickly
   b) It restricts the user from entering invalid commands
   c) Both a and b
   d) None

7) Selenium IDE supports _____ Browser only to create and execute Test Cases.
   a) Google Chrome b) Internet Explorer
   c) Mozilla Firefox d) Opera

8) To check whether we are developing the right product according to the customer requirements or not.It is a static process _____.
   a) Validation
   b) Verification
   c) Quality Assurance
   d) Quality Control

9) Defects are less costly, if detected in which of the following phases _____.
   a) Coding
   b) Design
   c) Requirements Gathering
   d) Implementation

10) Which of the following techniques is NOT a White box technique?
   a) Statement Testing and coverage
   b) Decision Testing and coverage
   c) Condition Coverage
   d) Boundary value analysis

11) To test a function, the programmer has to write a _____, which calls the function and passes it test data.
   a) Stub
   b) Driver
   c) Proxy
   d) None

12) Executing the same test case by giving the number of inputs on same build called as _____.
   a) Regression Testing
   b) Re Testing
   c) Ad hoc Testing
   d) Sanity Testing

13) Retesting the entire application after a change has been made called as _____.
   a) Full Regression Testing
   b) Unit Regression
   c) Regional Regression
   d) Retesting

14) What are the Types of Integration Testing?
   a) Big Bang Testing
   b) Bottom Up Testing
   c) Top Down Testing
   d) All the above

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

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 Attempt any three. **12**

a) What is software Testing? Mention the different approaches to Testing.
b) What are the misconception about Testing?
c) Differentiate between Black-Box and White box Testing Technique.
d) Define the following testing levels: Integration Testing and Big-Bang Testing.

Q.3 Attempt any two. **16**

a) What are the Principle of Software Testing? Mention the different Test Policy, Strategy, Planning for software testing.
b) Describe in detail Static and Dynamic Testing.
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1) Performance Testing
2) Volume Testing
3) Stress Testing
4) Load Testing

Section – II

Q.4 Attempt any three. **12**

a) Mention a few typical testing resources that should be considered when test planning.
b) What are the four reasons for test case planning?
c) How to Achieve Software Quality in testing process.
d) Write a short note on Random Testing.

Q.5 Attempt any two. **16**

a) Write the Benefits of Automation and Tools in software testing.
b) Write the minimum 8 Test Cases for Login Form which includes username and password fields.
c) Describe the test case terms Reporting Bugs and Bug-Tracking Systems in detail.

Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

Day & Date: Thursday, 12-12-2019 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 and rewrite the sentence. 14

1) Executing the same test case by giving the number of inputs on same build called as _____.
   a) Regression Testing b) Re Testing
   c) Ad hoc Testing d) Sanity Testing

2) Retesting the entire application after a change has been made called as _____.
   a) Full Regression Testing b) Unit Regression
   c) Regional Regression d) Retesting

3) What are the Types of Integration Testing?
   a) Big Bang Testing b) Bottom Up Testing
   c) Top Down Testing d) All the above

4) The Planning phase of a formal review includes the following _____.
   a) Explaining the objectives
   b) Selecting the personnel, allocating roles
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5) Test cases are designed during _____.
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6) It measures the quality of a product It is a specific part of the QA procedure, It is a corrective process, It applies for particular product & Deals with the product _____.
   a) Validation b) Verification
   c) Quality Assurance d) Quality Control

7) Which of the following is NOT part of system testing?
   a) Top-down integration testing
   b) Performance, load and stress testing
   c) Requirements-based testing
   d) Usability testing

8) Its goal is to simulate what your users might do. That type of automation tool is called a _____.
   a) Regression testing
   b) Test monkey
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9) Selenium IDE supports autocomplete mode when creating tests. This feature serves following purposes _____.
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13) Which of the following techniques is NOT a White box technique?
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   b) Decision Testing and coverage
   c) Condition Coverage
   d) Boundary value analysis

14) To test a function, the programmer has to write a _____, which calls the function and passes it test data.
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   c) Proxy
   d) None

Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

Day & Date: Thursday, 12-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Attempt any three. **12**

a) What is software Testing? Mention the different approaches to Testing.
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d) Define the following testing levels: Integration Testing and Big-Bang Testing.

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b) Describe in detail Static and Dynamic Testing.
c) Define the different testing levels in detail
1) Performance Testing
2) Volume Testing
3) Stress Testing
4) Load Testing

Section – II

Q.4 Attempt any three. **12**

a) Mention a few typical testing resources that should be considered when test planning.
b) What are the four reasons for test case planning?
c) How to Achieve Software Quality in testing process.
d) Write a short note on Random Testing.

Q.5 Attempt any two. **16**

a) Write the Benefits of Automation and Tools in software testing.
b) Write the minimum 8 Test Cases for Login Form which includes username and password fields.
c) Describe the test case terms Reporting Bugs and Bug-Tracking Systems in detail.

Seat No.	

Set | S

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

Day & Date: Thursday, 12-12-2019 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 and rewrite the sentence. 14

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   c) Requirements-based testing
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   c) Both a and b d) None

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   d) None

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   c) Mozilla Firefox d) Opera

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   c) Proxy
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10) Executing the same test case by giving the number of inputs on same build called as _____.
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11) Retesting the entire application after a change has been made called as _____.
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12) What are the Types of Integration Testing?
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   b) Selecting the personnel, allocating roles
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   a) Test recording
   b) Test planning
   c) Test configuration
   d) Test specification

Seat No.	

Set | S

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SOFTWARE TESTING AND QUALITY ASSURANCE

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 Attempt any three. **12**

a) What is software Testing? Mention the different approaches to Testing.
b) What are the misconception about Testing?
c) Differentiate between Black-Box and White box Testing Technique.
d) Define the following testing levels: Integration Testing and Big-Bang Testing.

Q.3 Attempt any two. **16**

a) What are the Principle of Software Testing? Mention the different Test Policy, Strategy, Planning for software testing.
b) Describe in detail Static and Dynamic Testing.
c) Define the different testing levels in detail
1) Performance Testing
2) Volume Testing
3) Stress Testing
4) Load Testing

Section – II

Q.4 Attempt any three. **12**

a) Mention a few typical testing resources that should be considered when test planning.
b) What are the four reasons for test case planning?
c) How to Achieve Software Quality in testing process.
d) Write a short note on Random Testing.

Q.5 Attempt any two. **16**

a) Write the Benefits of Automation and Tools in software testing.
b) Write the minimum 8 Test Cases for Login Form which includes username and password fields.
c) Describe the test case terms Reporting Bugs and Bug-Tracking Systems in detail.

Seat No.	

Set **P**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
FUZZY & NEURAL 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

1) Fuzzy logic is a form of _____.
   a) Two-valued logic b) Crisp set logic
   c) Many-valued logic d) Binary set logic

2) Traditional set theory is also known as Crisp Set theory.
   a) True b) False

3) The truth values of traditional set theory is _____ and that of fuzzy set is ____.
   a) Either 0 or 1, between 0 & 1 b) Between 0 & 1, either 0 or 1
   c) Between 0 & 1, between 0 & 1 d) Either 0 or 1, either 0 or 1

4) Fuzzy logic is extension of Crisp set with an extension of handling the concept of Partial Truth.
   a) True b) False

5) The room temperature is hot. Here the hot (use of linguistic variable is used) can be represented by _____.
   a) Fuzzy Set b) Crisp Set
   c) Fuzzy & Crisp Set d) None of the mentioned

6) The values of the set membership is represented by _____.
   a) Discrete Set
   b) Degree of truth
   c) Probabilities
   d) Both Degree of truth & Probabilities

7) Japanese were the first to utilize fuzzy logic practically on high-speed trains in Sendai.
   a) True b) False

8) Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.
   a) AND b) OR
   c) NOT d) All of the mentioned

9) There are also other operators, more linguistic in nature, called _____ that can be applied to fuzzy set theory.
   a) Hedges b) Lingual Variable
   c) Fuzz Variable d) None of the mentioned

10) Fuzzy logic is usually represented as _____.
   a) IF-THEN-ELSE rules
   b) IF-THEN rules
   c) Both IF-THEN-ELSE rules & IF-THEN rules
   d) None of the mentioned

11) For what purpose Feedback neural networks are primarily used?
   a) classification
   b) feature mapping
   c) pattern mapping
   d) none of the mentioned

12) Presence of false minima will have what effect on probability of error in recall?
   a) directly
   b) inversely
   c) no effect
   d) directly or inversely

13) How is effect false minima reduced?
   a) deterministic update of weights
   b) stochastic update of weights
   c) deterministic or stochastic update of weights
   d) none of the mentioned

14) 4 is Boltzman law practical for implementation?
   a) Yes
   b) No

SLR-FM-391

Seat No.	

Set P

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
FUZZY & NEURAL 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

Q.2 Attempt any four. **08**

a) What are fuzzy databases?
b) Illustrate use of cardinality.
c) What is rank ordering?
d) Give one application of fuzzy.
e) What is fuzzy qualification?

Q.3 Attempt any two. **10**

a) How is stability analysis of control system carried out?
b) State the considerations of fuzzy decision making.
c) Illustrate fuzzy integrals.

Q.4 Attempt any one. **10**

a) How does max- min method work?
b) State and Illustrate some applications of fuzzy theory.

Section-II

Q.5 Attempt any four. **08**

a) What is a perceptron?
b) Compare between supervised and unsupervised learning.
c) Explain the basic model of ANN's.
d) Desire a learning model using back propagation
e) Define activation function

Q.6 Attempt any two. **10**

a) What is classification?
b) How does Mc culloach - Pit's model work?
c) List the Learning Algorithms and compare them Compare between Adaline and Medaline.

Q.7 Attempt any one. **10**

a) Explain the feed forward topology of ANN in detail.
b) Compare between Adaline and Medaline.

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
FUZZY & NEURAL 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**

1) Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.
   a) AND b) OR
   c) NOT d) All of the mentioned

2) There are also other operators, more linguistic in nature, called _____ that can be applied to fuzzy set theory.
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   c) Fuzz Variable d) None of the mentioned

3) Fuzzy logic is usually represented as _____.
   a) IF-THEN-ELSE rules
   b) IF-THEN rules
   c) Both IF-THEN-ELSE rules & IF-THEN rules
   d) None of the mentioned

4) For what purpose Feedback neural networks are primarily used?
   a) classification b) feature mapping
   c) pattern mapping d) none of the mentioned

5) Presence of false minima will have what effect on probability of error in recall?
   a) directly b) inversely
   c) no effect d) directly or inversely

6) How is effect false minima reduced?
   a) deterministic update of weights
   b) stochastic update of weights
   c) deterministic or stochastic update of weights
   d) none of the mentioned

7) 4 is Boltzman law practical for implementation?
   a) Yes b) No

8) Fuzzy logic is a form of _____.
   a) Two-valued logic b) Crisp set logic
   c) Many-valued logic d) Binary set logic

9) Traditional set theory is also known as Crisp Set theory.
   a) True b) False

10) The truth values of traditional set theory is _____ and that of fuzzy set is ____.
   a) Either 0 or 1, between 0 & 1 b) Between 0 & 1, either 0 or 1
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11) Fuzzy logic is extension of Crisp set with an extension of handling the concept of Partial Truth.
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12) The room temperature is hot. Here the hot (use of linguistic variable is used) can be represented by _____.
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13) The values of the set membership is represented by _____.
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   b) Degree of truth
   c) Probabilities
   d) Both Degree of truth & Probabilities

14) Japanese were the first to utilize fuzzy logic practically on high-speed trains in Sendai.
   a) True b) False

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
FUZZY & NEURAL NETWORKS

Day & Date: Tuesday,17-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Attempt any four. **08**

a) What are fuzzy databases?
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c) What is rank ordering?
d) Give one application of fuzzy.
e) What is fuzzy qualification?

Q.3 Attempt any two. **10**

a) How is stability analysis of control system carried out?
b) State the considerations of fuzzy decision making.
c) Illustrate fuzzy integrals.

Q.4 Attempt any one. **10**

a) How does max- min method work?
b) State and Illustrate some applications of fuzzy theory.

Section-II

Q.5 Attempt any four. **08**

a) What is a perceptron?
b) Compare between supervised and unsupervised learning.
c) Explain the basic model of ANN's.
d) Desire a learning model using back propagation
e) Define activation function

Q.6 Attempt any two. **10**

a) What is classification?
b) How does Mc culloach - Pit's model work?
c) List the Learning Algorithms and compare them Compare between Adaline and Medaline.

Q.7 Attempt any one. **10**

a) Explain the feed forward topology of ANN in detail.
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Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
FUZZY & NEURAL 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

1) The room temperature is hot. Here the hot (use of linguistic variable is used) can be represented by _____.
   a) Fuzzy Set b) Crisp Set
   c) Fuzzy & Crisp Set d) None of the mentioned

2) The values of the set membership is represented by _____.
   a) Discrete Set
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3) Japanese were the first to utilize fuzzy logic practically on high-speed trains in Sendai.
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4) Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.
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7) For what purpose Feedback neural networks are primarily used?
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8) Presence of false minima will have what effect on probability of error in recall?
   a) directly b) inversely
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9) How is effect false minima reduced?
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10) 4 is Boltzman law practical for implementation?
   a) Yes b) No

11) Fuzzy logic is a form of _____.
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Seat No.	

Set R

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
FUZZY & NEURAL NETWORKS

Day & Date: Tuesday,17-12-2019 Max. Marks: 56
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Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Attempt any four. **08**

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Section-II

Q.5 Attempt any four. **08**

a) What is a perceptron?
b) Compare between supervised and unsupervised learning.
c) Explain the basic model of ANN's.
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e) Define activation function

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a) What is classification?
b) How does Mc culloach - Pit's model work?
c) List the Learning Algorithms and compare them Compare between Adaline and Medaline.

Q.7 Attempt any one. **10**

a) Explain the feed forward topology of ANN in detail.
b) Compare between Adaline and Medaline.

Seat No.	

Set **S**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
FUZZY & NEURAL 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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. 14

1) Fuzzy logic is usually represented as _____.
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7) Traditional set theory is also known as Crisp Set theory.
   a) True b) False

8) The truth values of traditional set theory is _____ and that of fuzzy set is ____.
   a) Either 0 or 1, between 0 & 1 b) Between 0 & 1, either 0 or 1
   c) Between 0 & 1, between 0 & 1 d) Either 0 or 1, either 0 or 1

9) Fuzzy logic is extension of Crisp set with an extension of handling the concept of Partial Truth.
   a) True b) False

10) The room temperature is hot. Here the hot (use of linguistic variable is used) can be represented by _____.
   a) Fuzzy Set
   b) Crisp Set
   c) Fuzzy & Crisp Set
   d) None of the mentioned

11) The values of the set membership is represented by _____.
   a) Discrete Set
   b) Degree of truth
   c) Probabilities
   d) Both Degree of truth & Probabilities

12) Japanese were the first to utilize fuzzy logic practically on high-speed trains in Sendai.
   a) True
   b) False

13) Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.
   a) AND
   b) OR
   c) NOT
   d) All of the mentioned

14) There are also other operators, more linguistic in nature, called _____ that can be applied to fuzzy set theory.
   a) Hedges
   b) Lingual Variable
   c) Fuzz Variable
   d) None of the mentioned

SLR-FM-391

Seat No.	

Set S

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
FUZZY & NEURAL 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

Q.2 Attempt any four. **08**

a) What are fuzzy databases?
b) Illustrate use of cardinality.
c) What is rank ordering?
d) Give one application of fuzzy.
e) What is fuzzy qualification?

Q.3 Attempt any two. **10**

a) How is stability analysis of control system carried out?
b) State the considerations of fuzzy decision making.
c) Illustrate fuzzy integrals.

Q.4 Attempt any one. **10**

a) How does max- min method work?
b) State and Illustrate some applications of fuzzy theory.

Section-II

Q.5 Attempt any four. **08**

a) What is a perceptron?
b) Compare between supervised and unsupervised learning.
c) Explain the basic model of ANN's.
d) Desire a learning model using back propagation
e) Define activation function

Q.6 Attempt any two. **10**

a) What is classification?
b) How does Mc culloach - Pit's model work?
c) List the Learning Algorithms and compare them Compare between Adaline and Medaline.

Q.7 Attempt any one. **10**

a) Explain the feed forward topology of ANN in detail.
b) Compare between Adaline and Medaline.

SLR-FM-392

Seat No.	

Set P

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. 14

1) In message passing a process receives information by executing the _____.
   a) Send b) Send Primitive
   c) Receive d) Receive Primitive

2) Distributed systems should _____.
   a) high security b) have better resource sharing
   c) better system utilization d) low system overhead

3) What are global locks?
   a) they synchronize access to local resources
   b) they synchronize access to global resources
   c) they synchronize access to local and global resources
   d) none of above

4) Message passing system allows processes to _____.
   a) communicate with one another without resorting to shared data
   b) communicate with one another by resorting to shared data
   c) share data
   d) name the recipient or sender of the message

5) Bounded capacity and Unbounded capacity queues are referred to as _____.
   a) Programmed buffering b) Automatic buffering
   c) User defined buffering d) No buffering

6) In case of failure, a new transaction coordinator can be elected by _____.
   a) bully algorithm b) ring algorithm
   c) both (a) and (b) d) none of the mentioned

7) In the token passing approach of distributed systems, processes are organized in a ring structure _____.
   a) logically b) Physically
   c) both (a) and (b) d) none of the mentioned

8) What are the characteristics of tightly coupled system?
   a) Same clock, usually shared memory
   b) Communication is via this shared memory
   c) Multiprocessors
   d) All of these

9) What are the characteristics of mutual exclusion using centralized approach?
   a) One processor as coordinator which handles all requests
   b) It requires request, reply and release per critical section entry
   c) The method is free from starvation
   d) All of these

10) What is the characteristics of atomicity?
   a) All operations associated are executed to completion or none are performed
   b) One processor as coordinator which handles all requests
   c) When responses are received from all processes, then process can enter its critical Section
   d) Use communication links

11) What are the disadvantages of majority protocol?
   a) Complicated implementation
   b) Deadlock can occur easily
   c) Both a and b
   d) Vulnerability

12) In distributed file system, _____ is mapping between logical and physical objects.
   a) client interfacing
   b) Naming
   c) migration
   d) Heterogeneity

13) What are the advantages of file replication?
   a) Improves availability
   b) Improves performance
   c) Both a and b
   d) Improves speed

14) What are the major components of file system?
   a) Directory service
   b) Authorization service
   c) Shadow service
   d) All of these

Seat No.	

Set **P**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Attempt any three **12**

a) Explain in detail stub generation and RPC messages.
b) Explain with example message buffering strategy.
c) Explain the flexible reliability in multicast communication and atomic multicast.
d) Explain the server naming and server locating w.r.t. client server bindings.

Q.3 **a)** Explain with example idempotency and handling of duplicate request messages. **08**

OR

Explain all the issues in designing a Distributed Operating System.

Q.4 What do you mean by multidatagram message? Explain encoding and decoding of message data. **08**

Section – II

Q.5 Attempt any three **12**

a) Explain WFG and probe based distributed algorithm for deadlock detection.
b) Explain the desirable features of a good distributed file system.
c) Explain the clock synchronization issues and algorithm.
d) Explain with example and figure file sharing semantics.

Q.6 **a)** Explain in detail file caching schemes. **08**

OR

Explain in detail all the process migration mechanisms.

Q.7 Write note on **08**

a) Fault tolerance
b) Implementation of logical clocks

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

Day & Date: Tuesday, 17-12-2019 Max. Marks: 70
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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   b) have better resource sharing
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12) Bounded capacity and Unbounded capacity queues are referred to as _____.
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   b) Automatic buffering
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   a) bully algorithm
   b) ring algorithm
   c) both (a) and (b)
   d) none of the mentioned

14) In the token passing approach of distributed systems, processes are organized in a ring structure _____.
   a) logically
   b) Physically
   c) both (a) and (b)
   d) none of the mentioned

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

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Section – I

Q.2 Attempt any three **12**

a) Explain in detail stub generation and RPC messages.
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Q.3 **a)** Explain with example idempotency and handling of duplicate request messages. **08**

OR

Explain all the issues in designing a Distributed Operating System.

Q.4 What do you mean by multidatagram message? Explain encoding and decoding of message data. **08**

Section – II

Q.5 Attempt any three **12**

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OR

Explain in detail all the process migration mechanisms.

Q.7 Write note on **08**

a) Fault tolerance
b) Implementation of logical clocks

Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
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3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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   a) One processor as coordinator which handles all requests
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Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

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OR

Explain all the issues in designing a Distributed Operating System.

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Section – II

Q.5 Attempt any three **12**

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OR

Explain in detail all the process migration mechanisms.

Q.7 Write note on **08**

a) Fault tolerance
b) Implementation of logical clocks

Seat No.	

Set **S**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

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   c) The method is free from starvation
   d) All of these

SLR-FM-392

Seat No.	

Set S

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISTRIBUTED COMPUTING

Day & Date: Tuesday, 17-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Attempt any three **12**

a) Explain in detail stub generation and RPC messages.
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c) Explain the flexible reliability in multicast communication and atomic multicast.
d) Explain the server naming and server locating w.r.t. client server bindings.

Q.3 a) Explain with example idempotency and handling of duplicate request messages. **08**

OR

Explain all the issues in designing a Distributed Operating System.

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Section – II

Q.5 Attempt any three **12**

a) Explain WFG and probe based distributed algorithm for deadlock detection.
b) Explain the desirable features of a good distributed file system.
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d) Explain with example and figure file sharing semantics.

Q.6 a) Explain in detail file caching schemes. **08**

OR

Explain in detail all the process migration mechanisms.

Q.7 Write note on **08**

a) Fault tolerance
b) Implementation of logical clocks

Seat No.	

Set **P**

B.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
IMAGE PROCESSING

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) All questions are compulsory.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) A continuous image is digitised at _____ points.
   a) random b) Vertex
   c) contour d) Sampling

2) The transition between continuous values of the image function and its digital equivalent is called _____.
   a) Quantisation b) Sampling
   c) Rasterisation d) None of the Mentioned

3) Images quantised with insufficient brightness levels will lead to the occurrence of _____.
   a) Pixillation b) Blurring
   c) False contours d) None of the mention

4) The smallest discernible change in intensity level is called _____.
   a) Intensity Resolution b) Contour
   c) Saturation d) Contrast

5) What is the tool used in tasks such as zooming, shrinking, rotating, etc.?
   a) Sampling b) Interpolation
   c) Filters d) None of the mentioned

6) The type of Interpolation where for each new location the intensity of the immediate pixel is assigned is _____.
   a) bicubic interpolation b) cubic interpolation
   c) bilinear interpolation d) nearest neighbour interpolation

7) The type of Interpolation where the intensity of the FOUR neighbouring pixels is used to obtain intensity a new location is called ____.
   a) cubic interpolation b) nearest neighbour interpolation
   c) bilinear interpolation d) bicubic interpolation

8) Dynamic range of imaging system is a ratio where the upper limit is determined by _____.
   a) Saturation b) Noise
   c) Brightness d) Contrast

9) For Dynamic range ratio the lower limit is determined by _____.
   a) Saturation
   b) Brightness
   c) Noise
   d) Contrast

10) Quantitatively, spatial resolution cannot be represented in which of the following ways _____.
   a) line pairs
   b) Pixels
   c) Dots
   d) none of the mentioned

11) To convert a continuous sensed data into Digital form, which of the following is required?
   a) Sampling
   b) Quantization
   c) Both Sampling and Quantization
   d) Neither Sampling nor Quantization

12) To convert a continuous image f(x, y) to digital form, we have to sample the function in _____.
   a) Coordinates
   b) Amplitude
   c) All of the mentioned
   d) None of the mentioned

13) For a continuous image f(x, y), how could be Sampling defined?
   a) Digitizing the coordinate values
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SLR-FM-393

Seat No.	

Set P

B.E. (Part – I) (Old) (CGPA) Examination Dec-2019
Information Technology
IMAGE PROCESSING

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 Attempt any four of the following questions. **08**

a) How are digital images represented?
b) What is fourier transform? Where is it used?
c) What is a Hotelling Transform?
d) What is Spatial filtering?
e) How is Spatial mask generated from frequency domain specification?

Q.3 Attempt any two of the following questions. **10**

a) List and explain fundamental steps in image processing.
b) State properties of 2D Fourier transform.
c) How is enhancement in frequency domain carried out?

Q.4 Attempt any one of the following questions. **10**

a) What are the elements of visual perception? Develop a simple image model.
b) How are images enhanced?

Section – II

Q.5 Attempt any four of the following questions. **08**

a) What is image compression?
b) What is lossy compression?
c) What is boundary detection?
d) What is morphology?
e) List the Regional descriptors.

Q.6 Attempt any two of the following questions. **10**

a) How is an Image Compression model developed?
b) What is segmentation?
c) What is thresholding set? Where is it used?

Q.7 Attempt any one of the following questions. **10**

a) What are relational descriptors? Illustrate.
b) What is the area of motion in segmentation?

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Dec-2019
Information Technology
IMAGE PROCESSING

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.
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Duration: 30 Minutes Marks: 14

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   c) bilinear interpolation d) bicubic interpolation

Seat No.	

Set **Q**

B.E. (Part – I) (Old) (CGPA) Examination Dec-2019
Information Technology
IMAGE PROCESSING

Day & Date: Tuesday,17-12-2019 Max. Marks: 56
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Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Attempt any four of the following questions. **08**

a) How are digital images represented?
b) What is fourier transform? Where is it used?
c) What is a Hotelling Transform?
d) What is Spatial filtering?
e) How is Spatial mask generated from frequency domain specification?

Q.3 Attempt any two of the following questions. **10**

a) List and explain fundamental steps in image processing.
b) State properties of 2D Fourier transform.
c) How is enhancement in frequency domain carried out?

Q.4 Attempt any one of the following questions. **10**

a) What are the elements of visual perception? Develop a simple image model.
b) How are images enhanced?

Section – II

Q.5 Attempt any four of the following questions. **08**

a) What is image compression?
b) What is lossy compression?
c) What is boundary detection?
d) What is morphology?
e) List the Regional descriptors.

Q.6 Attempt any two of the following questions. **10**

a) How is an Image Compression model developed?
b) What is segmentation?
c) What is thresholding set? Where is it used?

Q.7 Attempt any one of the following questions. **10**

a) What are relational descriptors? Illustrate.
b) What is the area of motion in segmentation?

Seat No.	

Set **R**

B.E. (Part – I) (Old) (CGPA) Examination Dec-2019
Information Technology
IMAGE PROCESSING

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) All questions are compulsory.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) What is the tool used in tasks such as zooming, shrinking, rotating, etc.?
   a) Sampling b) Interpolation
   c) Filters d) None of the mentioned

2) The type of Interpolation where for each new location the intensity of the immediate pixel is assigned is _____.
   a) bicubic interpolation b) cubic interpolation
   c) bilinear interpolation d) nearest neighbour interpolation

3) The type of Interpolation where the intensity of the FOUR neighbouring pixels is used to obtain intensity a new location is called ____.
   a) cubic interpolation b) nearest neighbour interpolation
   c) bilinear interpolation d) bicubic interpolation

4) Dynamic range of imaging system is a ratio where the upper limit is determined by _____.
   a) Saturation b) Noise
   c) Brightness d) Contrast

5) For Dynamic range ratio the lower limit is determined by _____.
   a) Saturation b) Brightness
   c) Noise d) Contrast

6) Quantitatively, spatial resolution cannot be represented in which of the following ways _____.
   a) line pairs b) Pixels
   c) Dots d) none of the mentioned

7) To convert a continuous sensed data into Digital form, which of the following is required?
   a) Sampling
   b) Quantization
   c) Both Sampling and Quantization
   d) Neither Sampling nor Quantization

8) To convert a continuous image f(x, y) to digital form, we have to sample the function in _____.
   a) Coordinates
   b) Amplitude
   c) All of the mentioned
   d) None of the mentioned

9) For a continuous image f(x, y), how could be Sampling defined?
   a) Digitizing the coordinate values
   b) Digitizing the amplitude values
   c) All of the mentioned
   d) None of the mentioned

10) For a continuous image f(x, y), Quantization is defined as _____.
   a) Digitizing the coordinate values
   b) Digitizing the amplitude values
   c) All of the mentioned
   d) None of the mentioned

11) A continuous image is digitised at _____ points.
   a) random
   b) Vertex
   c) contour
   d) Sampling

12) The transition between continuous values of the image function and its digital equivalent is called _____.
   a) Quantisation
   b) Sampling
   c) Rasterisation
   d) None of the Mentioned

13) Images quantised with insufficient brightness levels will lead to the occurrence of _____.
   a) Pixillation
   b) Blurring
   c) False contours
   d) None of the mention

14) The smallest discernible change in intensity level is called _____.
   a) Intensity Resolution
   b) Contour
   c) Saturation
   d) Contrast

SLR-FM-393

Seat No.	

Set R

B.E. (Part – I) (Old) (CGPA) Examination Dec-2019
Information Technology
IMAGE PROCESSING

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 Attempt any four of the following questions. **08**

a) How are digital images represented?
b) What is fourier transform? Where is it used?
c) What is a Hotelling Transform?
d) What is Spatial filtering?
e) How is Spatial mask generated from frequency domain specification?

Q.3 Attempt any two of the following questions. **10**

a) List and explain fundamental steps in image processing.
b) State properties of 2D Fourier transform.
c) How is enhancement in frequency domain carried out?

Q.4 Attempt any one of the following questions. **10**

a) What are the elements of visual perception? Develop a simple image model.
b) How are images enhanced?

Section – II

Q.5 Attempt any four of the following questions. **08**

a) What is image compression?
b) What is lossy compression?
c) What is boundary detection?
d) What is morphology?
e) List the Regional descriptors.

Q.6 Attempt any two of the following questions. **10**

a) How is an Image Compression model developed?
b) What is segmentation?
c) What is thresholding set? Where is it used?

Q.7 Attempt any one of the following questions. **10**

a) What are relational descriptors? Illustrate.
b) What is the area of motion in segmentation?

Seat No.	

Set | S

B.E. (Part – I) (Old) (CGPA) Examination Dec-2019
Information Technology
IMAGE PROCESSING

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) All questions are compulsory.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 Choose the correct alternatives from the options. **14**

1) Quantitatively, spatial resolution cannot be represented in which of the following ways _____.
   a) line pairs b) Pixels
   c) Dots d) none of the mentioned

2) To convert a continuous sensed data into Digital form, which of the following is required?
   a) Sampling
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   c) Both Sampling and Quantization
   d) Neither Sampling nor Quantization

3) To convert a continuous image f(x, y) to digital form, we have to sample the function in _____.
   a) Coordinates b) Amplitude
   c) All of the mentioned d) None of the mentioned

4) For a continuous image f(x, y), how could be Sampling defined?
   a) Digitizing the coordinate values
   b) Digitizing the amplitude values
   c) All of the mentioned
   d) None of the mentioned

5) For a continuous image f(x, y), Quantization is defined as _____.
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   b) Digitizing the amplitude values
   c) All of the mentioned
   d) None of the mentioned

6) A continuous image is digitised at _____ points.
   a) random b) Vertex
   c) contour d) Sampling

7) The transition between continuous values of the image function and its digital equivalent is called _____.
   a) Quantisation b) Sampling
   c) Rasterisation d) None of the Mentioned

8) Images quantised with insufficient brightness levels will lead to the occurrence of _____.
   a) Pixillation
   b) Blurring
   c) False contours
   d) None of the mention

9) The smallest discernible change in intensity level is called _____.
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   b) Contour
   c) Saturation
   d) Contrast

10) What is the tool used in tasks such as zooming, shrinking, rotating, etc.?
   a) Sampling
   b) Interpolation
   c) Filters
   d) None of the mentioned

11) The type of Interpolation where for each new location the intensity of the immediate pixel is assigned is _____.
   a) bicubic interpolation
   b) cubic interpolation
   c) bilinear interpolation
   d) nearest neighbour interpolation

12) The type of Interpolation where the intensity of the FOUR neighbouring pixels is used to obtain intensity a new location is called ____.
   a) cubic interpolation
   b) nearest neighbour interpolation
   c) bilinear interpolation
   d) bicubic interpolation

13) Dynamic range of imaging system is a ratio where the upper limit is determined by _____.
   a) Saturation
   b) Noise
   c) Brightness
   d) Contrast

14) For Dynamic range ratio the lower limit is determined by _____.
   a) Saturation
   b) Brightness
   c) Noise
   d) Contrast

SLR-FM-393

Seat No.	

Set S

B.E. (Part – I) (Old) (CGPA) Examination Dec-2019
Information Technology
IMAGE PROCESSING

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 Attempt any four of the following questions. **08**

a) How are digital images represented?
b) What is fourier transform? Where is it used?
c) What is a Hotelling Transform?
d) What is Spatial filtering?
e) How is Spatial mask generated from frequency domain specification?

Q.3 Attempt any two of the following questions. **10**

a) List and explain fundamental steps in image processing.
b) State properties of 2D Fourier transform.
c) How is enhancement in frequency domain carried out?

Q.4 Attempt any one of the following questions. **10**

a) What are the elements of visual perception? Develop a simple image model.
b) How are images enhanced?

Section – II

Q.5 Attempt any four of the following questions. **08**

a) What is image compression?
b) What is lossy compression?
c) What is boundary detection?
d) What is morphology?
e) List the Regional descriptors.

Q.6 Attempt any two of the following questions. **10**

a) How is an Image Compression model developed?
b) What is segmentation?
c) What is thresholding set? Where is it used?

Q.7 Attempt any one of the following questions. **10**

a) What are relational descriptors? Illustrate.
b) What is the area of motion in segmentation?

SLR-FM-395

Seat No.	

Set P

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION RETRIEVAL

Day & Date: Friday, 22-11-2019 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 marks to a question

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 A) Choose the correct Answer **10**

1) If relevant set of documents with respect to query q has 10 documents and answer set to query has retrieved 15 documents. If the tenth document in answer set is second relevant document in the answer set then we have precision is _____%.
   a) 10% b) 9%
   c) 100% d) 20%

2) Consider following scenario:
   While looking for one document on topic information retrieval, one advertisement of watches pops up. User clicks on that advertisement and starts exploring that website as well other website looking for different watches and pricing. We have shifted from _____.
   a) Retrieval to browsing b) Browsing to retrieval
   c) none of these d) None of the above

3) _____ evaluation allows the application to control when to do work of obtaining new results.
   a) Full b) Lazy

4) In Brute force approach, if text is having 90 characters and pattern is having 10 characters, how many search comparisons will be required at worst case?
   a) 9 b) 10
   c) 90 d) 900

5) _____ are designed to allow binary search by comparing contents of pointer.
   a) Inverted index b) Suffix Trees
   c) Suffix arrays d) Signature files

6) In Shift-OR algorithm, state of search is kept in a machine word D= d_m.... d_1. A is match is reported whenever _____.
   a) d_m bit is set to 1 b) d_m bit is set to 0
   c) d_1 bit is set to 1 d) d_1 bit is set to 0

7) Oracle provides _____ for data types which are not interpreted.
   a) VARCHAR2 b) RAW
   c) LOB d) CLOB

8) _____ provides indexing mechanism and query interface to the data.
   a) Gatherer b) Broker
   c) Object Cache d) Replication Manager

9) _____ is a meta crawler.
   a) Google b) Ask
   c) MSN d) all of them

10) 'is contained in' is a example of _____ predicate.
   a) Semantic b) temporal
   c) Spatial d) attribute

B) Match Correctly 04

1. Brown noise	a. Energy spectrum is in between completely upredictable and too predictable
2. Black noise	b. Energy spectrum is too predictable
3. Pink noise	c. Energy spectrum is completely unpredictable
4. White noise	d. signals model successfully such as water level of river

SLR-FM-395

Seat No.	

Set P

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION RETRIEVAL

Day & Date: Friday, 22-11-2019 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 Attempt any three **12**

a) Draw nondeterministic automata and construct bit mask table for pattern 'abcbac'.
b) State and give formulae for evaluation measures for information retrieval.
c) Explain models for browsing.
d) Define inverted index. Explain steps in search algorithm on inverted index.
e) Find edit distance between 'information' and 'transformation'.

Q.3 Attempt any one **08**

a) Calculate weight vectors for the following documents in vector model?
Doc 1 "Computers have brought the world to our fingertips. We will try to understand at a basic level the science -- old and new -- underlying this new Computational Universe. Our quest takes us on a broad sweep of scientific knowledge and related technologies... Ultimately, this study makes us look anew at ourselves -- our genome; language; music, “knowledge”; and, above all, the mystery of our intelligence.”
Doc 2 "An introduction to computer science in the context of scientific, engineering, and commercial applications. The goal of the course is to teach basic principles and practical issues, while at the same time preparing students to use computers effectively for applications in computer science…”
Consider keywords: science, knowledge, principles, engineering, applications, computers.
b) How to construct signature files? How to search word and context queries using signature file?

Q.4 Define information retrieval. With neat diagram explain information retrieval process. **08**

Section – II

Q.5 Attempt Any three **12**

a) Explain basic steps in data retrieval.
b) Explain different query predicates with example.
c) How to find the objects in the collection that are within distance d from query objects.
d) Explain architectural issues in digital library.
e) Explain different aspects required to consider in designing a multimedia query language.

Q.6 Attempt any one **08**

a) What is ranking? Explain working of any three ranking algorithms.

b) How GEMINI approach is applied to two dimensional colour images within QBIC?

Q.7 Define conceptual structure of type Generic Letter and Business_product_letter. **08**

Seat No.	

Set **Q**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION RETRIEVAL

Day & Date: Friday, 22-11-2019 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 marks to a question

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 A) Choose the correct Answer **10**

1) In Shift-OR algorithm, state of search is kept in a machine word D= d_m.... d_1. A is match is reported whenever _____.
   a) d_m bit is set to 1 b) d_m bit is set to 0
   c) d_1 bit is set to 1 d) d_1 bit is set to 0

2) Oracle provides _____ for data types which are not interpreted.
   a) VARCHAR2 b) RAW
   c) LOB d) CLOB

3) _____ provides indexing mechanism and query interface to the data.
   a) Gatherer b) Broker
   c) Object Cache d) Replication Manager

4) _____ is a meta crawler.
   a) Google b) Ask
   c) MSN d) all of them

5) 'is contained in' is a example of _____ predicate.
   a) Semantic b) temporal
   c) Spatial d) attribute

6) If relevant set of documents with respect to query q has 10 documents and answer set to query has retrieved 15 documents. If the tenth document in answer set is second relevant document in the answer set then we have precision is _____%.
   a) 10% b) 9%
   c) 100% d) 20%

7) Consider following scenario:
   While looking for one document on topic information retrieval, one advertisement of watches pops up. User clicks on that advertisement and starts exploring that website as well other website looking for different watches and pricing. We have shifted from _____.
   a) Retrieval to browsing b) Browsing to retrieval
   c) none of these d) None of the above

8) _____ evaluation allows the application to control when to do work of obtaining new results.
   a) Full b) Lazy

9) In Brute force approach, if text is having 90 characters and pattern is having 10 characters, how many search comparisons will be required at worst case?
   a) 9 b) 10
   c) 90 d) 900

10) _____ are designed to allow binary search by comparing contents of pointer.
   a) Inverted index b) Suffix Trees
   c) Suffix arrays d) Signature files

B) Match Correctly 04

1. Brown noise	a. Energy spectrum is in between completely upredictable and too predictable
2. Black noise	b. Energy spectrum is too predictable
3. Pink noise	c. Energy spectrum is completely unpredictable
4. White noise	d. signals model successfully such as water level of river

Seat No.	

Set **Q**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION RETRIEVAL

Day & Date: Friday, 22-11-2019 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 Attempt any three **12**

a) Draw nondeterministic automata and construct bit mask table for pattern 'abcbac'.
b) State and give formulae for evaluation measures for information retrieval.
c) Explain models for browsing.
d) Define inverted index. Explain steps in search algorithm on inverted index.
e) Find edit distance between 'information' and 'transformation'.

Q.3 Attempt any one **08**

a) Calculate weight vectors for the following documents in vector model?
Doc 1 "Computers have brought the world to our fingertips. We will try to understand at a basic level the science -- old and new -- underlying this new Computational Universe. Our quest takes us on a broad sweep of scientific knowledge and related technologies... Ultimately, this study makes us look anew at ourselves -- our genome; language; music, “knowledge”; and, above all, the mystery of our intelligence.”
Doc 2 "An introduction to computer science in the context of scientific, engineering, and commercial applications. The goal of the course is to teach basic principles and practical issues, while at the same time preparing students to use computers effectively for applications in computer science…”
Consider keywords: science, knowledge, principles, engineering, applications, computers.
b) How to construct signature files? How to search word and context queries using signature file?

Q.4 Define information retrieval. With neat diagram explain information retrieval process. **08**

Section – II

Q.5 Attempt Any three **12**

a) Explain basic steps in data retrieval.
b) Explain different query predicates with example.
c) How to find the objects in the collection that are within distance d from query objects.
d) Explain architectural issues in digital library.
e) Explain different aspects required to consider in designing a multimedia query language.

Q.6 Attempt any one **08**

a) What is ranking? Explain working of any three ranking algorithms.

b) How GEMINI approach is applied to two dimensional colour images within QBIC?

Q.7 Define conceptual structure of type Generic Letter and Business_product_letter. **08**

Seat No.	

Set **R**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION RETRIEVAL

Day & Date: Friday, 22-11-2019 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 marks to a question

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 A) Choose the correct Answer **10**

1) _____ is a meta crawler.
   a) Google b) Ask
   c) MSN d) all of them

2) 'is contained in' is a example of _____ predicate.
   a) Semantic b) temporal
   c) Spatial d) attribute

3) If relevant set of documents with respect to query q has 10 documents and answer set to query has retrieved 15 documents. If the tenth document in answer set is second relevant document in the answer set then we have precision is _____%.
   a) 10% b) 9%
   c) 100% d) 20%

4) Consider following scenario:
   While looking for one document on topic information retrieval, one advertisement of watches pops up. User clicks on that advertisement and starts exploring that website as well other website looking for different watches and pricing. We have shifted from _____.
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5) _____ evaluation allows the application to control when to do work of obtaining new results.
   a) Full b) Lazy

6) In Brute force approach, if text is having 90 characters and pattern is having 10 characters, how many search comparisons will be required at worst case?
   a) 9 b) 10
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7) _____ are designed to allow binary search by comparing contents of pointer.
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8) In Shift-OR algorithm, state of search is kept in a machine word D= d_m.... d_1. A is match is reported whenever _____.
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   b) d_m bit is set to 0
   c) d_1 bit is set to 1
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9) Oracle provides _____ for data types which are not interpreted.
   a) VARCHAR2
   b) RAW
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   d) CLOB

10) _____ provides indexing mechanism and query interface to the data.
   a) Gatherer
   b) Broker
   c) Object Cache
   d) Replication Manager

B) Match Correctly 04

1. Brown noise	a. Energy spectrum is in between completely upredictable and too predictable
2. Black noise	b. Energy spectrum is too predictable
3. Pink noise	c. Energy spectrum is completely unpredictable
4. White noise	d. signals model successfully such as water level of river

SLR-FM-395

Seat No.	

Set R

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION RETRIEVAL

Day & Date: Friday, 22-11-2019 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 Attempt any three **12**

a) Draw nondeterministic automata and construct bit mask table for pattern 'abcbac'.
b) State and give formulae for evaluation measures for information retrieval.
c) Explain models for browsing.
d) Define inverted index. Explain steps in search algorithm on inverted index.
e) Find edit distance between 'information' and 'transformation'.

Q.3 Attempt any one **08**

a) Calculate weight vectors for the following documents in vector model?
Doc 1 "Computers have brought the world to our fingertips. We will try to understand at a basic level the science -- old and new -- underlying this new Computational Universe. Our quest takes us on a broad sweep of scientific knowledge and related technologies... Ultimately, this study makes us look anew at ourselves -- our genome; language; music, “knowledge”; and, above all, the mystery of our intelligence.”
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Consider keywords: science, knowledge, principles, engineering, applications, computers.
b) How to construct signature files? How to search word and context queries using signature file?

Q.4 Define information retrieval. With neat diagram explain information retrieval process. **08**

Section – II

Q.5 Attempt Any three **12**

a) Explain basic steps in data retrieval.
b) Explain different query predicates with example.
c) How to find the objects in the collection that are within distance d from query objects.
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e) Explain different aspects required to consider in designing a multimedia query language.

Q.6 Attempt any one **08**

a) What is ranking? Explain working of any three ranking algorithms.

b) How GEMINI approach is applied to two dimensional colour images within QBIC?

Q.7 Define conceptual structure of type Generic Letter and Business_product_letter. **08**

Seat No.	

Set **S**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION RETRIEVAL

Day & Date: Friday, 22-11-2019 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 marks to a question

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

Q.1 A) Choose the correct Answer **10**

1) _____ evaluation allows the application to control when to do work of obtaining new results.
   a) Full b) Lazy

2) In Brute force approach, if text is having 90 characters and pattern is having 10 characters, how many search comparisons will be required at worst case?
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3) _____ are designed to allow binary search by comparing contents of pointer.
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4) In Shift-OR algorithm, state of search is kept in a machine word D= d_m.... d_1. A is match is reported whenever _____.
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   c) none of these d) None of the above

B) Match Correctly 04

1. Brown noise	a. Energy spectrum is in between completely upredictable and too predictable
2. Black noise	b. Energy spectrum is too predictable
3. Pink noise	c. Energy spectrum is completely unpredictable
4. White noise	d. signals model successfully such as water level of river

SLR-FM-395

Seat No.	

Set S

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION RETRIEVAL

Day & Date: Friday, 22-11-2019 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 Attempt any three **12**

a) Draw nondeterministic automata and construct bit mask table for pattern 'abcbac'.
b) State and give formulae for evaluation measures for information retrieval.
c) Explain models for browsing.
d) Define inverted index. Explain steps in search algorithm on inverted index.
e) Find edit distance between 'information' and 'transformation'.

Q.3 Attempt any one **08**

a) Calculate weight vectors for the following documents in vector model?
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Consider keywords: science, knowledge, principles, engineering, applications, computers.
b) How to construct signature files? How to search word and context queries using signature file?

Q.4 Define information retrieval. With neat diagram explain information retrieval process. **08**

Section – II

Q.5 Attempt Any three **12**

a) Explain basic steps in data retrieval.
b) Explain different query predicates with example.
c) How to find the objects in the collection that are within distance d from query objects.
d) Explain architectural issues in digital library.
e) Explain different aspects required to consider in designing a multimedia query language.

Q.6 Attempt any one **08**

a) What is ranking? Explain working of any three ranking algorithms.

b) How GEMINI approach is applied to two dimensional colour images within QBIC?

Q.7 Define conceptual structure of type Generic Letter and Business_product_letter. **08**

Seat No.	

Set **P**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING AND APPLICATION

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 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: 14

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

1) Which of the following specifies a set of media access control (MAC) and physical layer specifications for implementing WLANs?
   a) IEEE 802.16 b) IEEE 802.3
   c) IEEE 802.11 d) IEEE 802.15

2) Why neighbouring stations are assigned different group of channels in cellular system?
   a) To minimize interference
   b) To minimize area
   c) To maximize throughput
   d) To maximize capacity of each cell

3) Which type of antenna is used for edge excited cells?
   a) Omnidirectional antenna b) Grid antenna
   c) Sectored directional antenna d) Dipole antenna

4) Which of the following is not an objective for channel assignment strategies?
   a) Efficient utilization of spectrum b) Increase of capacity
   c) Minimize the interference d) Maximize the interference

5) What is a borrowing strategy in fixed channel assignments?
   a) Borrowing channels from neighbouring cell
   b) Borrowing channels from neighbouring cluster
   c) Borrowing channels from same cell
   d) Borrowing channels from other base station in same cell

6) Dwell time does not depend on which of the following factor?
   a) Propagation
   b) Interference
   c) Distance between subscriber and base station
   d) Mobile station

7) The mechanism behind electromagnetic wave propagation cannot be attributed to _____.
   a) Reflection b) Diffraction
   c) Scattering d) Sectoring

8) Path loss in free space model is defined as difference of _____.
   a) Effective transmitted power and gain
   b) Effective received power and distance between T-R
   c) Gain and received power
   d) Effective transmitter power and receiver power

9) What is the case of reflection, in course of second medium being a perfect dielectric?
   a) Loss of energy during absorption
   b) Total energy reflected back to first medium
   c) No loss of energy in absorption
   d) Total energy transmitted into second medium

10) Which is the process of encoding information from a message source in suitable manner for transmission?
   a) Modulation b) Demodulation
   c) Encryption d) Decryption

11) TDD is effective for _____.
   a) Fixed wireless access and users are stationary
   b) Dynamic wireless access and users are stationary
   c) Fixed wireless access and users are moving
   d) Dynamic wireless access and users are moving

12) Frequency hopping involves a periodic change of transmission _____.
   a) Signal b) Frequency
   c) Phase d) Amplitude

13) Which of the following is not a property of spread spectrum techniques?
   a) Interference rejection capability
   b) Multipath fading
   c) Frequency planning elimination
   d) Multiple user, multiple access interface

14) _____ carries digitally encoded user data.
   a) Traffic channels b) Control channels
   c) Signalling channels d) Forward channels

Seat No.	

Set **P**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING AND APPLICATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 **Attempt any three of the following questions.** **12**
- **a)** What is multiplexing? Draw and illustrate types of multiplexing?
- **b)** Explain all the benefits of wireless networks and mobile communications.
- **c)** What is handover? Explain all the scenarios in GSM?
- **d)** Explain the signal propagation with path loss of radio signals.
- **e)** What are the advantages, disadvantages for cellular system also explain it with cell clusters?

Q.3 Explain all the mechanism with example to control medium access. **08**

OR

Explain with neat diagram the functional architecture of GPRS and WCDMA. **08**

Q.4 **Attempt any two of the following questions.** **08**
- **a)** Mobility Management
- **b)** Mobile IP
- **c)** Antennas

Section – II

Q.5 **Attempt any three** **12**
- **a)** What is MANET, explain it with mobile IP?
- **b)** Illustrate with diagram the indirect TCP.
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Q.6 With neat diagrams explain all the wireless media access techniques. **08**

OR

What is mobility? Explain all the models of mobility in detail. **08**

Q.7 **Attempt any two of the following questions.** **08**
- **a)** Mobile TCP
- **b)** IEEE 802.11
- **c)** Sensor networks

Seat No.	

Set **Q**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING AND APPLICATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 70
Time: 02:30 PM To 05:30 PM

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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

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   c) Gain and received power
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Seat No.	

Set **Q**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING AND APPLICATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 **Attempt any three of the following questions.** **12**
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- **c)** What is handover? Explain all the scenarios in GSM?
- **d)** Explain the signal propagation with path loss of radio signals.
- **e)** What are the advantages, disadvantages for cellular system also explain it with cell clusters?

Q.3 Explain all the mechanism with example to control medium access. **08**

OR

Explain with neat diagram the functional architecture of GPRS and WCDMA. **08**

Q.4 **Attempt any two of the following questions.** **08**
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- **b)** Mobile IP
- **c)** Antennas

Section – II

Q.5 **Attempt any three** **12**
- **a)** What is MANET, explain it with mobile IP?
- **b)** Illustrate with diagram the indirect TCP.
- **c)** State and explain the challenges of wireless network.
- **d)** Explain the mechanism used in traditional TCP.
- **e)** Explain the AODV mobile Adhoc network.

Q.6 With neat diagrams explain all the wireless media access techniques. **08**

OR

What is mobility? Explain all the models of mobility in detail. **08**

Q.7 **Attempt any two of the following questions.** **08**
- **a)** Mobile TCP
- **b)** IEEE 802.11
- **c)** Sensor networks

Seat No.	

Set **R**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING AND APPLICATION

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 it should be solved in first 30 minutes in answer book.
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3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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14) Which of the following is not an objective for channel assignment strategies?
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SLR-FM-396

Seat No.	

Set R

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING AND APPLICATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 **Attempt any three of the following questions.** **12**
- **a)** What is multiplexing? Draw and illustrate types of multiplexing?
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Q.3 Explain all the mechanism with example to control medium access. **08**

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Q.4 **Attempt any two of the following questions.** **08**
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Section – II

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Q.6 With neat diagrams explain all the wireless media access techniques. **08**

OR

What is mobility? Explain all the models of mobility in detail. **08**

Q.7 **Attempt any two of the following questions.** **08**
- **a)** Mobile TCP
- **b)** IEEE 802.11
- **c)** Sensor networks

Seat No.	

Set **S**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING AND APPLICATION

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 it should be solved in first 30 minutes in answer book.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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SLR-FM-396

Seat No.	

Set S

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
MOBILE COMPUTING AND APPLICATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Attempt any three of the following questions. **12**
- **a)** What is multiplexing? Draw and illustrate types of multiplexing?
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- **c)** What is handover? Explain all the scenarios in GSM?
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Q.3 Explain all the mechanism with example to control medium access. **08**

OR

Explain with neat diagram the functional architecture of GPRS and WCDMA. **08**

Q.4 Attempt any two of the following questions. **08**
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Section – II

Q.5 Attempt any three **12**
- **a)** What is MANET, explain it with mobile IP?
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OR

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- **b)** IEEE 802.11
- **c)** Sensor networks

Seat No.	

Set **P**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION ASSURANCE & SECURITY

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 it 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) i) Monoalphabetic ciphers are stronger than Polyalphabetic ciphers.
ii) Vigenere cipher is Polyalphabetic
Which one of the following is true?
a) i only b) ii only
c) Both i and ii d) Neither i nor ii

2) What is the ciphertext of “MONEYZ” using Playfair cipher (key “TUTORIALS”)?
a) NUFMZU b) NUFMZV
c) NVMFZV d) NUMFZV

3) The only difference between DES encryption and DES decryption algorithm is in _____.
a) Number of Feistel rounds b) Complex function 'F'
c) Ordering of the round keys d) Permutation tables

4) For SSL connection, SSL Record protocol provides _____.
a) Message confidentiality b) Message Integrity
c) Both a) and b) d) None of a) and b)

5) Let the plaintext be 01001011 and the initial vector be taken as 1111. If the block cipher is the transposition cipher with the key a permutation $\begin{pmatrix}1 & 2 & 3 & 4\\ 2 & 4 & 1 & 3\end{pmatrix}$, then the ciphertext obtained from CBC mode of operation is given by.
a) 01110011 b) 01110101
c) 01111000 d) 01111010

6) Diffie-Hellman key exchange protocol is based on _____.
a) Discrete log problem b) Subset sum problem
c) Factorization problem d) Permutation problem

7) The advantage of IKE Phase 1 Main mode over IKE Phase 1 Aggressive mode is _____.
a) Main mode uses fewer messages
b) Main mode provides greater security
c) Main mode hides the identities of the communicating entities
d) Main mode has a larger suite of options for key exchange

8) Which of the following statement is false?
   a) An anomaly-based IDS uses OS-based audit trails to detect intrusion.
   b) A signature based IDS identifies patterns of behavior that accompany an attack.
   c) A network-based IDS identifies whether the behavior of the network is a statistically significant departure from normal.
   d) A host-based IDS alerts the administrator if it sees a disproportionate number of malformed TCP packets entering the organization.

9) This technique in identity theft involves sending of e-mail messages to online payment accounts to update their records with confidential information which is then used by the identity thieves.
   a) Viruses
   b) Worm holes
   c) Phishing
   d) Pooling

10) Which of the following make filtering decisions based on application payload?
   a) Packet filter
   b) Stateful packet inspection firewall
   c) Deep inspection firewall
   d) Reverse proxy

11) _____ is the standard for an information security management system.
   a) ISO 27000
   b) ISO 27004
   c) ISO 27001
   d) ISO 27002

12) Early viruses used the following technique to evade detection _____.
   a) They were encrypted and decrypted only during execution.
   b) They updated themselves by downloading code from an FTP site.
   c) They were hidden in the payload of TCP packets carrying regular traffic.
   d) They used compression so that the length of the infected and original files matched.

13) _____ refers to sending a large number of E-Mails to the victim to crash victims E-Mail account or to make victims mail server crash.
   a) E-Mail Bombing
   b) Password Sniffing
   c) Identity Theft
   d) Forgery

14) Which of the following describes programs that can run independently, travel from system to system and disrupt computer communication?
   a) Viruses
   b) Trojans
   c) Droppers
   d) Worm

Seat No.	

Set **P**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION ASSURANCE & SECURITY

Day & Date: Monday, 25-11-2019 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 Write short notes. (Any Two) **08**
- **a)** Counter Mode of operation
- **b)** A Model for Symmetric Encryption
- **c)** SSL Record Layer Protocol

Q.3 Answer the following. (Any Two) **10**
- **a)** Describe MAC with its properties and applications.
- **b)** Describe Public-Key Cryptography.
- **c)** Demonstrate Man-in-the middle attack on Diffie-Hellman Key Exchange.

Q.4 Answer the following. **10**
- **a)** Explain two scenarios of Digital Certificate Revocation with solutions.

OR

- **b)** Explain IPSec protocol with Security Associations.

Section – II

Q.5 Answer the following. (Any Two) **08**
- **a)** Compare between Host-based and Network-based Intrusion Detection System.
- **b)** Explain in detail the working of Anonymizers.
- **c)** What is Backdoor? Illustrate.

Q.6 Answer the following. (Any Two) : **10**
- **a)** Explain Application Level Firewalls.
- **b)** Describe Trojan Horse.
- **c)** Describe the Positive Aspects of ITA 2000.

Q.7 Answer the following. **10**
- **a)** What is Cyber' crime? How is Cyber Crime Classified? Explain with examples.

OR

- **b)** What are Keyloggers? Explain the different types of Keyloggers.

Seat No.	

Set | Q

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION ASSURANCE & SECURITY

Day & Date: Monday, 25-11-2019 Max. Marks: 70
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   c) 01111000
   d) 01111010

13) Diffie-Hellman key exchange protocol is based on _____.
   a) Discrete log problem
   b) Subset sum problem
   c) Factorization problem
   d) Permutation problem

14) The advantage of IKE Phase 1 Main mode over IKE Phase 1 Aggressive mode is _____.
   a) Main mode uses fewer messages
   b) Main mode provides greater security
   c) Main mode hides the identities of the communicating entities
   d) Main mode has a larger suite of options for key exchange

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Seat No.	

Set Q

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION ASSURANCE & SECURITY

Day & Date: Monday, 25-11-2019 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 Write short notes. (Any Two) **08**
- **a)** Counter Mode of operation
- **b)** A Model for Symmetric Encryption
- **c)** SSL Record Layer Protocol

Q.3 Answer the following. (Any Two) **10**
- **a)** Describe MAC with its properties and applications.
- **b)** Describe Public-Key Cryptography.
- **c)** Demonstrate Man-in-the middle attack on Diffie-Hellman Key Exchange.

Q.4 Answer the following. **10**
- **a)** Explain two scenarios of Digital Certificate Revocation with solutions.

OR

- **b)** Explain IPSec protocol with Security Associations.

Section – II

Q.5 Answer the following. (Any Two) **08**
- **a)** Compare between Host-based and Network-based Intrusion Detection System.
- **b)** Explain in detail the working of Anonymizers.
- **c)** What is Backdoor? Illustrate.

Q.6 Answer the following. (Any Two) : **10**
- **a)** Explain Application Level Firewalls.
- **b)** Describe Trojan Horse.
- **c)** Describe the Positive Aspects of ITA 2000.

Q.7 Answer the following. **10**
- **a)** What is Cyber' crime? How is Cyber Crime Classified? Explain with examples.

OR

- **b)** What are Keyloggers? Explain the different types of Keyloggers.

Seat No.	

Set | R

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION ASSURANCE & SECURITY

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 it 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) Let the plaintext be 01001011 and the initial vector be taken as 1111. If the block cipher is the transposition cipher with the key a permutation $\begin{pmatrix}1 & 2 & 3 & 4\\ 2 & 4 & 1 & 3\end{pmatrix}$, then the ciphertext obtained from CBC mode of operation is given by.
   a) 01110011 b) 01110101
   c) 01111000 d) 01111010

2) Diffie-Hellman key exchange protocol is based on _____.
   a) Discrete log problem b) Subset sum problem
   c) Factorization problem d) Permutation problem

3) The advantage of IKE Phase 1 Main mode over IKE Phase 1 Aggressive mode is _____.
   a) Main mode uses fewer messages
   b) Main mode provides greater security
   c) Main mode hides the identities of the communicating entities
   d) Main mode has a larger suite of options for key exchange

4) Which of the following statement is false?
   a) An anomaly-based IDS uses OS-based audit trails to detect intrusion.
   b) A signature based IDS identifies patterns of behavior that accompany an attack.
   c) A network-based IDS identifies whether the behavior of the network is a statistically significant departure from normal.
   d) A host-based IDS alerts the administrator if it sees a disproportionate number of malformed TCP packets entering the organization.

5) This technique in identity theft involves sending of e-mail messages to online payment accounts to update their records with confidential information which is then used by the identity thieves.
   a) Viruses b) Worm holes
   c) Phishing d) Pooling

6) Which of the following make filtering decisions based on application payload?
   a) Packet filter
   b) Stateful packet inspection firewall
   c) Deep inspection firewall
   d) Reverse proxy

7) _____ is the standard for an information security management system.
   a) ISO 27000 b) ISO 27004
   c) ISO 27001 d) ISO 27002

8) Early viruses used the following technique to evade detection _____.
   a) They were encrypted and decrypted only during execution.
   b) They updated themselves by downloading code from an FTP site.
   c) They were hidden in the payload of TCP packets carrying regular traffic.
   d) They used compression so that the length of the infected and original files matched.

9) _____ refers to sending a large number of E-Mails to the victim to crash victims E-Mail account or to make victims mail server crash.
   a) E-Mail Bombing b) Password Sniffing
   c) Identity Theft d) Forgery

10) Which of the following describes programs that can run independently, travel from system to system and disrupt computer communication?
   a) Viruses b) Trojans
   c) Droppers d) Worm

11) i) Monoalphabetic ciphers are stronger than Polyalphabetic ciphers.
   ii) Vigenere cipher is Polyalphabetic
   Which one of the following is true?
   a) i only b) ii only
   c) Both i and ii d) Neither i nor ii

12) What is the ciphertext of “MONEYZ” using Playfair cipher (key “TUTORIALS”)?
   a) NUFMZU b) NUFMZV
   c) NVMFZV d) NUMFZV

13) The only difference between DES encryption and DES decryption algorithm is in _____.
   a) Number of Feistel rounds b) Complex function 'F'
   c) Ordering of the round keys d) Permutation tables

14) For SSL connection, SSL Record protocol provides _____.
   a) Message confidentiality b) Message Integrity
   c) Both a) and b) d) None of a) and b)

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Seat No.	

Set R

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION ASSURANCE & SECURITY

Day & Date: Monday, 25-11-2019 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 Write short notes. (Any Two) **08**
- **a)** Counter Mode of operation
- **b)** A Model for Symmetric Encryption
- **c)** SSL Record Layer Protocol

Q.3 Answer the following. (Any Two) **10**
- **a)** Describe MAC with its properties and applications.
- **b)** Describe Public-Key Cryptography.
- **c)** Demonstrate Man-in-the middle attack on Diffie-Hellman Key Exchange.

Q.4 Answer the following. **10**
- **a)** Explain two scenarios of Digital Certificate Revocation with solutions.

OR

- **b)** Explain IPSec protocol with Security Associations.

Section – II

Q.5 Answer the following. (Any Two) **08**
- **a)** Compare between Host-based and Network-based Intrusion Detection System.
- **b)** Explain in detail the working of Anonymizers.
- **c)** What is Backdoor? Illustrate.

Q.6 Answer the following. (Any Two) : **10**
- **a)** Explain Application Level Firewalls.
- **b)** Describe Trojan Horse.
- **c)** Describe the Positive Aspects of ITA 2000.

Q.7 Answer the following. **10**
- **a)** What is Cyber' crime? How is Cyber Crime Classified? Explain with examples.

OR

- **b)** What are Keyloggers? Explain the different types of Keyloggers.

Seat No.		Set	S

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION ASSURANCE & SECURITY

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 it 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 make filtering decisions based on application payload?
   a) Packet filter
   b) Stateful packet inspection firewall
   c) Deep inspection firewall
   d) Reverse proxy

2) _____ is the standard for an information security management system.
   a) ISO 27000 b) ISO 27004
   c) ISO 27001 d) ISO 27002

3) Early viruses used the following technique to evade detection _____.
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   b) They updated themselves by downloading code from an FTP site.
   c) They were hidden in the payload of TCP packets carrying regular traffic.
   d) They used compression so that the length of the infected and original files matched.

4) _____ refers to sending a large number of E-Mails to the victim to crash victims E-Mail account or to make victims mail server crash.
   a) E-Mail Bombing b) Password Sniffing
   c) Identity Theft d) Forgery

5) Which of the following describes programs that can run independently, travel from system to system and disrupt computer communication?
   a) Viruses b) Trojans
   c) Droppers d) Worm

6) i) Monoalphabetic ciphers are stronger than Polyalphabetic ciphers.
   ii) Vigenere cipher is Polyalphabetic
   Which one of the following is true?
   a) i only b) ii only
   c) Both i and ii d) Neither i nor ii

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   a) NUFMZU b) NUFMZV
   c) NVMFZV d) NUMFZV

a) Number of Feistel rounds
b) Complex function 'F'
c) Ordering of the round keys
d) Permutation tables

9) For SSL connection, SSL Record protocol provides _____.
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b) Message Integrity
c) Both a) and b)
d) None of a) and b)

10) Let the plaintext be 01001011 and the initial vector be taken as 1111. If the block cipher is the transposition cipher with the key a permutation $\begin{pmatrix} 1 & 2 & 3 & 4 \\ 2 & 4 & 1 & 3 \end{pmatrix}$, then the ciphertext obtained from CBC mode of operation is given by.
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c) 01111000
d) 01111010

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d) Permutation problem

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c) Main mode hides the identities of the communicating entities
d) Main mode has a larger suite of options for key exchange

13) Which of the following statement is false?
a) An anomaly-based IDS uses OS-based audit trails to detect intrusion.
b) A signature based IDS identifies patterns of behavior that accompany an attack.
c) A network-based IDS identifies whether the behavior of the network is a statistically significant departure from normal.
d) A host-based IDS alerts the administrator if it sees a disproportionate number of malformed TCP packets entering the organization.

14) This technique in identity theft involves sending of e-mail messages to online payment accounts to update their records with confidential information which is then used by the identity thieves.
a) Viruses
b) Worm holes
c) Phishing
d) Pooling

Seat No.	

Set **S**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
INFORMATION ASSURANCE & SECURITY

Day & Date: Monday, 25-11-2019 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 Write short notes. (Any Two) **08**
- **a)** Counter Mode of operation
- **b)** A Model for Symmetric Encryption
- **c)** SSL Record Layer Protocol

Q.3 Answer the following. (Any Two) **10**
- **a)** Describe MAC with its properties and applications.
- **b)** Describe Public-Key Cryptography.
- **c)** Demonstrate Man-in-the middle attack on Diffie-Hellman Key Exchange.

Q.4 Answer the following. **10**
- **a)** Explain two scenarios of Digital Certificate Revocation with solutions.

OR

- **b)** Explain IPSec protocol with Security Associations.

Section – II

Q.5 Answer the following. (Any Two) **08**
- **a)** Compare between Host-based and Network-based Intrusion Detection System.
- **b)** Explain in detail the working of Anonymizers.
- **c)** What is Backdoor? Illustrate.

Q.6 Answer the following. (Any Two) : **10**
- **a)** Explain Application Level Firewalls.
- **b)** Describe Trojan Horse.
- **c)** Describe the Positive Aspects of ITA 2000.

Q.7 Answer the following. **10**
- **a)** What is Cyber' crime? How is Cyber Crime Classified? Explain with examples.

OR

- **b)** What are Keyloggers? Explain the different types of Keyloggers.

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Seat No.	

Set P

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA MINING & WAREHOUSING

Day & Date: Tuesday, 26-11-2019 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.
3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) The full form of OLAP is _____.
   a) Online Analytical Processing b) Online Advanced Processing
   c) Online Advanced Preparation d) Online Analytical Performance

2) _____ is a subject - oriented, integrated, time-variant, nonvolatile collection or data in support of management decisions.
   a) Data Mining b) Data warehousing
   c) Document Mining d) Text Mining

3) The data is stored, retrieved and updated in _____.
   a) OLAP b) OLTP
   c) SMTP d) FTP

4) An _____ system is market-oriented and is used for data analysis by knowledge workers, including managers, executives, and analysts.
   a) OLAP b) OLTP
   c) Both of the above d) None of the above

5) _____ is a good alternative to the star schema.
   a) Star Schema b) Snowflake schema
   c) Fact constellation d) Star-snowflake schema

6) The _____ exposes the information being captured, stored and managed by operational systems.
   a) top-down view b) data warehouse view
   c) data source view d) business query view

7) The type of relationship in star schema is _____.
   a) many to many b) one to one
   c) one to many d) many to one

8) The _____ allows the selection of the relevant information necessary for the data warehouse.
   a) top-down view b) data warehouse view
   c) data source view d) business query view

9) Which of the following is not a component of a data warehouse?
   a) Metadata b) Current detail data
   c) Lightly summarized data d) Component Key

10) Which of the following is not a kind of data warehouse application?
   a) Information processing
   b) Analytical processing
   c) Data mining
   d) Transaction processing

11) A data warehouse is which of the following?
   a) Can be updated by end users
   b) Contains numerous naming conventions and formats
   c) Organized around important subject areas
   d) Contains only current data

12) An operational system is which of the following?
   a) A system that is used to run the business in real time and is based on historical data
   b) A system that is used to run the business in real time and is based on current data
   c) A system that is used to support decision making and is based on current data
   d) A system that is used to support decision making and is based on historical data

13) The generic two-level data warehouse architecture includes which of the following?
   a) At least one data mart
   b) Data that can extracted from numerous internal and external sources
   c) Near real-time updates
   d) None of the above

14) The active data warehouse architecture includes which of the following?
   a) At least one data mart
   b) Data that can extracted from numerous internal and external sources
   c) Near real-time updates
   d) All of the above

Seat No.	

Set **P**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA MINING & WAREHOUSING

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

Q.2 Attempt any four of the following questions. **12**
- **a)** What is a business model?
- **b)** List the basic elements of Data Mining.
- **c)** What is Visualization?
- **d)** Compare between classification and clustering.
- **e)** List the steps in KDD Process

Q.3 Attempt any two of the following questions. **08**
- **a)** What is Association Rule Mining? How is it carried out?
- **b)** How is tree based classification carried out?
- **c)** How is extraction done using Neural Networks?

Q.4 Attempt any one of the following questions. **08**
- **a)** State and compare the technologies used for Data warehousing.
- **b)** List and compare the various techniques used for Data Mining.

Section – II

Q.5 Attempt any four of the following questions. **12**
- **a)** What are types of Web Mining?
- **b)** What is a Query language? How is its GUI developed?
- **c)** List the applications of Data Mining.
- **d)** What is spatial Mining?
- **e)** Define Temporal Mining and illustrate the same.

Q.6 Attempt any two of the following questions. **08**
- **a)** How are Web pages classified?
- **b)** Elaborate on the architectures of Data Mining.
- **c)** How is indexing of Multimedia material performed?

Q.7 Attempt any one of the following questions. **08**
- **a)** How is knowledge extracted from the web?
- **b)** List and explain the Data Mining primitives.

Seat No.	

Set **Q**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA MINING & WAREHOUSING

Day & Date: Tuesday, 26-11-2019 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.
3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) The _____ allows the selection of the relevant information necessary for the data warehouse.
   a) top-down view b) data warehouse view
   c) data source view d) business query view

2) Which of the following is not a component of a data warehouse?
   a) Metadata b) Current detail data
   c) Lightly summarized data d) Component Key

3) Which of the following is not a kind of data warehouse application?
   a) Information processing b) Analytical processing
   c) Data mining d) Transaction processing

4) A data warehouse is which of the following?
   a) Can be updated by end users
   b) Contains numerous naming conventions and formats
   c) Organized around important subject areas
   d) Contains only current data

5) An operational system is which of the following?
   a) A system that is used to run the business in real time and is based on historical data
   b) A system that is used to run the business in real time and is based on current data
   c) A system that is used to support decision making and is based on current data
   d) A system that is used to support decision making and is based on historical data

6) The generic two-level data warehouse architecture includes which of the following?
   a) At least one data mart
   b) Data that can extracted from numerous internal and external sources
   c) Near real-time updates
   d) None of the above

7) The active data warehouse architecture includes which of the following?
   a) At least one data mart
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8) The full form of OLAP is _____.
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10) The data is stored, retrieved and updated in _____.
   a) OLAP b) OLTP
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11) An _____ system is market-oriented and is used for data analysis by knowledge workers, including managers, executives, and analysts.
   a) OLAP b) OLTP
   c) Both of the above d) None of the above

12) _____ is a good alternative to the star schema.
   a) Star Schema b) Snowflake schema
   c) Fact constellation d) Star-snowflake schema

13) The _____ exposes the information being captured, stored and managed by operational systems.
   a) top-down view b) data warehouse view
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14) The type of relationship in star schema is _____.
   a) many to many b) one to one
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Seat No.	

Set **Q**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA MINING & WAREHOUSING

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

Q.2 Attempt any four of the following questions. **12**
- **a)** What is a business model?
- **b)** List the basic elements of Data Mining.
- **c)** What is Visualization?
- **d)** Compare between classification and clustering.
- **e)** List the steps in KDD Process

Q.3 Attempt any two of the following questions. **08**
- **a)** What is Association Rule Mining? How is it carried out?
- **b)** How is tree based classification carried out?
- **c)** How is extraction done using Neural Networks?

Q.4 Attempt any one of the following questions. **08**
- **a)** State and compare the technologies used for Data warehousing.
- **b)** List and compare the various techniques used for Data Mining.

Section – II

Q.5 Attempt any four of the following questions. **12**
- **a)** What are types of Web Mining?
- **b)** What is a Query language? How is its GUI developed?
- **c)** List the applications of Data Mining.
- **d)** What is spatial Mining?
- **e)** Define Temporal Mining and illustrate the same.

Q.6 Attempt any two of the following questions. **08**
- **a)** How are Web pages classified?
- **b)** Elaborate on the architectures of Data Mining.
- **c)** How is indexing of Multimedia material performed?

Q.7 Attempt any one of the following questions. **08**
- **a)** How is knowledge extracted from the web?
- **b)** List and explain the Data Mining primitives.

Seat No.	

Set **R**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA MINING & WAREHOUSING

Day & Date: Tuesday, 26-11-2019 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.
3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) _____ is a good alternative to the star schema.
   a) Star Schema b) Snowflake schema
   c) Fact constellation d) Star-snowflake schema

2) The _____ exposes the information being captured, stored and managed by operational systems.
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8) An operational system is which of the following?
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13) The data is stored, retrieved and updated in _____.
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   c) SMTP d) FTP

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   c) Both of the above d) None of the above

Seat No.	

Set **R**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA MINING & WAREHOUSING

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

Q.2 Attempt any four of the following questions. **12**
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Q.3 Attempt any two of the following questions. **08**
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Section – II

Q.5 Attempt any four of the following questions. **12**
- **a)** What are types of Web Mining?
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Q.7 Attempt any one of the following questions. **08**
- **a)** How is knowledge extracted from the web?
- **b)** List and explain the Data Mining primitives.

Seat No.	

Set **S**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA MINING & WAREHOUSING

Day & Date: Tuesday, 26-11-2019 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.
3) Assume suitable data if necessary.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) Which of the following is not a kind of data warehouse application?
   a) Information processing b) Analytical processing
   c) Data mining d) Transaction processing

2) A data warehouse is which of the following?
   a) Can be updated by end users
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   c) Organized around important subject areas
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   c) A system that is used to support decision making and is based on current data
   d) A system that is used to support decision making and is based on historical data

4) The generic two-level data warehouse architecture includes which of the following?
   a) At least one data mart
   b) Data that can extracted from numerous internal and external sources
   c) Near real-time updates
   d) None of the above

5) The active data warehouse architecture includes which of the following?
   a) At least one data mart
   b) Data that can extracted from numerous internal and external sources
   c) Near real-time updates
   d) All of the above

6) The full form of OLAP is _____.
   a) Online Analytical Processing b) Online Advanced Processing
   c) Online Advanced Preparation d) Online Analytical Performance

7) _____ is a subject - oriented, integrated, time-variant, nonvolatile collection or data in support of management decisions.
   a) Data Mining b) Data warehousing
   c) Document Mining d) Text Mining

8) The data is stored, retrieved and updated in _____.
   a) OLAP b) OLTP
   c) SMTP d) FTP

9) An _____ system is market-oriented and is used for data analysis by knowledge workers, including managers, executives, and analysts.
   a) OLAP b) OLTP
   c) Both of the above d) None of the above

10) _____ is a good alternative to the star schema.
   a) Star Schema b) Snowflake schema
   c) Fact constellation d) Star-snowflake schema

11) The _____ exposes the information being captured, stored and managed by operational systems.
   a) top-down view b) data warehouse view
   c) data source view d) business query view

12) The type of relationship in star schema is _____.
   a) many to many b) one to one
   c) one to many d) many to one

13) The _____ allows the selection of the relevant information necessary for the data warehouse.
   a) top-down view b) data warehouse view
   c) data source view d) business query view

14) Which of the following is not a component of a data warehouse?
   a) Metadata b) Current detail data
   c) Lightly summarized data d) Component Key

Seat No.	

Set **S**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA MINING & WAREHOUSING

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

Q.2 Attempt any four of the following questions. **12**
- **a)** What is a business model?
- **b)** List the basic elements of Data Mining.
- **c)** What is Visualization?
- **d)** Compare between classification and clustering.
- **e)** List the steps in KDD Process

Q.3 Attempt any two of the following questions. **08**
- **a)** What is Association Rule Mining? How is it carried out?
- **b)** How is tree based classification carried out?
- **c)** How is extraction done using Neural Networks?

Q.4 Attempt any one of the following questions. **08**
- **a)** State and compare the technologies used for Data warehousing.
- **b)** List and compare the various techniques used for Data Mining.

Section – II

Q.5 Attempt any four of the following questions. **12**
- **a)** What are types of Web Mining?
- **b)** What is a Query language? How is its GUI developed?
- **c)** List the applications of Data Mining.
- **d)** What is spatial Mining?
- **e)** Define Temporal Mining and illustrate the same.

Q.6 Attempt any two of the following questions. **08**
- **a)** How are Web pages classified?
- **b)** Elaborate on the architectures of Data Mining.
- **c)** How is indexing of Multimedia material performed?

Q.7 Attempt any one of the following questions. **08**
- **a)** How is knowledge extracted from the web?
- **b)** List and explain the Data Mining primitives.

Seat No.	

Set **P**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
BUSINESS INTELLIGENCE

Day & Date: Tuesday, 26-11-2019 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.
3) 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) The data gathered from different sources are transferred & given to data warehouse using _____.
   a) Analysis tools b) Mathematical tools
   c) ETL tools d) OLAP tools

2) Which factor enables the BI projects _____.
   a) Technologies b) Analysis
   c) Human resources d) All

3) DSS combines data & mathematical models to solve complex problems: (State true or false).
   a) True b) False

4) In _____ analysis subset of attributes are investigated.
   a) Univariate b) Bivariate
   c) Multivariate d) Data distribution

5) Empirical density histograms are used in graphical analysis of _____.
   a) Categorical attributes b) Numerical attributes
   c) Empirical curve d) All types

6) Which of the following are the measures of central tendency for numerical attributes?
   a) Midrange b) Geometrical mean
   c) Mode d) All

7) Gini index and Entropy index are used for measuring _____ of categorical attributes.
   a) Homogenity b) Heterogenity
   c) Central tendency d) Dispersion

8) Variance and Mean Absolute Deviation are the measures of _____ for numerical attributes.
   a) Dispersion b) Central Tendency
   c) Relative Location d) Outliers

9) Which is not the part of extended structure of DSS _____.
   a) data management b) knowledge management
   c) model management d) memory management

10) Select the applications of datamining _____.
   a) Relational marketing b) Fraud detection
   c) Risk evaluation d) All

11) _____ can be used for the identification of attributes.
   a) Scatter plot b) Loess plot
   c) Box plot d) QQ plot

12) In linear regression models the functional relationship between the _____ & _____ is linear.
   a) Dependant & independent b) Dependant & dependant
   c) Independent & independent d) All

13) Vectors are used in _____.
   a) Simple linear regression b) Multiple linear regression
   c) Both d) None

14) Which of the followings are evaluations of validation of regression models?
   a) Significance of coefficients b) Analysis of variance
   c) Coefficients of determination d) All

Seat No.	

Set **P**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
BUSINESS INTELLIGENCE

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.
3) Assume suitable date if necessary.

Section – I

Q.2 **Attempt any three.** **12**
- **a)** Differentiation between OLAP, Statistics & Datamining
- **b)** BI architecture
- **c)** Effective and timely decisions in BI
- **d)** Box plots & QQ plots

Q.3 **Attempt any one.**
Explain the various measures of numerical attributes for Univariate analysis. **08**

OR

With neat diagram elaborate the phases in the development of BI system.

Q.4 What is the importance of data reduction in data mining process? Explain how data reduction takes place in detail. **08**

Section – II

Q.5 **Attempt any three.** **12**
- **a)** Structure of regression models
- **b)** Market basket analysis & Web mining
- **c)** Definition of Time series with examples
- **d)** Apriori algorithm

Q.6 **Attempt any one.**
What are classification problems? Explain the taxonomy of classification models. **08**

OR

Discuss the evaluation of classification models.

Q.7 Elaborate multiple linear regressions with its coefficients & examples. **08**

Seat No.	

Set **Q**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
BUSINESS INTELLIGENCE

Day & Date: Tuesday, 26-11-2019 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.
3) 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

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   c) Box plot d) QQ plot

5) In linear regression models the functional relationship between the _____ & _____ is linear.
   a) Dependant & independent b) Dependant & dependant
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   c) Coefficients of determination d) All

8) The data gathered from different sources are transferred & given to data warehouse using _____.
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   c) ETL tools d) OLAP tools

9) Which factor enables the BI projects _____.
   a) Technologies b) Analysis
   c) Human resources d) All

10) DSS combines data & mathematical models to solve complex problems: (State true or false).
   a) True b) False

11) In _____ analysis subset of attributes are investigated.
   a) Univariate b) Bivariate
   c) Multivariate d) Data distribution

12) Empirical density histograms are used in graphical analysis of _____.
   a) Categorical attributes b) Numerical attributes
   c) Empirical curve d) All types

13) Which of the following are the measures of central tendency for numerical attributes?
   a) Midrange b) Geometrical mean
   c) Mode d) All

14) Gini index and Entropy index are used for measuring _____ of categorical attributes.
   a) Homogenity b) Heterogenity
   c) Central tendency d) Dispersion

Seat No.	

Set **Q**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
BUSINESS INTELLIGENCE

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.
3) Assume suitable date if necessary.

Section – I

Q.2 **Attempt any three.** **12**
- **a)** Differentiation between OLAP, Statistics & Datamining
- **b)** BI architecture
- **c)** Effective and timely decisions in BI
- **d)** Box plots & QQ plots

Q.3 **Attempt any one.**
Explain the various measures of numerical attributes for Univariate analysis. **08**

OR

With neat diagram elaborate the phases in the development of BI system.

Q.4 What is the importance of data reduction in data mining process? Explain how data reduction takes place in detail. **08**

Section – II

Q.5 **Attempt any three.** **12**
- **a)** Structure of regression models
- **b)** Market basket analysis & Web mining
- **c)** Definition of Time series with examples
- **d)** Apriori algorithm

Q.6 **Attempt any one.**
What are classification problems? Explain the taxonomy of classification models. **08**

OR

Discuss the evaluation of classification models.

Q.7 Elaborate multiple linear regressions with its coefficients & examples. **08**

Seat No.	

Set **R**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
BUSINESS INTELLIGENCE

Day & Date: Tuesday, 26-11-2019 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.
3) 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) Empirical density histograms are used in graphical analysis of _____.
   a) Categorical attributes b) Numerical attributes
   c) Empirical curve d) All types

2) Which of the following are the measures of central tendency for numerical attributes?
   a) Midrange b) Geometrical mean
   c) Mode d) All

3) Gini index and Entropy index are used for measuring _____ of categorical attributes.
   a) Homogenity b) Heterogenity
   c) Central tendency d) Dispersion

4) Variance and Mean Absolute Deviation are the measures of _____ for numerical attributes.
   a) Dispersion b) Central Tendency
   c) Relative Location d) Outliers

5) Which is not the part of extended structure of DSS _____.
   a) data management b) knowledge management
   c) model management d) memory management

6) Select the applications of datamining _____.
   a) Relational marketing b) Fraud detection
   c) Risk evaluation d) All

7) _____ can be used for the identification of attributes.
   a) Scatter plot b) Loess plot
   c) Box plot d) QQ plot

8) In linear regression models the functional relationship between the _____ & _____ is linear.
   a) Dependant & independent b) Dependant & dependant
   c) Independent & independent d) All

9) Vectors are used in _____.
   a) Simple linear regression b) Multiple linear regression
   c) Both d) None

10) Which of the followings are evaluations of validation of regression models?
   a) Significance of coefficients
   b) Analysis of variance
   c) Coefficients of determination
   d) All

11) The data gathered from different sources are transferred & given to data warehouse using _____.
   a) Analysis tools
   b) Mathematical tools
   c) ETL tools
   d) OLAP tools

12) Which factor enables the BI projects _____.
   a) Technologies
   b) Analysis
   c) Human resources
   d) All

13) DSS combines data & mathematical models to solve complex problems: (State true or false).
   a) True
   b) False

14) In _____ analysis subset of attributes are investigated.
   a) Univariate
   b) Bivariate
   c) Multivariate
   d) Data distribution

Seat No.	

Set **R**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
BUSINESS INTELLIGENCE

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.
3) Assume suitable date if necessary.

Section – I

Q.2 **Attempt any three.** **12**
- **a)** Differentiation between OLAP, Statistics & Datamining
- **b)** BI architecture
- **c)** Effective and timely decisions in BI
- **d)** Box plots & QQ plots

Q.3 **Attempt any one.**
Explain the various measures of numerical attributes for Univariate analysis. **08**

OR

With neat diagram elaborate the phases in the development of BI system.

Q.4 What is the importance of data reduction in data mining process? Explain how data reduction takes place in detail. **08**

Section – II

Q.5 **Attempt any three.** **12**
- **a)** Structure of regression models
- **b)** Market basket analysis & Web mining
- **c)** Definition of Time series with examples
- **d)** Apriori algorithm

Q.6 **Attempt any one.**
What are classification problems? Explain the taxonomy of classification models. **08**

OR

Discuss the evaluation of classification models.

Q.7 Elaborate multiple linear regressions with its coefficients & examples. **08**

Seat No.	

Set **S**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
BUSINESS INTELLIGENCE

Day & Date: Tuesday, 26-11-2019 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.
3) 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) Select the applications of datamining _____.
   a) Relational marketing b) Fraud detection
   c) Risk evaluation d) All

2) _____ can be used for the identification of attributes.
   a) Scatter plot b) Loess plot
   c) Box plot d) QQ plot

3) In linear regression models the functional relationship between the _____ & _____ is linear.
   a) Dependant & independent b) Dependant & dependant
   c) Independent & independent d) All

4) Vectors are used in _____.
   a) Simple linear regression b) Multiple linear regression
   c) Both d) None

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   c) Human resources d) All

8) DSS combines data & mathematical models to solve complex problems: (State true or false).
   a) True b) False

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13) Variance and Mean Absolute Deviation are the measures of _____ for numerical attributes.
   a) Dispersion b) Central Tendency
   c) Relative Location d) Outliers

14) Which is not the part of extended structure of DSS _____.
   a) data management b) knowledge management
   c) model management d) memory management

Seat No.	

Set | S

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
BUSINESS INTELLIGENCE

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.
3) Assume suitable date if necessary.

Section – I

Q.2 **Attempt any three.** **12**
- **a)** Differentiation between OLAP, Statistics & Datamining
- **b)** BI architecture
- **c)** Effective and timely decisions in Bl
- **d)** Box plots & QQ plots

Q.3 **Attempt any one.**
Explain the various measures of numerical attributes for Univariate analysis. **08**

OR

With neat diagram elaborate the phases in the development of BI system.

Q.4 What is the importance of data reduction in data mining process? Explain how data reduction takes place in detail. **08**

Section – II

Q.5 **Attempt any three.** **12**
- **a)** Structure of regression models
- **b)** Market basket analysis & Web mining
- **c)** Definition of Time series with examples
- **d)** Apriori algorithm

Q.6 **Attempt any one.**
What are classification problems? Explain the taxonomy of classification models. **08**

OR

Discuss the evaluation of classification models.

Q.7 Elaborate multiple linear regressions with its coefficients & examples. **08**

Seat No.	

Set **P**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
CLOUD COMPUTING

Day & Date: Tuesday, 26-11-2019 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.
3) 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) The cloud computing is defined by using _____ attribute.
   a) Multitenancy b) Security
   c) Virtualization d) Cost-savings

2) _____ describes a distribution model in which applications are hosted by a service provider and made available to users.
   a) Infrastructure-as-a-Service (IaaS)
   b) Platform-as-a-Service (PaaS)
   c) Software-as-a-Service (SaaS)
   d) Cloud service

3) _____ describes a cloud service that can only be accessed by a limited amount of people.
   a) Data center b) Private cloud
   c) Virtualization d) Public cloud

4) Which delivery model is an example of a cloud computing environment that provides users with a web based email service?
   a) Software as a Service b) Platform as a Service
   c) Computing as a Service d) Infrastructure as a Service

5) An Internet connection is necessary for cloud computing interaction.
   a) True b) False

6) 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

7) What is an advantage of a multitenancy cloud environment over a singletenancy environment?
   a) cost savings b) easy to customize
   c) faster performance d) higher data security

8) Which of the following is cloud deployment model?
   a) public b) private
   c) hybrid d) aII

9) IAM stands for_____
   a) Identity and Access Management
   b) Identity and Authentication Management
   c) Identity and Auditing Management
   d) None of these

10) _____ is the process of verifying the identity of a user or system.
   a) Authorization
   b) Auditing
   c) Authentication
   d) All

11) Which of the following service provider provides the least amount of built in _____ security?
   a) SaaS
   b) PaaS
   c) IaaS
   d) All of the mentioned

12) Point out the wrong statement:
   a) Public cloud may be managed by the constituent organization(s) or by a third party
   b) A community cloud may be managed by the constituent organization(s) or by a third party
   c) Private clouds may be either on- or off-premises
   d) None of the mentioned

13) The role of CSP in cloud computing is_____.
   a) As a cloud Security Provider
   b) As a Cloud Server Provider
   c) As a Cloud Service Provider
   d) None of these

14) ASP stands for_____.
   a) Application Server Provider
   b) Application Service Provider
   c) Application Security Provider
   d) Both A & B

Seat No.	

Set **P**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
CLOUD COMPUTING

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.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any four. **20**

a) Define cloud computing with its attributes.

b) Explain the SPI framework for cloud computing with neat diagram.

c) Explain cloud deployment models with diagram.

d) Explain the Infrastructure security at network level with its risk factors.

e) Explain benefits and challenges of cloud computing.

f) List and explain the application of cloud computing.

Q.3 Explain the cloud service delivery model in detail with neat diagram. **08**

OR

Explain information security concerns associated with data stored in the cloud by using following aspects.
1) Confidentiality
2) Integrity
3) Availability

Section – II

Q.4 Attempt any four **20**

a) What is privacy? Explain KPMG data life cycle.

b) Explain Software as a service security issue.

c) Define trusted cloud computing and explain cloud service provider Risks.

d) What is identity management? Explain issues in implementing Identity Management.

e) Why Cloud Computing brings new threats? Any 3 reasons.

f) Explain Quality of Service (QoS) monitoring in cloud computing environment.

Q.5 Explain Public, private, Hybrid cloud Models in details. **08**

OR

Explain CSP life cycle approach & stages in CSP life cycle with neat diagram.

Seat No.	

Set **Q**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
CLOUD COMPUTING

Day & Date: Tuesday, 26-11-2019 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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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   a) SaaS b) PaaS
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12) An Internet connection is necessary for cloud computing interaction.
   a) True
   b) False

13) Which delivery model is an example of a cloud computing environment that provides users access to virtual machines?
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   b) Software as a Service
   c) Application as a Service
   d) Infrastructure as a Service

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   a) cost savings
   b) easy to customize
   c) faster performance
   d) higher data security

Seat No.	

Set **Q**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
CLOUD COMPUTING

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.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any four. **20**

a) Define cloud computing with its attributes.

b) Explain the SPI framework for cloud computing with neat diagram.

c) Explain cloud deployment models with diagram.

d) Explain the Infrastructure security at network level with its risk factors.

e) Explain benefits and challenges of cloud computing.

f) List and explain the application of cloud computing.

Q.3 Explain the cloud service delivery model in detail with neat diagram. **08**

OR

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3) Availability

Section – II

Q.4 Attempt any four **20**

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b) Explain Software as a service security issue.

c) Define trusted cloud computing and explain cloud service provider Risks.

d) What is identity management? Explain issues in implementing Identity Management.

e) Why Cloud Computing brings new threats? Any 3 reasons.

f) Explain Quality of Service (QoS) monitoring in cloud computing environment.

Q.5 Explain Public, private, Hybrid cloud Models in details. **08**

OR

Explain CSP life cycle approach & stages in CSP life cycle with neat diagram.

Seat No.	

Set **R**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
CLOUD COMPUTING

Day & Date: Tuesday, 26-11-2019 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.
3) 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) An Internet connection is necessary for cloud computing interaction.
   a) True b) False

62) 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

3) What is an advantage of a multitenancy cloud environment over a singletenancy environment?
   a) cost savings b) easy to customize
   c) faster performance d) higher data security

4) Which of the following is cloud deployment model?
   a) public b) private
   c) hybrid d) aII

5) IAM stands for_____
   a) Identity and Access Management
   b) Identity and Authentication Management
   c) Identity and Auditing Management
   d) None of these

6) _____ is the process of verifying the identity of a user or system.
   a) Authorization b) Auditing
   c) Authentication d) All

7) Which of the following service provider provides the least amount of built in _____ security?
   a) SaaS b) PaaS
   c) IaaS d) All of the mentioned

8) Point out the wrong statement:
   a) Public cloud may be managed by the constituent organization(s) or by a third party
   b) A community cloud may be managed by the constituent organization(s) or by a third party
   c) Private clouds may be either on- or off-premises
   d) None of the mentioned

9) The role of CSP in cloud computing is_____.
   a) As a cloud Security Provider
   b) As a Cloud Server Provider
   c) As a Cloud Service Provider
   d) None of these

10) ASP stands for_____.
   a) Application Server Provider
   b) Application Service Provider
   c) Application Security Provider
   d) Both A & B

11) The cloud computing is defined by using _____ attribute.
   a) Multitenancy
   b) Security
   c) Virtualization
   d) Cost-savings

12) _____ describes a distribution model in which applications are hosted by a service provider and made available to users.
   a) Infrastructure-as-a-Service (IaaS)
   b) Platform-as-a-Service (PaaS)
   c) Software-as-a-Service (SaaS)
   d) Cloud service

13) _____ describes a cloud service that can only be accessed by a limited amount of people.
   a) Data center
   b) Private cloud
   c) Virtualization
   d) Public cloud

14) Which delivery model is an example of a cloud computing environment that provides users with a web based email service?
   a) Software as a Service
   b) Platform as a Service
   c) Computing as a Service
   d) Infrastructure as a Service

Seat No.	

Set **R**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
CLOUD COMPUTING

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.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any four. **20**

a) Define cloud computing with its attributes.
b) Explain the SPI framework for cloud computing with neat diagram.
c) Explain cloud deployment models with diagram.
d) Explain the Infrastructure security at network level with its risk factors.
e) Explain benefits and challenges of cloud computing.
f) List and explain the application of cloud computing.

Q.3 Explain the cloud service delivery model in detail with neat diagram. **08**

OR

Explain information security concerns associated with data stored in the cloud by using following aspects.
1) Confidentiality
2) Integrity
3) Availability

Section – II

Q.4 Attempt any four **20**

a) What is privacy? Explain KPMG data life cycle.
b) Explain Software as a service security issue.
c) Define trusted cloud computing and explain cloud service provider Risks.
d) What is identity management? Explain issues in implementing Identity Management.
e) Why Cloud Computing brings new threats? Any 3 reasons.
f) Explain Quality of Service (QoS) monitoring in cloud computing environment.

Q.5 Explain Public, private, Hybrid cloud Models in details. **08**

OR

Explain CSP life cycle approach & stages in CSP life cycle with neat diagram.

Seat No.	

Set **S**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
CLOUD COMPUTING

Day & Date: Tuesday, 26-11-2019 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.
3) 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) _____ is the process of verifying the identity of a user or system.
   a) Authorization b) Auditing
   c) Authentication d) All

2) Which of the following service provider provides the least amount of built in _____ security?
   a) SaaS b) PaaS
   c) IaaS d) All of the mentioned

3) Point out the wrong statement:
   a) Public cloud may be managed by the constituent organization(s) or by a third party
   b) A community cloud may be managed by the constituent organization(s) or by a third party
   c) Private clouds may be either on- or off-premises
   d) None of the mentioned

4) The role of CSP in cloud computing is_____.
   a) As a cloud Security Provider b) As a Cloud Server Provider
   c) As a Cloud Service Provider d) None of these

5) ASP stands for_____.
   a) Application Server Provider b) Application Service Provider
   c) Application Security Provider d) Both A & B

6) The cloud computing is defined by using _____ attribute.
   a) Multitenancy b) Security
   c) Virtualization d) Cost-savings

7) _____ describes a distribution model in which applications are hosted by a service provider and made available to users.
   a) Infrastructure-as-a-Service (IaaS)
   b) Platform-as-a-Service (PaaS)
   c) Software-as-a-Service (SaaS)
   d) Cloud service

8) _____ describes a cloud service that can only be accessed by a limited amount of people.
   a) Data center
   b) Private cloud
   c) Virtualization
   d) Public cloud

9) Which delivery model is an example of a cloud computing environment that provides users with a web based email service?
   a) Software as a Service
   b) Platform as a Service
   c) Computing as a Service
   d) Infrastructure as a Service

10) An Internet connection is necessary for cloud computing interaction.
   a) True
   b) False

11) 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

12) What is an advantage of a multitenancy cloud environment over a singletenancy environment?
   a) cost savings
   b) easy to customize
   c) faster performance
   d) higher data security

13) Which of the following is cloud deployment model?
   a) public
   b) private
   c) hybrid
   d) aII

14) IAM stands for_____
   a) Identity and Access Management
   b) Identity and Authentication Management
   c) Identity and Auditing Management
   d) None of these

Seat No.	

Set **S**

B.E. (Part – II) (CGPA) Examination Nov/Dec-2019
Information Technology
CLOUD COMPUTING

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.
3) Assume suitable data if necessary.

Section – I

Q.2 Attempt any four. **20**

a) Define cloud computing with its attributes.

b) Explain the SPI framework for cloud computing with neat diagram.

c) Explain cloud deployment models with diagram.

d) Explain the Infrastructure security at network level with its risk factors.

e) Explain benefits and challenges of cloud computing.

f) List and explain the application of cloud computing.

Q.3 Explain the cloud service delivery model in detail with neat diagram. **08**

OR

Explain information security concerns associated with data stored in the cloud by using following aspects.
1) Confidentiality
2) Integrity
3) Availability

Section – II

Q.4 Attempt any four **20**

a) What is privacy? Explain KPMG data life cycle.

b) Explain Software as a service security issue.

c) Define trusted cloud computing and explain cloud service provider Risks.

d) What is identity management? Explain issues in implementing Identity Management.

e) Why Cloud Computing brings new threats? Any 3 reasons.

f) Explain Quality of Service (QoS) monitoring in cloud computing environment.

Q.5 Explain Public, private, Hybrid cloud Models in details. **08**

OR

Explain CSP life cycle approach & stages in CSP life cycle with neat diagram.

Seat No.		Set	P

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
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) $\frac{1}{D-3} \times$ 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) $-\frac{x}{3} + \frac{1}{9}$

2) The particular integral of $(\mathrm{D}^2 + 16)\mathrm{y} = \cos 4\mathrm{x}$ is _____.
   a) $\frac{x}{8}\sin 2x$ b) $\frac{x}{8}\cos 2x$
   c) $\frac{-x}{8}\sin 2x$ d) $\frac{-x}{8}\cos 2x$

3) $\mathrm{L}^{-1}\{\phi'(\mathrm{s})\} =$ _____.
   a) $-\frac{1}{\mathrm{t}}\mathrm{L}^{-1}\{\phi(\mathrm{s})\}$ b) $-\mathrm{tL}^{-1}\{\phi(\mathrm{s})\}$
   c) $\mathrm{tL}^{-1}\{\phi(\mathrm{s})\}$ d) None of these

4) $L^{-1}\left\{\frac{1}{(s-3)^2}\right\} =$ _____.
   a) te^{-3t} b) $\frac{e^{-3t}}{t}$
   c) te^{3t} d) $t^2\mathrm{e}^{3\mathrm{t}}$

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) $z\frac{dF(z)}{dZ}$
   c) $\frac{-dF(z)}{dZ}$ d) $\frac{dF(z)}{dZ}$

7) If f(x) is an even function then $\int_{-x}^{x} f(x)dx =$ _____.
   a) $2\int_{0}^{z} \mathrm{f(x)dx}$ b) $\int_{-z}^{0} \mathrm{f(x)dx}$
   c) 0 d) None of these

8) A unit normal to the surface $z = 2xy$ at the point (2,1,4) is _____

a) $2i + 4j - k$ b) $2i + 4j + k$

c) $\frac{1}{\sqrt{21}}(2i + 4j - k)$ d) $\frac{1}{\sqrt{21}}(4i + 2j - k)$

9) If $\bar{v} = 5xyi + 2y^2j + 3yz^2k$ The divergence of this vector at (1, 1, 1) is _____.

a) 9 b) 10

c) 14 d) 15

10) If mean of $x = 70$ mean of $y = 149$ and $x = 0.7$ then the line of regression of y on x is _____.

a) $y = 0.8x + 120$ b) $y = 0.6x + 80$

c) $y = 0.5x + 60$ d) $y = 0.7x + 100$

11) If coefficient of correlation $r = \pm 1$ then the regression lines are _____.

a) coincident b) perpendicular

c) parallel d) inclined at an angle of ⅔

12) In a $M|M|l|\infty$ system the ration $\frac{\lambda}{\mu}$ must be _____.

a) greater than 1 b) less than 1

c) equal to 1 d) equal to 1.5

13) For binominal distribution mean = 12 and variance is 4, then the values of n, p, q are respectively.

a) $9, ⅓, ⅔$ b) $4, ½, ½$

c) $18, ⅔, ⅓$ d) $9, ⅔, ⅓$

14) Fourier expansion of an odd function has only _____.

a) sine terms b) cosine terms

c) both sine and cosine terms d) none of these

Seat No.	

Set **P**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.

Q.2 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**

Q.3 Attempt any three of following questions.

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 $\int_0^\infty \frac{\cos 4t - \cos 3t}{t} dt$ sing Laplace transform. **03**

d) Find $L\{te^{-2t}\sin^2 t\}$ **03**

Q.4 Attempt the following questions.

a) Find z-transform and its ROC of $f(k) = \frac{3^k}{k!}, k \geq 0$ **03**

b) Prove that the z-transform of $x_k = \sin \alpha k, k \geq 0$ where α is real is given by $\frac{z\sin\ \alpha}{z^2 - 2z\cos\ \alpha + 1}$ if $|z| > 1$ **04**

c) Find $Z^{-1}\left(\frac{z}{z-5}\right)$ $|z| < 5$ **03**

Q.5 Attempt the following questions.

a) Find a Fourier series to represent $f(x) = x^2$ in $(0, 2\pi)$. **05**

b) Find Half-range sine series of **04**

$f(x) = \frac{2x}{1}, 0 \leq x \leq ½$

$= \frac{2}{1}(1 - x).\ ½ \leq x \leq 1$

Section – II

Q.6 Attempt the following questions.

a) A particle moves along the curve $x = t^2 + 1\ y = t^2\ z = 2t + 3$ where t is the time find velocity and acceleration with their magnitudes? **03**

b) Find the directional derivative of $\phi = x^4 + y^4 + z^4$ at point (1,-2,1) in the directional of AB where B is (2,6,-1). **03**

c) Show that the vector field defined by $\bar{F} = (y + z)i + (z + x)j + (x + y)k$ is irrotational. Also find scalar potential. **04**

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**

x :	28	45	40	38	35	33	40	32	36	33
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. **04**

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**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
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) A unit normal to the surface $z = 2xy$ at the point (2,1,4) is _____
   a) $2i + 4j - k$ b) $2i + 4j + k$
   c) $\frac{1}{\sqrt{21}}(2i + 4j - k)$ d) $\frac{1}{\sqrt{21}}(4i + 2j - k)$

2) If $\bar{v} = 5xyi + 2y^2j + 3yz^2k$ The divergence of this vector at (1, 1, 1) is _____.
   a) 9 b) 10
   c) 14 d) 15

3) If mean of $x = 70$ mean of $y = 149$ and $x = 0.7$ then the line of regression of y on x is _____.
   a) $y = 0.8x + 120$ b) $y = 0.6x + 80$
   c) $y = 0.5x + 60$ d) $y = 0.7x + 100$

4) If coefficient of correlation $r = \pm 1$ then the regression lines are _____.
   a) coincident b) perpendicular
   c) parallel d) inclined at an angle of ⅔

5) In a $M|M|1|\infty$ system the ration $\frac{\lambda}{\mu}$ must be _____.
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6) For binominal distribution mean = 12 and variance is 4, then the values of n, p, q are respectively.
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14) If $\mathrm{f(x)}$ is an even function then $\int_{-x}^{x} f(x)dx=$ _____.

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Seat No.	

Set **Q**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
APPLIED MATHEMATICS – I

Day & Date: Saturday, 07-12-2019 Max. Marks: 56
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Section – II

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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. **04**

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	R

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) $Z\{1\} =$ _____.
   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) $z\frac{dF(z)}{dZ}$
   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) $2\int_{0}^{z} f(x)dx$ b) $\int_{-z}^{0} f(x)dx$
   c) 0 d) None of these

4) A unit normal to the surface $z = 2xy$ at the point (2,1,4) is _____
   a) $2i + 4j - k$ b) $2i + 4j + k$
   c) $\frac{1}{\sqrt{21}}(2i + 4j - k)$ d) $\frac{1}{\sqrt{21}}(4i + 2j - k)$

5) If $\bar{v} = 5xyi + 2y^2j + 3yz^2k$ The divergence of this vector at (1, 1, 1) is _____.
   a) 9 b) 10
   c) 14 d) 15

6) If mean of $x = 70$ mean of $y = 149$ and $x = 0.7$ then the line of regression of y on x is _____.
   a) $y = 0.8x + 120$ b) $y = 0.6x + 80$
   c) $y = 0.5x + 60$ d) $y = 0.7x + 100$

7) If coefficient of correlation $r = \pm 1$ then the regression lines are _____.
   a) coincident b) perpendicular
   c) parallel d) inclined at an angle of ⅔

8) In a $M|M|l|\infty$ system the ration $\frac{\lambda}{\mu}$ must be _____.
   a) greater than 1 b) less than 1
   c) equal to 1 d) equal to 1.5

9) For binominal distribution mean = 12 and variance is 4, then the values of n, p, q are respectively.

a) $9, ⅓, ⅔$ b) $4, ½, ½$

c) $18, ⅔, ⅓$ d) $9, ⅔, ⅓$

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) $\frac{1}{D-3}\times$ 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 $(\mathrm{D}^2+16)\mathrm{y}=\cos 4\mathrm{x}$ 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) $\mathrm{L}^{-1}\{\phi'(\mathrm{s})\}=$ _____.

a) $-\frac{1}{\mathrm{t}}\mathrm{L}^{-1}\{\phi(\mathrm{s})\}$ b) $-\mathrm{tL}^{-1}\{\phi(\mathrm{s})\}$

c) $\mathrm{tL}^{-1}\{\phi(\mathrm{s})\}$ d) None of these

14) $L^{-1}\left\{\frac{1}{(s-3)^2}\right\}=$ _____.

a) te^{-3t} b) $\frac{e^{-3t}}{t}$

c) te^{3t} d) $t^2\mathrm{e}^{3\mathrm{t}}$

Seat No.	

Set **R**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.

Q.2 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**

Q.3 Attempt any three of following questions.

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 $\int_0^\infty \frac{\cos 4t - \cos 3t}{t} dt$ sing Laplace transform. **03**

d) Find $L\{te^{-2t}\sin^2 t\}$ **03**

Q.4 Attempt the following questions.

a) Find z-transform and its ROC of $f(k) = \frac{3^k}{k!}, k \geq 0$ **03**

b) Prove that the z-transform of $x_k = \sin \alpha k, k \geq 0$ where α is real is given by $\frac{z\sin\ \alpha}{z^2 - 2z\cos\ \alpha + 1}$ if $|z| > 1$ **04**

c) Find $Z^{-1}\left(\frac{z}{z-5}\right)$ $|z| < 5$ **03**

Q.5 Attempt the following questions.

a) Find a Fourier series to represent $f(x) = x^2$ in $(0, 2\pi)$. **05**

b) Find Half-range sine series of **04**

$f(x) = \frac{2x}{1}, 0 \leq x \leq ½$

$= \frac{2}{1}(1 - x).\ ½ \leq x \leq 1$

Section – II

Q.6 Attempt the following questions.

a) A particle moves along the curve $x = t^2 + 1\ y = t^2\ z = 2t + 3$ where t is the time find velocity and acceleration with their magnitudes? **03**

b) Find the directional derivative of $\phi = x^4 + y^4 + z^4$ at point (1,-2,1) in the directional of AB where B is (2,6,-1). **03**

c) Show that the vector field defined by $\bar{F} = (y + z)i + (z + x)j + (x + y)k$ is irrotational. Also find scalar potential. **04**

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**

x :	28	45	40	38	35	33	40	32	36	33
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. **04**

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	S

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
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) If mean of $x = 70$ mean of $y = 149$ and $x = 0.7$ then the line of regression of y on x is _____.
   a) $y = 0.8x + 120$ b) $y = 0.6x + 80$
   c) $y = 0.5x + 60$ d) $y = 0.7x + 100$

2) If coefficient of correlation $r = \pm 1$ then the regression lines are _____.
   a) coincident b) perpendicular
   c) parallel d) inclined at an angle of ⅔

3) In a $M|M|1|\infty$ system the ration $\frac{\lambda}{\mu}$ must be _____.
   a) greater than 1 b) less than 1
   c) equal to 1 d) equal to 1.5

4) For binominal distribution mean = 12 and variance is 4, then the values of n, p, q are respectively.
   a) $9, ⅓, ⅔$ b) $4, ½, ½$
   c) $18, ⅔, ⅓$ d) $9, ⅔, ⅓$

5) Fourier expansion of an odd function has only _____.
   a) sine terms b) cosine terms
   c) both sine and cosine terms d) none of these

6) $\frac{1}{D-3} \times$ 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) $-\frac{x}{3} + \frac{1}{9}$

7) 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) $\frac{-x}{8}\cos 2x$

8) $L^{-1}\{\phi'(s)\} =$ _____.
   a) $-\frac{1}{t}L^{-1}\{\phi(s)\}$ b) $-tL^{-1}\{\phi(s)\}$
   c) $tL^{-1}\{\phi(s)\}$ d) None of these

9) $L^{-1}\left\{\frac{1}{(s-3)^2}\right\} =$ _____.

a) te^{-3t} b) $\frac{e^{-3t}}{t}$

c) te^{3t} d) $t^2\mathrm{e}^{3\mathrm{t}}$

10) $Z\{1\} =$ _____.

a) $\frac{1}{z-1}$ b) $\frac{z}{z+1}$

c) $\frac{1}{z+1}$ d) $\frac{z}{z-1}$

11) 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) $\frac{dF(z)}{dZ}$

12) If f(x) is an even function then $\int_{-x}^{x} f(x)dx =$ _____.

a) $2\int_{0}^{z} \mathrm{f(x)dx}$ b) $\int_{-z}^{0} \mathrm{f(x)dx}$

c) 0 d) None of these

13) A unit normal to the surface $\mathrm{z} = 2\mathrm{xy}$ at the point (2,1,4) is _____

a) $2\mathrm{i} + 4\mathrm{j} - \mathrm{k}$ b) $2\mathrm{i} + 4\mathrm{j} + \mathrm{k}$

c) $\frac{1}{\sqrt{21}}(2\mathrm{i} + 4\mathrm{j} - \mathrm{k})$ d) $\frac{1}{\sqrt{21}}(4\mathrm{i} + 2\mathrm{j} - \mathrm{k})$

14) If $\bar{\mathrm{v}} = 5\mathrm{xyi} + 2\mathrm{y}^2\mathrm{j} + 3\mathrm{yz}^2\mathrm{k}$ The divergence of this vector at (1, 1, 1) is _____.

a) 9 b) 10

c) 14 d) 15

Seat No.	

Set **S**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
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Q.2 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**

Q.3 Attempt any three of following questions.

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**

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d) Find $L\{te^{-2t}\sin^2 t\}$ **03**

Q.4 Attempt the following questions.

a) Find z-transform and its ROC of $f(k) = \frac{3^k}{k!}, k \geq 0$ **03**

b) Prove that the z-transform of $x_k = \sin \alpha k, k \geq 0$ where α is real is given by $\frac{z\sin\ \alpha}{z^2 - 2z\cos\ \alpha\ +1}$ if $|z| > 1$ **04**

c) Find $Z^{-1}\left(\frac{z}{z-5}\right)$ $|z| < 5$ **03**

Q.5 Attempt the following questions.

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b) Find Half-range sine series of **04**

$f(x) = \frac{2x}{1}, 0 \leq x \leq ½$

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Section – II

Q.6 Attempt the following questions.

a) A particle moves along the curve $x = t^2 + 1\ y = t^2\ z = 2t + 3$ where t is the time find velocity and acceleration with their magnitudes? **03**

b) Find the directional derivative of $\phi = x^4 + y^4 + z^4$ at point (1,-2,1) in the directional of AB where B is (2,6,-1). **03**

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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. **04**

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 **P**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

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

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

1) The expression 'Q if p' indicates which of the following connectives.
   a) Biconditional b) Conditional
   c) Exclusive OR d) Tautology

2) T→P is equivalent to _____.
   a) P b) T
   c) $\neg P$ d) F

3) PCNF is _____.
   a) Conjunction of elementary product
   b) Conjunction of minterms
   c) Conjunction of maxterms
   d) Disjunction of elementary sum

4) If $S = \{\phi, \{\phi\}, \{\phi, \{\phi\}\}\}$ then what is cardinality of S?
   a) 0 b) 3
   c) 2 d) 4

5) If Let S be the relation from Y to Z and R is the relation from A to B the composition $R \circ S$ is from _____.
   a) A to Z b) Z to B
   c) Y to B d) None of these

6) If the relation R is represented by matrix and if we replace 0 by 1 and 1 by 0 then resultant matrix represents _____.
   a) Complement of R b) Inverse of R
   c) Domain of R d) Range of R

7) Relation matrix of the relation is given below.

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$$

   a) Only reflexive property
   b) Only symmetric property
   c) All properties except Irreflexive
   d) Only antisymmetric property

8) A subset f of A x B is said to be a function from A to B if domain of f is A and first element of order pairs of f _____.
   a) do not repeat b) do not exist
   c) repeat d) members of B

9) A lattice $\mathrm{h}\langle \mathrm{A}, \leq \rangle$ is bounded iff it has _____.
   a) a minimum element b) a maximum element
   c) both d) None

10) A poset $\mathrm{h} < A, \leq >$ is a _____ iff every pair of elements in A have both a meet and a join.
   a) group b) Ring
   c) lattice d) None

11) Abelian group satisfies additional _____ property than group.
   a) transitive b) Inverse
   c) identity d) Commutative

12) A totally ordered set is also called a _____.
   a) ring b) Field
   c) chain d) None

13) A _____ is a complemented distributive lattice.
   a) boolean function b) complete lattice
   c) modular lattice d) boolean expression

14) Every cyclic group is _____.
   a) an abelian group b) may not abelian group
   c) not a group d) None

Seat No.	

Set **P**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figure to the right indicates full marks.
3) Assume suitable data if required.

Section – I

Q.2 Solve any three. **12**

a) Explain Tautological Implication and show that $(\mathrm{P}\wedge\mathrm{Q}) \Rightarrow (\mathrm{P}\rightarrow\mathrm{Q})$.

b) Convert the given formula into prefix and suffix form.
$A^{\vee}\ ((\neg \mathrm{B}\rightarrow \mathrm{C})\wedge(\neg \mathrm{D}\leftrightarrow \mathrm{E}))$

c) Define equivalence relation and equivalence class along with an example.

d) Define duality law and prove that "If A has dual as A* and B has dual as B* and $A \Leftrightarrow B$ the prove that $A^* \Leftrightarrow B^*$

e) Show that $S^{\vee}R$ is a valid conclusion from the following premises:
$P^{\vee}Q, P\rightarrow R, Q\rightarrow S$

Q.3 Solve any one. **08**

a) Explain the following terms
1) Tautology and contradiction
2) Set inclusion and equality of sets
3) Relative complement of A with respect to B
4) Partition and covering of sets

b) Define minterm, PDNF, maxterm and PCNF and obtain PDNF and PCNF of $(P\wedge Q)^{\vee}(\neg P\wedge Q\wedge R)$ without constructing truth table.

Q.4 Solve the following. **08**

a) Given a set S= {1,2,3,4,5}. Find the equivalence relation on S which generates the partition { {1,2,4},{3},{5}}. Draw graph of the relation.

b) Let A= {4,5,6,7,8}. State whether following are covering or partition along with reason.
1) {{4,5},{6},{7,8,4}}
2) {{4},{7,6},{5}}
3) {{4,5},{7},{6,8}}
4) {{4,5},{5,6},{4,7,8}}

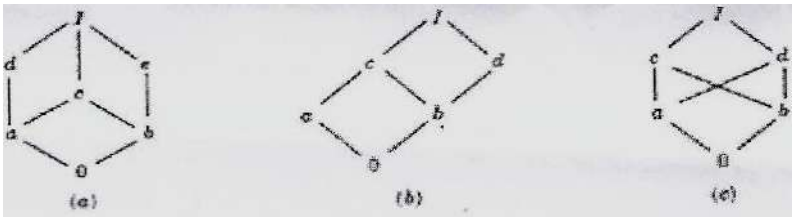
Section – II

Q.5 Solve any three. **12**

a) Explain Lattices properties.

b) What are the different type of functions?

c) Which of the partially ordered sets in figures (a), (b) and (c) are lattices? Justify your answer.



d) What is group code? Define groups.

Q.6 Solve the following questions. **16**

a) Let A = {1, 2, 3, 4}, B = {a, b, c}, C = {x, y, z}. Consider the relations R from A to B and S from B to C as follows: R = {(1, b), (3, a) (3, b),(4, c)} and S={(a, y), (c, x),(a, z) }

1) Draw the diagrams of R and S.
2) Find the matrix of each relation R, S (composition) $R \circ S$.
3) Write R-1 and the composition $R \circ S$ as sets of ordered pairs.

b) Define Group, Semi group and moniod with example.

Seat No.	

Set **Q**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

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

Instructions: 1) Q. No. 1 is compulsory and it should be solved in first 30 minutes in answer book.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) A subset f of A x B is said to be a function from A to B if domain of f is A and first element of order pairs of f _____.
   a) do not repeat b) do not exist
   c) repeat d) members of B

2) A lattice $\langle A, \leq \rangle$ is bounded iff it has _____.
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3) A poset $< A, \leq >$ is a _____ iff every pair of elements in A have both a meet and a join.
   a) group b) Ring
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4) Abelian group satisfies additional _____ property than group.
   a) transitive b) Inverse
   c) identity d) Commutative

5) A totally ordered set is also called a _____.
   a) ring b) Field
   c) chain d) None

6) A _____ is a complemented distributive lattice.
   a) boolean function b) complete lattice
   c) modular lattice d) boolean expression

7) Every cyclic group is _____.
   a) an abelian group b) may not abelian group
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11) If $S = \{ \phi, \{ \phi \}, \{ \phi, \{\phi\} \} \}$ then what is cardinality of S?
   a) 0 b) 3
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13) If the relation R is represented by matrix and if we replace 0 by 1 and 1 by 0 then resultant matrix represents _____.
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14) Relation matrix of the relation is given below.

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   c) All properties except Irreflexive
   d) Only antisymmetric property

Seat No.	

Set **Q**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

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Section – I

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a) Explain Tautological Implication and show that $(\mathrm{P}\wedge\mathrm{Q}) \Rightarrow (\mathrm{P} \rightarrow \mathrm{Q})$.

b) Convert the given formula into prefix and suffix form.
$A \vee ((\neg \mathrm{B} \rightarrow \mathrm{C}) \wedge (\neg \mathrm{D} \leftrightarrow \mathrm{E}))$

c) Define equivalence relation and equivalence class along with an example.

d) Define duality law and prove that "If A has dual as A* and B has dual as B* and $A \Leftrightarrow B$ the prove that $A^* \Leftrightarrow B^*$

e) Show that $S \vee R$ is a valid conclusion from the following premises:
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Q.3 Solve any one. **08**

a) Explain the following terms
1) Tautology and contradiction
2) Set inclusion and equality of sets
3) Relative complement of A with respect to B
4) Partition and covering of sets

b) Define minterm, PDNF, maxterm and PCNF and obtain PDNF and PCNF of $(P \wedge Q) \vee (\neg P \wedge Q \wedge R)$ without constructing truth table.

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2) {{4},{7,6},{5}}
3) {{4,5},{7},{6,8}}
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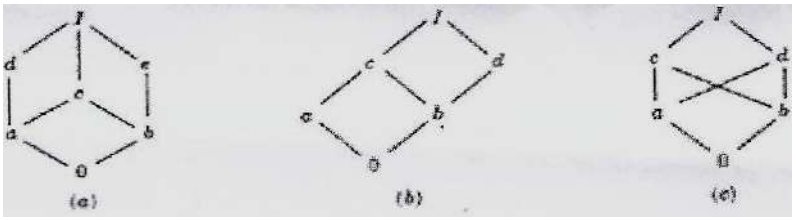

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Seat No.	

Set **R**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

Day & Date: Tuesday, 10-12-2019 Max. Marks: 70
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) If Let S be the relation from Y to Z and R is the relation from A to B the composition $R \circ S$ is from _____.
   a) A to Z b) Z to B
   c) Y to B d) None of these

2) If the relation R is represented by matrix and if we replace 0 by 1 and 1 by 0 then resultant matrix represents _____.
   a) Complement of R b) Inverse of R
   c) Domain of R d) Range of R

3) Relation matrix of the relation is given below.
$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$$
   a) Only reflexive property
   b) Only symmetric property
   c) All properties except Irreflexive
   d) Only antisymmetric property

4) A subset f of A x B is said to be a function from A to B if domain of f is A and first element of order pairs of f _____.
   a) do not repeat b) do not exist
   c) repeat d) members of B

5) A lattice $\mathrm{h}\langle \mathrm{A}, \leq \rangle$ is bounded iff it has _____.
   a) a minimum element b) a maximum element
   c) both d) None

6) A poset $\mathrm{h} < A, \leq >$ is a _____ iff every pair of elements in A have both a meet and a join.
   a) group b) Ring
   c) lattice d) None

7) Abelian group satisfies additional _____ property than group.
   a) transitive b) Inverse
   c) identity d) Commutative

8) A totally ordered set is also called a _____.
   a) ring b) Field
   c) chain d) None

9) A _____ is a complemented distributive lattice.
   a) boolean function
   b) complete lattice
   c) modular lattice
   d) boolean expression

10) Every cyclic group is _____.
   a) an abelian group
   b) may not abelian group
   c) not a group
   d) None

11) The expression 'Q if p' indicates which of the following connectives.
   a) Biconditional
   b) Conditional
   c) Exclusive OR
   d) Tautology

12) $T \rightarrow P$ is equivalent to _____.
   a) P
   b) T
   c) $\neg P$
   d) F

13) PCNF is _____.
   a) Conjunction of elementary product
   b) Conjunction of minterms
   c) Conjunction of maxterms
   d) Disjunction of elementary sum

14) If $S = \{ \phi, \{ \phi \}, \{ \phi, \{\phi\} \} \}$ then what is cardinality of S?
   a) 0
   b) 3
   c) 2
   d) 4

Seat No.	

Set **R**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Figure to the right indicates full marks.
3) Assume suitable data if required.

Section – I

Q.2 Solve any three. **12**

a) Explain Tautological Implication and show that $(\mathrm{P}\wedge\mathrm{Q}) \Rightarrow (\mathrm{P}\rightarrow\mathrm{Q})$.

b) Convert the given formula into prefix and suffix form.
$A^{\vee}\ ((\neg\,\mathrm{B}\rightarrow\mathrm{C})\wedge(\neg\,\mathrm{D}\leftrightarrow\mathrm{E}))$

c) Define equivalence relation and equivalence class along with an example.

d) Define duality law and prove that "If A has dual as A* and B has dual as B* and $A \Leftrightarrow B$ the prove that $A^* \Leftrightarrow B^*$

e) Show that $S^{\vee}R$ is a valid conclusion from the following premises:
$P^{\vee}\ Q, P\rightarrow R, Q\rightarrow S$

Q.3 Solve any one. **08**

a) Explain the following terms
1) Tautology and contradiction
2) Set inclusion and equality of sets
3) Relative complement of A with respect to B
4) Partition and covering of sets

b) Define minterm, PDNF, maxterm and PCNF and obtain PDNF and PCNF of $(P\wedge Q)^{\vee}(\neg P\wedge Q\wedge R)$ without constructing truth table.

Q.4 Solve the following. **08**

a) Given a set S= {1,2,3,4,5}. Find the equivalence relation on S which generates the partition { {1,2,4},{3},{5}}. Draw graph of the relation.

b) Let A= {4,5,6,7,8}. State whether following are covering or partition along with reason.
1) {{4,5},{6},{7,8,4}}
2) {{4},{7,6},{5}}
3) {{4,5},{7},{6,8}}
4) {{4,5},{5,6},{4,7,8}}

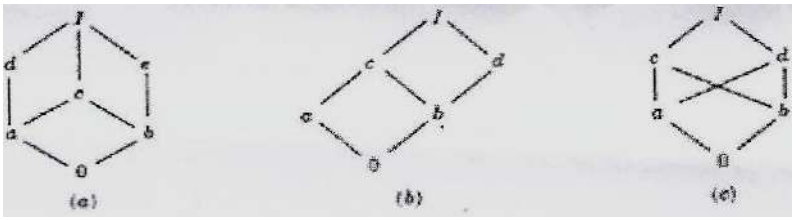
Section – II

Q.5 Solve any three. **12**

a) Explain Lattices properties.

b) What are the different type of functions?

c) Which of the partially ordered sets in figures (a), (b) and (c) are lattices? Justify your answer.



d) What is group code? Define groups.

Q.6 Solve the following questions. **16**

a) Let A = {1, 2, 3, 4}, B = {a, b, c}, C = {x, y, z}. Consider the relations R from A to B and S from B to C as follows: R = {(1, b), (3, a) (3, b),(4, c)} and S={(a, y), (c, x),(a, z) }

1) Draw the diagrams of R and S.
2) Find the matrix of each relation R, S (composition) $R \circ S$.
3) Write R-1 and the composition $R \circ S$ as sets of ordered pairs.

b) Define Group, Semi group and moniod with example.

Seat No.	

Set **S**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

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

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

1) A poset $h < A, \leq >$ is a _____ iff every pair of elements in A have both a meet and a join.
   a) group b) Ring
   c) lattice d) None

2) Abelian group satisfies additional _____ property than group.
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3) A totally ordered set is also called a _____.
   a) ring b) Field
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4) A _____ is a complemented distributive lattice.
   a) boolean function b) complete lattice
   c) modular lattice d) boolean expression

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   a) Biconditional b) Conditional
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   a) P b) T
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8) PCNF is _____.
   a) Conjunction of elementary product
   b) Conjunction of minterms
   c) Conjunction of maxterms
   d) Disjunction of elementary sum

9) If $S = \{ \phi, \{ \phi \}, \{ \phi, \{\phi \} \} \}$ then what is cardinality of S?
   a) 0 b) 3
   c) 2 d) 4

10) If Let S be the relation from Y to Z and R is the relation from A to B the composition $R \circ S$ is from _____.
   a) A to Z
   b) Z to B
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11) If the relation R is represented by matrix and if we replace 0 by 1 and 1 by 0 then resultant matrix represents _____.
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12) Relation matrix of the relation is given below.

$$\begin{bmatrix} 1 & 1 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 0 \end{bmatrix}$$

   a) Only reflexive property
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13) A subset f of A x B is said to be a function from A to B if domain of f is A and first element of order pairs of f _____.
   a) do not repeat
   b) do not exist
   c) repeat
   d) members of B

14) A lattice $\mathrm{h}\langle \mathrm{A}, \leq \rangle$ is bounded iff it has _____.
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Seat No.	

Set **S**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DISCRETE MATHEMATICAL STRUCTURE

Day & Date: Tuesday, 10-12-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

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Section – I

Q.2 Solve any three. **12**

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c) Define equivalence relation and equivalence class along with an example.

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a) Explain the following terms
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3) Relative complement of A with respect to B
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b) Define minterm, PDNF, maxterm and PCNF and obtain PDNF and PCNF of $(P \wedge Q) \vee (\neg P \wedge Q \wedge R)$ without constructing truth table.

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a) Given a set S= {1,2,3,4,5}. Find the equivalence relation on S which generates the partition { {1,2,4},{3},{5}}. Draw graph of the relation.

b) Let A= {4,5,6,7,8}. State whether following are covering or partition along with reason.
1) {{4,5},{6},{7,8,4}}
2) {{4},{7,6},{5}}
3) {{4,5},{7},{6,8}}
4) {{4,5},{5,6},{4,7,8}}

Section – II

Q.5 Solve any three. **12**

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b) What are the different type of functions?

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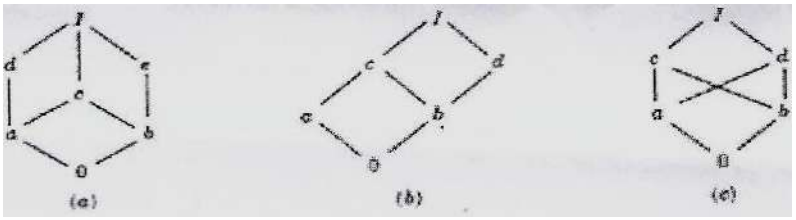

d) What is group code? Define groups.

Q.6 Solve the following questions. **16**

a) Let A = {1, 2, 3, 4}, B = {a, b, c}, C = {x, y, z}. Consider the relations R from A to B and S from B to C as follows: R = {(1, b), (3, a) (3, b),(4, c)} and S={(a, y), (c, x),(a, z) }

1) Draw the diagrams of R and S.
2) Find the matrix of each relation R, S (composition) $R \circ S$.
3) Write R-1 and the composition $R \circ S$ as sets of ordered pairs.

b) Define Group, Semi group and moniod with example.

Seat No.	

Set **P**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED C CONCEPTS

Day & Date: Thursday,12-12-2019 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 indicate full marks.
3) 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) What is the output of this C code?

```
#include <stdio.h>
   #include <math.h>
   void main()
   {
      int k = pow(2, 3);
      printf("%d\n", k);
}
```

a) 9 b) 8
c) -1 d) 6

2) Strcat() function adds null character _____.

a) Only if there is space b) Always
c) Depends on the standard d) Depends on the compiler

3) Finding the location of a given item in a collection of items is called _____.

a) Discovering b) Finding
c) Searching d) Mining

4) What is the output of this C code?

```
#include <stdio.h>
   void main()
   {
      char *s = "hello";
      char *p = s;
      printf("%p\t%p", p, s);
    }
```

a) Different address is printed b) Same address is printed
c) Run time error d) Nothing

5) What will be the output?

```
#include <stdio.h>
  double var = 8;
  int main()
  {
    int var = 5;
    printf("%d", var);
  }
```

a) 5
b) 8
c) Compile time error due to wrong format identifier for double
d) Compile time error due to redeclaration of variable with same name

6) The first and second arguments of fopen() are _____.
a) A character string containing the name of the file & the second argument is the mode.
b) A character string containing the name of the user & the second argument is the mode.
c) A character string containing file poniter & the second argument is the mode.
d) None of the mentioned

7) What is the scope of an external variable?
a) Whole source file in which it is defined
b) From the point of declaration to the end of the file in which it is defined
c) Any source file in a program
d) From the point of declaration to the end of the file being compiled

8) The total number of comparisons in a bubble sort is _____.
a) O(n logn) b) O(2n)
c) O(n2) d) O(n)

9) FILE reserved word is _____.
a) A structure tag declared in stdio.h
b) One of the basic datatypes in c
c) Pointer to the structure defined in stdio.h
d) It is a type name defined in stdio.h

10) Which of the following sorting algorithm is of divide and conquer type?
a) Bubble sort b) Insertion sort
c) Quick sort d) Merge sort

11) Which of the following is a correct format for declaration of function?
a) return-type function-name(argument type);
b) return-type function-name(argument type){ }
c) return-type (argument type)function-name;
d) Both (a) and (b)

12) The worst case occur in linear search algorithm when
a) Item is somewhere in the middle of the array
b) Item is not in the array at all
c) Item is the last element in the array
d) Item is the last element in the array or item is not there at all

13) When do you need to use type-conversions?
   a) The value to be stored is beyond the max limit
   b) The value to be stored is in a form not supported by that data type
   c) To reduce the memory in use, relevant to the value
   d) All of the mentioned

14) The easiest sorting is _____.
   a) quick sort
   b) shell sort
   c) heap sort
   d) selection sort

Seat No.	

Set **P**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED C CONCEPTS

Day & Date: Thursday,12-12-2019 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 Solve any three of the following. **12**

a) What is a Function? Give an example to illustrate the Function in C.
b) Illusate with an example of array of 10 pointers pointing to integers?
c) What are logical operators written in C?
d) What is an algorithm? Write any two data types in C with examples.

Q.3 Solve any two. **16**

a) Write an algorithm for swapping two elements without using an extra temporary variable.
b) Write a program for Towers of Honoi problem using recursion.
c) Write a program to count the number of vowels in a given String.

Section – II

Q.4 Solve any three of the following. **12**

a) What is hash searching? Illustrate with an example.
b) Explain the concept of sequential search with example.
c) What is Big-O notation and Omega Notation? Explain.
d) State and explain Different File I/O Functions.

Q.5 Solve any two. **16**

a) Write C Program to Sort N Numbers in Ascending Order using Bubble Sort.
b) Write a C program to sort a set of n elements using Insertion Sort.
c) Write a C program for hash searching using linear collision.

Seat No.	

Set **Q**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED C CONCEPTS

Day & Date: Thursday,12-12-2019 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 indicate full marks.
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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 total number of comparisons in a bubble sort is _____.
   a) O(n logn) b) O(2n)
   c) O(n2) d) O(n)

2) FILE reserved word is _____.
   a) A structure tag declared in stdio.h
   b) One of the basic datatypes in c
   c) Pointer to the structure defined in stdio.h
   d) It is a type name defined in stdio.h

3) Which of the following sorting algorithm is of divide and conquer type?
   a) Bubble sort b) Insertion sort
   c) Quick sort d) Merge sort

4) Which of the following is a correct format for declaration of function?
   a) return-type function-name(argument type);
   b) return-type function-name(argument type){ }
   c) return-type (argument type)function-name;
   d) Both (a) and (b)

5) The worst case occur in linear search algorithm when
   a) Item is somewhere in the middle of the array
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6) When do you need to use type-conversions?
   a) The value to be stored is beyond the max limit
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   c) To reduce the memory in use, relevant to the value
   d) All of the mentioned

7) The easiest sorting is _____.
   a) quick sort b) shell sort
   c) heap sort d) selection sort

8) What is the output of this C code?

```
#include <stdio.h>
   #include <math.h>
   void main()
   {
      int k = pow(2, 3);
      printf("%d\n", k);
}
```

a) 9 b) 8
c) -1 d) 6

9) Strcat() function adds null character _____.

a) Only if there is space b) Always
c) Depends on the standard d) Depends on the compiler

10) Finding the location of a given item in a collection of items is called _____.

a) Discovering b) Finding
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```
#include <stdio.h>
   void main()
   {
      char *s = "hello";
      char *p = s;
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a) Different address is printed b) Same address is printed
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12) What will be the output?

```
#include <stdio.h>
  double var = 8;
  int main()
  {
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   c) Any source file in a program
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Seat No.	

Set **Q**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED C CONCEPTS

Day & Date: Thursday,12-12-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Solve any three of the following. **12**

a) What is a Function? Give an example to illustrate the Function in C.
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c) What are logical operators written in C?
d) What is an algorithm? Write any two data types in C with examples.

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Section – II

Q.4 Solve any three of the following. **12**

a) What is hash searching? Illustrate with an example.
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a) Write C Program to Sort N Numbers in Ascending Order using Bubble Sort.
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c) Write a C program for hash searching using linear collision.

Seat No.	

Set **R**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED C CONCEPTS

Day & Date: Thursday,12-12-2019 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.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) What will be the output?

```
#include <stdio.h>
  double var = 8;
  int main()
  {
    int var = 5;
    printf("%d", var);
  }
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```

a) Different address is printed
b) Same address is printed
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Seat No.	

Set **R**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED C CONCEPTS

Day & Date: Thursday,12-12-2019 Max. Marks: 56
Time: 10:00 AM To 01:00 PM

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Section – I

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Section – II

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Seat No.	

Set | S

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED C CONCEPTS

Day & Date: Thursday,12-12-2019 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 indicate full marks.
3) 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 of the following sorting algorithm is of divide and conquer type?
   a) Bubble sort b) Insertion sort
   c) Quick sort d) Merge sort

2) Which of the following is a correct format for declaration of function?
   a) return-type function-name(argument type);
   b) return-type function-name(argument type){ }
   c) return-type (argument type)function-name;
   d) Both (a) and (b)

3) The worst case occur in linear search algorithm when
   a) Item is somewhere in the middle of the array
   b) Item is not in the array at all
   c) Item is the last element in the array
   d) Item is the last element in the array or item is not there at all

4) When do you need to use type-conversions?
   a) The value to be stored is beyond the max limit
   b) The value to be stored is in a form not supported by that data type
   c) To reduce the memory in use, relevant to the value
   d) All of the mentioned

5) The easiest sorting is _____.
   a) quick sort b) shell sort
   c) heap sort d) selection sort

6) What is the output of this C code?

```
#include <stdio.h>
   #include <math.h>
   void main()
   {
      int k = pow(2, 3);
      printf("%d\n", k);
}
```

   a) 9 b) 8
   c) -1 d) 6

7) Strcat() function adds null character _____.
   a) Only if there is space
   b) Always
   c) Depends on the standard
   d) Depends on the compiler

8) Finding the location of a given item in a collection of items is called _____.
   a) Discovering
   b) Finding
   c) Searching
   d) Mining

9) What is the output of this C code?

```
#include <stdio.h>
   void main()
   {
      char *s = "hello";
      char *p = s;
      printf("%p\t%p", p, s);
    }
```

   a) Different address is printed
   b) Same address is printed
   c) Run time error
   d) Nothing

10) What will be the output?

```
#include <stdio.h>
  double var = 8;
  int main()
  {
     int var = 5;
     printf("%d", var);
  }
```

   a) 5
   b) 8
   c) Compile time error due to wrong format identifier for double
   d) Compile time error due to redeclaration of variable with same name

11) The first and second arguments of fopen() are _____.
   a) A character string containing the name of the file & the second argument is the mode.
   b) A character string containing the name of the user & the second argument is the mode.
   c) A character string containing file poniter & the second argument is the mode.
   d) None of the mentioned

12) What is the scope of an external variable?
   a) Whole source file in which it is defined
   b) From the point of declaration to the end of the file in which it is defined
   c) Any source file in a program
   d) From the point of declaration to the end of the file being compiled

13) The total number of comparisons in a bubble sort is _____.
   a) O(n logn)
   b) O(2n)
   c) O(n2)
   d) O(n)

14) FILE reserved word is _____.
   a) A structure tag declared in stdio.h
   b) One of the basic datatypes in c
   c) Pointer to the structure defined in stdio.h
   d) It is a type name defined in stdio.h

SLR-FM-707

Seat No.	

Set S

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
ADVANCED C CONCEPTS

Day & Date: Thursday,12-12-2019 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 Solve any three of the following. **12**

a) What is a Function? Give an example to illustrate the Function in C.
b) Illusate with an example of array of 10 pointers pointing to integers?
c) What are logical operators written in C?
d) What is an algorithm? Write any two data types in C with examples.

Q.3 Solve any two. **16**

a) Write an algorithm for swapping two elements without using an extra temporary variable.
b) Write a program for Towers of Honoi problem using recursion.
c) Write a program to count the number of vowels in a given String.

Section – II

Q.4 Solve any three of the following. **12**

a) What is hash searching? Illustrate with an example.
b) Explain the concept of sequential search with example.
c) What is Big-O notation and Omega Notation? Explain.
d) State and explain Different File I/O Functions.

Q.5 Solve any two. **16**

a) Write C Program to Sort N Numbers in Ascending Order using Bubble Sort.
b) Write a C program to sort a set of n elements using Insertion Sort.
c) Write a C program for hash searching using linear collision.

SLR-FM-708

Seat No.	

Set P

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 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) The Boolean expression $Y = \overline{A + B}$ is logically equivalent to what single gate?
   a) NAND b) NOR
   c) AND d) OR

2) The decimal equivalent of the highest possible address for an 8-bit address bus is _____.
   a) 255 b) 256
   c) 257 d) None of these

3) The expression $Y = (A + B)(B + C)(C + A)$ shows the _____ operation.
   a) AND b) POS
   c) SOP d) NAND

4) On subtracting $(010110)_2$ from $(1011001)_2$ using 2's complement, we get _____.
   a) 0111001 b) 1100101
   c) 0110110 d) 1000011

5) Total number of inputs in a half adder is _____.
   a) 2 b) 3
   c) 4 d) 1

6) The difference between half adder and full adder is _____.
   a) Half adder has two inputs while full adder has four inputs
   b) Half adder has one output while full adder has two outputs
   c) Half adder has two inputs while full adder has three inputs
   d) All of the Mentioned

7) The operation of J - K flip-flop is similar to that of the SR flip-flop except that the J - K flip-flop _____.
   a) Doesn't have an invalid state
   b) Sets to clear when both J = 0 and K = 0
   c) It does not show transition on change in pulse
   d) It does not accept asynchronous inputs

8) With regard to a D latch _____.
   a) The Q output follows the D input when EN is LOW
   b) The Q output is opposite the D input when EN is LOW
   c) The Q output follows the D input when EN is HIGH
   d) The Q output is HIGH regardless of EN's input state

9) 8 to 1 mux would have _____.
   a) 2 inputs b) 3 inputs
   c) 8 inputs d) 5 inputs

10) Following IC is used for BCD to 7 segment decoder
   a) 74148 b) 74157
   c) 7447 d) None

11) With the availability of 16 x 4 memory size, how many ICs (memory chips) will be required for the expansion of its word size in order to obtain 16 x 8 memory?
   a) 2 b) 4
   c) 8 d) 16

12) A VHDL models consist of an _____ and a _____.
   a) Entity Declaration b) Architecture Body
   c) Both a and b d) None of the above

13) List out The Levels of Abstractions in VHDL?
   a) Data flow level b) Structural Level
   c) Behavioral Level d) All of the above

14) What Can Be The Various Uses Of VHDL?
   a) To synthesize digital circuits
   b) To verify and validate digital designs
   c) To simulate circuits
   d) All of the above

Seat No.	

Set **P**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicate full marks.

Section – I

Q.2 Attempt any three. **12**

a) Express the Boolean function $F = AB + A'C$ in a product of sumform.
b) Simplify the following Boolean function: $F = A'C + A'B + AB'C + BC$.
c) Write a note on Parity Checker.
d) Explain Arithmetic Logic Unit using 74181 IC.
d) With a neat diagram describe Asynchronous counters.

Q.3 Attempt any two. **16**

a) Obtain the simplified expressions in sum-of-product for the following Boolean functions:
1) $xy + \bar{x}y\bar{z} + \bar{x}yz$
2) $ABD + \bar{A}C\bar{D} + \bar{A}B + \bar{A}C\bar{D} + A\bar{B}\bar{D}$
b) Design full subtractor using NAND gates.
c) Describe the procedure of converting S - R type flip-flop to T type flip-flop.

Section – II

Q.4 Attempt any three **12**

a) Implement the following combinational circuit using a decoder

$f1 = \sum m(3, 5, 8, 15)$

$f2 = \sum m(1, 4, 5, 7)$

b) With a neat diagram design 5 bitShift register.
c) Write a List of Verilog Operator.
d) Describe the Dataflow Modeling with a example using verilog HDL.
e) Design a 2 to 1 multiplexer in a Verilog HDL.

Q.5 Attempt any two. **16**

a) Implement Full subtractor using Multiplexer.
b) Design a 16-line to 1-line MUX from five 4-line to 1-line MUX's.
c) Illustrate Dynamic RAM Cell and Refreshing with a neat diagram.

Seat No.	

Set **Q**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 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) With regard to a D latch _____.
   a) The Q output follows the D input when EN is LOW
   b) The Q output is opposite the D input when EN is LOW
   c) The Q output follows the D input when EN is HIGH
   d) The Q output is HIGH regardless of EN's input state

2) 8 to 1 mux would have _____.
   a) 2 inputs b) 3 inputs
   c) 8 inputs d) 5 inputs

3) Following IC is used for BCD to 7 segment decoder
   a) 74148 b) 74157
   c) 7447 d) None

4) With the availability of 16 x 4 memory size, how many ICs (memory chips) will be required for the expansion of its word size in order to obtain 16 x 8 memory?
   a) 2 b) 4
   c) 8 d) 16

5) A VHDL models consist of an _____ and a _____.
   a) Entity Declaration b) Architecture Body
   c) Both a and b d) None of the above

6) List out The Levels of Abstractions in VHDL?
   a) Data flow level b) Structural Level
   c) Behavioral Level d) All of the above

7) What Can Be The Various Uses Of VHDL?
   a) To synthesize digital circuits
   b) To verify and validate digital designs
   c) To simulate circuits
   d) All of the above

8) The Boolean expression $Y = \overline{A + B}$ is logically equivalent to what single gate?
   a) NAND b) NOR
   c) AND d) OR

9) The decimal equivalent of the highest possible address for an 8-bit address bus is _____.
   a) 255 b) 256
   c) 257 d) None of these

10) The expression $Y = (A + B)(B + C)(C + A)$ shows the _____ operation.
   a) AND b) POS
   c) SOP d) NAND

11) On subtracting $(010110)_2$ from $(1011001)_2$ using 2's complement, we get _____.
   a) 0111001 b) 1100101
   c) 0110110 d) 1000011

12) Total number of inputs in a half adder is _____.
   a) 2 b) 3
   c) 4 d) 1

13) The difference between half adder and full adder is _____.
   a) Half adder has two inputs while full adder has four inputs
   b) Half adder has one output while full adder has two outputs
   c) Half adder has two inputs while full adder has three inputs
   d) All of the Mentioned

14) The operation of J - K flip-flop is similar to that of the SR flip-flop except that the J - K flip-flop _____.
   a) Doesn't have an invalid state
   b) Sets to clear when both J = 0 and K = 0
   c) It does not show transition on change in pulse
   d) It does not accept asynchronous inputs

Seat No.	

Set **Q**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicate full marks.

Section – I

Q.2 Attempt any three. **12**

a) Express the Boolean function $F = AB + A'C$ in a product of sumform.
b) Simplify the following Boolean function: $F = A'C + A'B + AB'C + BC$.
c) Write a note on Parity Checker.
d) Explain Arithmetic Logic Unit using 74181 IC.
d) With a neat diagram describe Asynchronous counters.

Q.3 Attempt any two. **16**

a) Obtain the simplified expressions in sum-of-product for the following Boolean functions:
1) $xy + \bar{x}y\bar{z} + \bar{x}yz$
2) $ABD + \bar{A}C\bar{D} + \bar{A}B + \bar{A}C\bar{D} + A\bar{B}\bar{D}$
b) Design full subtractor using NAND gates.
c) Describe the procedure of converting S - R type flip-flop to T type flip-flop.

Section – II

Q.4 Attempt any three **12**

a) Implement the following combinational circuit using a decoder

$f1 = \sum m(3, 5, 8, 15)$

$f2 = \sum m(1, 4, 5, 7)$

b) With a neat diagram design 5 bitShift register.
c) Write a List of Verilog Operator.
d) Describe the Dataflow Modeling with a example using verilog HDL.
e) Design a 2 to 1 multiplexer in a Verilog HDL.

Q.5 Attempt any two. **16**

a) Implement Full subtractor using Multiplexer.
b) Design a 16-line to 1-line MUX from five 4-line to 1-line MUX's.
c) Illustrate Dynamic RAM Cell and Refreshing with a neat diagram.

Seat No.	

Set **R**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 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) Total number of inputs in a half adder is _____.
   a) 2 b) 3
   c) 4 d) 1

2) The difference between half adder and full adder is _____.
   a) Half adder has two inputs while full adder has four inputs
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   c) Half adder has two inputs while full adder has three inputs
   d) All of the Mentioned

3) The operation of J - K flip-flop is similar to that of the SR flip-flop except that the J - K flip-flop _____.
   a) Doesn't have an invalid state
   b) Sets to clear when both J = 0 and K = 0
   c) It does not show transition on change in pulse
   d) It does not accept asynchronous inputs

4) With regard to a D latch _____.
   a) The Q output follows the D input when EN is LOW
   b) The Q output is opposite the D input when EN is LOW
   c) The Q output follows the D input when EN is HIGH
   d) The Q output is HIGH regardless of EN's input state

5) 8 to 1 mux would have _____.
   a) 2 inputs b) 3 inputs
   c) 8 inputs d) 5 inputs

6) Following IC is used for BCD to 7 segment decoder
   a) 74148 b) 74157
   c) 7447 d) None

7) With the availability of 16 x 4 memory size, how many ICs (memory chips) will be required for the expansion of its word size in order to obtain 16 x 8 memory?
   a) 2 b) 4
   c) 8 d) 16

8) A VHDL models consist of an _____ and a _____.
   a) Entity Declaration
   b) Architecture Body
   c) Both a and b
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9) List out The Levels of Abstractions in VHDL?
   a) Data flow level
   b) Structural Level
   c) Behavioral Level
   d) All of the above

10) What Can Be The Various Uses Of VHDL?
   a) To synthesize digital circuits
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   c) To simulate circuits
   d) All of the above

11) The Boolean expression $Y = \overline{A + B}$ is logically equivalent to what single gate?
   a) NAND
   b) NOR
   c) AND
   d) OR

12) The decimal equivalent of the highest possible address for an 8-bit address bus is _____.
   a) 255
   b) 256
   c) 257
   d) None of these

13) The expression $Y = (A + B)(B + C)(C + A)$ shows the _____ operation.
   a) AND
   b) POS
   c) SOP
   d) NAND

14) On subtracting $(010110)_2$ from $(1011001)_2$ using 2's complement, we get _____.
   a) 0111001
   b) 1100101
   c) 0110110
   d) 1000011

Seat No.	

Set **R**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicate full marks.

Section – I

Q.2 Attempt any three. **12**

a) Express the Boolean function $F = AB + A'C$ in a product of sumform.
b) Simplify the following Boolean function: $F = A'C + A'B + AB'C + BC$.
c) Write a note on Parity Checker.
d) Explain Arithmetic Logic Unit using 74181 IC.
d) With a neat diagram describe Asynchronous counters.

Q.3 Attempt any two. **16**

a) Obtain the simplified expressions in sum-of-product for the following Boolean functions:
1) $xy + \bar{x}y\bar{z} + \bar{x}yz$
2) $ABD + \bar{A}C\bar{D} + \bar{A}B + \bar{A}C\bar{D} + A\bar{B}\bar{D}$
b) Design full subtractor using NAND gates.
c) Describe the procedure of converting S - R type flip-flop to T type flip-flop.

Section – II

Q.4 Attempt any three **12**

a) Implement the following combinational circuit using a decoder

$f1 = \sum m(3, 5, 8, 15)$

$f2 = \sum m(1, 4, 5, 7)$

b) With a neat diagram design 5 bitShift register.
c) Write a List of Verilog Operator.
d) Describe the Dataflow Modeling with a example using verilog HDL.
e) Design a 2 to 1 multiplexer in a Verilog HDL.

Q.5 Attempt any two. **16**

a) Implement Full subtractor using Multiplexer.
b) Design a 16-line to 1-line MUX from five 4-line to 1-line MUX's.
c) Illustrate Dynamic RAM Cell and Refreshing with a neat diagram.

Seat No.	

Set **S**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 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) Following IC is used for BCD to 7 segment decoder
   a) 74148 b) 74157
   c) 7447 d) None

2) With the availability of 16 x 4 memory size, how many ICs (memory chips) will be required for the expansion of its word size in order to obtain 16 x 8 memory?
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   a) Data flow level b) Structural Level
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   c) To simulate circuits
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   a) NAND b) NOR
   c) AND d) OR

7) The decimal equivalent of the highest possible address for an 8-bit address bus is _____.
   a) 255 b) 256
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8) The expression $Y = (A + B)(B + C)(C + A)$ shows the _____ operation.
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   a) Half adder has two inputs while full adder has four inputs
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   b) Sets to clear when both J = 0 and K = 0
   c) It does not show transition on change in pulse
   d) It does not accept asynchronous inputs

13) With regard to a D latch _____.
   a) The Q output follows the D input when EN is LOW
   b) The Q output is opposite the D input when EN is LOW
   c) The Q output follows the D input when EN is HIGH
   d) The Q output is HIGH regardless of EN's input state

14) 8 to 1 mux would have _____.
   a) 2 inputs b) 3 inputs
   c) 8 inputs d) 5 inputs

SLR-FM-708

Seat No.	

Set S

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicate full marks.

Section – I

Q.2 Attempt any three. **12**

a) Express the Boolean function $F = AB + A'C$ in a product of sumform.
b) Simplify the following Boolean function: $F = A'C + A'B + AB'C + BC$.
c) Write a note on Parity Checker.
d) Explain Arithmetic Logic Unit using 74181 IC.
d) With a neat diagram describe Asynchronous counters.

Q.3 Attempt any two. **16**

a) Obtain the simplified expressions in sum-of-product for the following Boolean functions:
1) $xy + \bar{x}y\bar{z} + \bar{x}yz$
2) $ABD + \bar{A}C\bar{D} + \bar{A}B + \bar{A}C\bar{D} + A\bar{B}\bar{D}$
b) Design full subtractor using NAND gates.
c) Describe the procedure of converting S - R type flip-flop to T type flip-flop.

Section – II

Q.4 Attempt any three **12**

a) Implement the following combinational circuit using a decoder

$f1 = \sum m(3, 5, 8, 15)$

$f2 = \sum m(1, 4, 5, 7)$

b) With a neat diagram design 5 bitShift register.
c) Write a List of Verilog Operator.
d) Describe the Dataflow Modeling with a example using verilog HDL.
e) Design a 2 to 1 multiplexer in a Verilog HDL.

Q.5 Attempt any two. **16**

a) Implement Full subtractor using Multiplexer.
b) Design a 16-line to 1-line MUX from five 4-line to 1-line MUX's.
c) Illustrate Dynamic RAM Cell and Refreshing with a neat diagram.

SLR-FM-709

Seat No.	

Set P

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER GRAPHICS

Day & Date: Tuesday,17-12-2019 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) Do not use pen to draw and label the diagrams.
3) 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**

1) The purpose of refreshing the CRT is _____.
   i) To avoid flickering
   ii) To maintain steady picture
   iii) To avoid fading of pixels
   iv) None of the above
   a) I and iii b) Iv
   c) iii, and ii d) i,ii,iii

2) The element primarily responsible for emitting visible light in a Refresh CRT is _____.
   i) Sulphur
   ii) Zinc
   iii) Phosphorus
   iv) Neon
   a) only Sulphur b) only Phosphorus
   c) phosphorus and sulphur d) only neon

3) _____ is repositioning the coordinates along a circular path, in the x-y plane by making an angle with the axes.
   a) Combined transformation b) Rotation
   c) Scaling d) Translation

4) Two basic technique used for producing color display are Beam penetration technique and _____.
   a) Front dark technique b) Shadow mask technique
   c) Ray penetration technique d) None of the above

5) Edge fill algorithm uses _____ process.
   a) Iterative process b) Recursive process
   c) Non recursive process d) None of the above

6) The algorithm used for filling the interior of a polygon is called _____.
   a) Flood fill algorithm b) Boundary fill algorithm
   c) Scan line polygon fill algorithm d) None of these

7) Identify the odd one out from the following _____.
   a) Frame Buffer b) Pixmap
   c) Display program d) Refresh Buffer

8) Z- Buffer algorithm is developed by _____.
   a) Go Che Leong b) Warnock
   c) Cohen d) Catmull

9) The problems of hidden surface are _____.
   a) Removal of hidden surface
   b) Identification of hidden surface
   c) Both a & b
   d) None of these

10) Medical applications of computer graphics are _____.
   a) Picture enhancements b) Tomography
   c) Simulation of operation d) All of the above

11) _____ is a flexible strip that is used to produce smooth curve using a set of point.
   a) Spline b) Scan-line method
   c) Depth-sorting method d) None of these

12) Identify the incorrect matching pair _____.
   i) Jaggies = Line with stair step appearance
   ii) Pixel = Shortened forms of picture element
   iii) Persistence = time taken for the emitted light from the screen to decay two tenth of its original intensity
   iv) Frame buffer = Picture definition is stored in a memory area
   a) All are correctly matched b) only iv
   c) i and iii d) only iii

13) Two dimensional color model are _____.
   a) RGB and CMKY b) RBG and CYMK
   c) RGB and CMYK d) None

14) Several graphics image file formats that are used by most of graphics system are _____.
   a) GIF b) JPEG
   c) TIFF d) All of these

Seat No.	

Set **P**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any four. **16**

a) Short Note on Color Models.
b) Short Note on 3D transformation with matrix equation.
c) What is DDA? Consider a line AB with A= (0,0) and B (-7,-7). Apply a simple DDA Algorithm and calculate the pixels on the line.
d) Short Note: Scan converting polygon.
e) Define Reflection; consider a point (2, 3) in coordinate plane. Apply the reflection matrix to the point P (2,3) through y axis and draw the same.

Q.3 Attempt any two **12**

a) Compare and differentiate with diagram: Edge fill and Seed Fill procedures.
b) Explain 2D:
1) Translation
2) Rotation
3) Scaling with matrix and diagram
c) Define and write the matrix equation for 3D Rotation, reflection, shearing with diagram.

Section – II

Q.4 Attempt any four. **16**

a) Elaborate in detail Bezier curve and its properties with diagram.
b) Short Note: Segmented File Display
c) Short Note : Anti aliasing and Half toning
d) Define multimedia and elements and need of multimedia.
e) What is windowing? Explain Viewing transformation.

Q.5 Attempt any two. **12**

a) Short Note:
1) GIF
2) JPEG
b) What is clipping? Explain working of Sutherland - Cohen line clipping algorithm in detail.
c) Elaborate Z- Buffer Algorithm with diagram.

Seat No.	

Set **Q**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER GRAPHICS

Day & Date: Tuesday,17-12-2019 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) Do not use pen to draw and label the diagrams.
3) 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**

1) Z- Buffer algorithm is developed by _____.
   a) Go Che Leong b) Warnock
   c) Cohen d) Catmull

2) The problems of hidden surface are _____.
   a) Removal of hidden surface
   b) Identification of hidden surface
   c) Both a & b
   d) None of these

3) Medical applications of computer graphics are _____.
   a) Picture enhancements b) Tomography
   c) Simulation of operation d) All of the above

4) _____ is a flexible strip that is used to produce smooth curve using a set of point.
   a) Spline b) Scan-line method
   c) Depth-sorting method d) None of these

5) Identify the incorrect matching pair _____.
   i) Jaggies = Line with stair step appearance
   ii) Pixel = Shortened forms of picture element
   iii) Persistence = time taken for the emitted light from the screen to decay two tenth of its original intensity
   iv) Frame buffer = Picture definition is stored in a memory area
   a) All are correctly matched b) only iv
   c) i and iii d) only iii

6) Two dimensional color model are _____.
   a) RGB and CMKY b) RBG and CYMK
   c) RGB and CMYK d) None

7) Several graphics image file formats that are used by most of graphics system are _____.
   a) GIF b) JPEG
   c) TIFF d) All of these

8) The purpose of refreshing the CRT is _____.
   i) To avoid flickering
   ii) To maintain steady picture
   iii) To avoid fading of pixels
   iv) None of the above
   a) I and iii b) Iv
   c) iii, and ii d) i,ii,iii

9) The element primarily responsible for emitting visible light in a Refresh CRT is _____.
   i) Sulphur
   ii) Zinc
   iii) Phosphorus
   iv) Neon
   a) only Sulphur b) only Phosphorus
   c) phosphorus and sulphur d) only neon

10) _____ is repositioning the coordinates along a circular path, in the x-y plane by making an angle with the axes.
   a) Combined transformation b) Rotation
   c) Scaling d) Translation

11) Two basic technique used for producing color display are Beam penetration technique and _____.
   a) Front dark technique b) Shadow mask technique
   c) Ray penetration technique d) None of the above

12) Edge fill algorithm uses _____ process.
   a) Iterative process b) Recursive process
   c) Non recursive process d) None of the above

13) The algorithm used for filling the interior of a polygon is called _____.
   a) Flood fill algorithm b) Boundary fill algorithm
   c) Scan line polygon fill algorithm d) None of these

14) Identify the odd one out from the following _____.
   a) Frame Buffer b) Pixmap
   c) Display program d) Refresh Buffer

Seat No.	

Set **Q**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any four. **16**

a) Short Note on Color Models.
b) Short Note on 3D transformation with matrix equation.
c) What is DDA? Consider a line AB with A= (0,0) and B (-7,-7). Apply a simple DDA Algorithm and calculate the pixels on the line.
d) Short Note: Scan converting polygon.
e) Define Reflection; consider a point (2, 3) in coordinate plane. Apply the reflection matrix to the point P (2,3) through y axis and draw the same.

Q.3 Attempt any two **12**

a) Compare and differentiate with diagram: Edge fill and Seed Fill procedures.
b) Explain 2D:
1) Translation
2) Rotation
3) Scaling with matrix and diagram
c) Define and write the matrix equation for 3D Rotation, reflection, shearing with diagram.

Section – II

Q.4 Attempt any four. **16**

a) Elaborate in detail Bezier curve and its properties with diagram.
b) Short Note: Segmented File Display
c) Short Note : Anti aliasing and Half toning
d) Define multimedia and elements and need of multimedia.
e) What is windowing? Explain Viewing transformation.

Q.5 Attempt any two. **12**

a) Short Note:
1) GIF
2) JPEG
b) What is clipping? Explain working of Sutherland - Cohen line clipping algorithm in detail.
c) Elaborate Z- Buffer Algorithm with diagram.

Seat No.	

Set **R**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER GRAPHICS

Day & Date: Tuesday,17-12-2019 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) Do not use pen to draw and label the diagrams.
3) 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**

1) Edge fill algorithm uses _____ process.
   a) Iterative process b) Recursive process
   c) Non recursive process d) None of the above

2) The algorithm used for filling the interior of a polygon is called _____.
   a) Flood fill algorithm b) Boundary fill algorithm
   c) Scan line polygon fill algorithm d) None of these

3) Identify the odd one out from the following _____.
   a) Frame Buffer b) Pixmap
   c) Display program d) Refresh Buffer

4) Z- Buffer algorithm is developed by _____.
   a) Go Che Leong b) Warnock
   c) Cohen d) Catmull

5) The problems of hidden surface are _____.
   a) Removal of hidden surface
   b) Identification of hidden surface
   c) Both a & b
   d) None of these

6) Medical applications of computer graphics are _____.
   a) Picture enhancements b) Tomography
   c) Simulation of operation d) All of the above

7) _____ is a flexible strip that is used to produce smooth curve using a set of point.
   a) Spline b) Scan-line method
   c) Depth-sorting method d) None of these

8) Identify the incorrect matching pair _____.
   i) Jaggies = Line with stair step appearance
   ii) Pixel = Shortened forms of picture element
   iii) Persistence = time taken for the emitted light from the screen to decay two tenth of its original intensity
   iv) Frame buffer = Picture definition is stored in a memory area
   a) All are correctly matched b) only iv
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9) Two dimensional color model are _____.
   a) RGB and CMKY b) RBG and CYMK
   c) RGB and CMYK d) None

10) Several graphics image file formats that are used by most of graphics system are _____.
   a) GIF b) JPEG
   c) TIFF d) All of these

11) The purpose of refreshing the CRT is _____.
   i) To avoid flickering
   ii) To maintain steady picture
   iii) To avoid fading of pixels
   iv) None of the above
   a) I and iii b) Iv
   c) iii, and ii d) i,ii,iii

12) The element primarily responsible for emitting visible light in a Refresh CRT is _____.
   i) Sulphur
   ii) Zinc
   iii) Phosphorus
   iv) Neon
   a) only Sulphur b) only Phosphorus
   c) phosphorus and sulphur d) only neon

13) _____ is repositioning the coordinates along a circular path, in the x-y plane by making an angle with the axes.
   a) Combined transformation b) Rotation
   c) Scaling d) Translation

14) Two basic technique used for producing color display are Beam penetration technique and _____.
   a) Front dark technique b) Shadow mask technique
   c) Ray penetration technique d) None of the above

Seat No.	

Set **R**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any four. **16**

a) Short Note on Color Models.
b) Short Note on 3D transformation with matrix equation.
c) What is DDA? Consider a line AB with A= (0,0) and B (-7,-7). Apply a simple DDA Algorithm and calculate the pixels on the line.
d) Short Note: Scan converting polygon.
e) Define Reflection; consider a point (2, 3) in coordinate plane. Apply the reflection matrix to the point P (2,3) through y axis and draw the same.

Q.3 Attempt any two **12**

a) Compare and differentiate with diagram: Edge fill and Seed Fill procedures.
b) Explain 2D:
1) Translation
2) Rotation
3) Scaling with matrix and diagram
c) Define and write the matrix equation for 3D Rotation, reflection, shearing with diagram.

Section – II

Q.4 Attempt any four. **16**

a) Elaborate in detail Bezier curve and its properties with diagram.
b) Short Note: Segmented File Display
c) Short Note : Anti aliasing and Half toning
d) Define multimedia and elements and need of multimedia.
e) What is windowing? Explain Viewing transformation.

Q.5 Attempt any two. **12**

a) Short Note:
1) GIF
2) JPEG
b) What is clipping? Explain working of Sutherland - Cohen line clipping algorithm in detail.
c) Elaborate Z- Buffer Algorithm with diagram.

Seat No.	

Set **S**

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER GRAPHICS

Day & Date: Tuesday,17-12-2019 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) Do not use pen to draw and label the diagrams.
3) 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**

1) Medical applications of computer graphics are _____.
   a) Picture enhancements b) Tomography
   c) Simulation of operation d) All of the above

2) _____ is a flexible strip that is used to produce smooth curve using a set of point.
   a) Spline b) Scan-line method
   c) Depth-sorting method d) None of these

3) Identify the incorrect matching pair _____.
   i) Jaggies = Line with stair step appearance
   ii) Pixel = Shortened forms of picture element
   iii) Persistence = time taken for the emitted light from the screen to decay two tenth of its original intensity
   iv) Frame buffer = Picture definition is stored in a memory area
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4) Two dimensional color model are _____.
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5) Several graphics image file formats that are used by most of graphics system are _____.
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6) The purpose of refreshing the CRT is _____.
   i) To avoid flickering
   ii) To maintain steady picture
   iii) To avoid fading of pixels
   iv) None of the above
   a) I and iii b) Iv
   c) iii, and ii d) i,ii,iii

7) The element primarily responsible for emitting visible light in a Refresh CRT is _____.
   i) Sulphur
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   a) only Sulphur b) only Phosphorus
   c) phosphorus and sulphur d) only neon

8) _____ is repositioning the coordinates along a circular path, in the x-y plane by making an angle with the axes.
   a) Combined transformation b) Rotation
   c) Scaling d) Translation

9) Two basic technique used for producing color display are Beam penetration technique and _____.
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   c) Ray penetration technique d) None of the above

10) Edge fill algorithm uses _____ process.
   a) Iterative process b) Recursive process
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11) The algorithm used for filling the interior of a polygon is called _____.
   a) Flood fill algorithm b) Boundary fill algorithm
   c) Scan line polygon fill algorithm d) None of these

12) Identify the odd one out from the following _____.
   a) Frame Buffer b) Pixmap
   c) Display program d) Refresh Buffer

13) Z- Buffer algorithm is developed by _____.
   a) Go Che Leong b) Warnock
   c) Cohen d) Catmull

14) The problems of hidden surface are _____.
   a) Removal of hidden surface
   b) Identification of hidden surface
   c) Both a & b
   d) None of these

SLR-FM-709

Seat No.	

Set S

S.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
3) Do not use pen to draw and label the diagrams.

Section – I

Q.2 Attempt any four. **16**

a) Short Note on Color Models.

b) Short Note on 3D transformation with matrix equation.

c) What is DDA? Consider a line AB with A= (0,0) and B (-7,-7). Apply a simple DDA Algorithm and calculate the pixels on the line.

d) Short Note: Scan converting polygon.

e) Define Reflection; consider a point (2, 3) in coordinate plane. Apply the reflection matrix to the point P (2,3) through y axis and draw the same.

Q.3 Attempt any two **12**

a) Compare and differentiate with diagram: Edge fill and Seed Fill procedures.

b) Explain 2D:
1) Translation
2) Rotation
3) Scaling with matrix and diagram

c) Define and write the matrix equation for 3D Rotation, reflection, shearing with diagram.

Section – II

Q.4 Attempt any four. **16**

a) Elaborate in detail Bezier curve and its properties with diagram.

b) Short Note: Segmented File Display

c) Short Note : Anti aliasing and Half toning

d) Define multimedia and elements and need of multimedia.

e) What is windowing? Explain Viewing transformation.

Q.5 Attempt any two. **12**

a) Short Note:
1) GIF
2) JPEG

b) What is clipping? Explain working of Sutherland - Cohen line clipping algorithm in detail.

c) Elaborate Z- Buffer Algorithm with diagram.

Seat No.	

Set **P**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 and 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 (A, B, C, D) on Top of Page.
3) 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) 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

2) 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

3) 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

4) Truncation error in Trapezoidal rule is of order _____.
   a) h b) h^2
   c) h^3 d) h^4

5) 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

6) 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

7) The Newton - Raphson method fails when _____.
   a) $f'(x)$ is negative b) $f'(x)$ is positive
   c) Never fails d) $f'(x)$ is zero

8) 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) $[9, 15]$

9) Quantifiers of the second kind are called _____ Quantifiers
   a) Absolute
   b) Relative
   c) Approximate
   d) Modified

10) Consider
   i) $A(x) = x \quad 0 \le x \le 1$
      $= 0 \quad ow$
   ii) $B(x) = \min\{1, x\} \quad x \ge 0$
      $= 0 \quad x < 0$
   Then the fuzzy number are _____.
   a) Both i) and ii)
   b) Only ii)
   c) Only i)
   d) Neither i) or nor ii)

11) For any set A defined on universal set $X, 0_A$= _____.
   a) $\emptyset$
   b) X
   c) A
   d) A^c

12) The fuzzy sets A and B are defined as follows,
   $A = \frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.6}{x_3}$ $B = \frac{0.1}{x_1} + \frac{0.4}{x_2} + \frac{0.5}{x_3}$ the set $A \cap B^c$ *is* _____.
   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) $\frac{0.9}{x_1} + \frac{0.6}{x_2} + \frac{0.6}{x_3}$

13) For the fuzzy set defined by the function $A(x) = 1 - \frac{x}{10,}, x \in \{0,1,2, \ldots 10\}$
   The scalar cardinality of t set A is _____.
   a) 5.2
   b) 5.4
   c) 5.5
   d) 5.6

14) 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

Seat No.		Set	P

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 decimal places by Regula falsi method. **05**

b) Find the positive real root of the equation $x^3 - 9x + 1 = 0$ by Bisection method.(Carry out 6 iterations) **04**

OR

b) Use $N\ R$ 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 $x_0 = 3.5$, $y_0 = -1.8$ **05**

b) Solve the following equations by using factorization method. **05**
$x + 5\,y + z = 14{,}2x + y + 3z = 13{,}3x + y + 4z = 17$

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. **04**
$x + 4y + 9z = 16\,, 2x + y + z = 10{,}3x + 2y + 3z = 18$

b) Using Trapezoidal rule evaluate $\int_1^2 \int_3^4 \frac{1}{(x+y)^2} dxdy,\ h = k = 0.5$ **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. **04**

$C(x) = 1 \qquad 0 \le x \le b$
$\quad = 0 \qquad otherwise$

OR

a) Prove that: **04**
i) $\alpha(A \cup B) = \alpha_A \cup \alpha_B$
ii) $\alpha_+(A \cap B) = \alpha_{+A} \cap \alpha_{+B}$

b) For given fuzzy numbers find $MIN\ (A, B)$ **06**

$$Where\ A(x) = \frac{x-2}{3} \qquad 2 < x \leq 5$$
$$= \frac{7-x}{3} \qquad 5 < x \leq 7$$
$$= 0 \qquad otherwise$$
$$B(x) = x - 3 \qquad 3 < x \leq 4$$
$$= \frac{9-x}{3} \qquad 4 < x \leq 9$$
$$= 0 \qquad otherwise$$

Q.7 **a)** For the following fuzzy sets **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**

$$B(x) = \frac{x-10}{10} \qquad 10 < x \leq 20$$
$$= \frac{35-x}{15} \qquad 20 < x \leq 35$$
$$= 0 \qquad otherwise$$
$$A(x) = x - 4 \qquad 4 < x \leq 5$$
$$= 6 - x \qquad 5 < x \leq 6$$
$$= 0 \qquad otherwise$$

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 function for all $x \in X$ then by using extension principle find $f(A)$. **05**

b) Calculate α-cuts and strong α-cuts for the fuzzy set B, **04**

$$B(x) = 0 \qquad x > 13, x < 7$$
$$= \frac{x-7}{3} \qquad 7 < x \leq 10$$
$$= \frac{13-x}{3} \qquad 10 < x \leq 13 \text{ where } \alpha = 0.7, 0.8, 1$$

Q.9 **a)** Solve the fuzzy equation $A + X = B$ where **05**

$$A(x) = x - 3 \qquad 3 < x \leq 4$$
$$= 5 - x \qquad 4 < x < 5$$
$$= 0 \qquad otherwise$$
$$B(x) = \frac{(x-12)}{8} \qquad 12 < x \leq 20$$
$$= \frac{32-x}{12} \qquad 20 < x \leq 32$$
$$= 0 \qquad otherwise$$

b) Explain the concept of fuzzy quantifiers and their types. **04**

Seat No.	

Set **Q**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 and 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 (A, B, C, D) on Top of Page.
3) 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) 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) $[9,15]$

2) Quantifiers of the second kind are called _____ Quantifiers
   a) Absolute b) Relative
   c) Approximate d) Modified

3) Consider
   i) $A(x) = x \quad 0 \le x \le 1$
   $= 0 \quad ow$
   ii) $B(x) = \min\{1, x\} \quad x \ge 0$
   $= 0 \quad x < 0$
   Then the fuzzy number are _____.
   a) Both i) and ii) b) Only ii)
   c) Only i) d) Neither i) or nor ii)

4) For any set A defined on universal set $X, 0_A$= _____.
   a) $\emptyset$ b) X
   c) A d) A^c

5) The fuzzy sets A and B are defined as follows,
   $A = \frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.6}{x_3}$ $B = \frac{0.1}{x_1} + \frac{0.4}{x_2} + \frac{0.5}{x_3}$ the set $A \cap B^c$ *is* _____.
   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) $\frac{0.9}{x_1} + \frac{0.6}{x_2} + \frac{0.6}{x_3}$

6) For the fuzzy set defined by the function $A(x) = 1 - \frac{x}{10,}, x \in \{0,1,2, \ldots 10\}$
   The scalar cardinality of t set A is _____.
   a) 5.2 b) 5.4
   c) 5.5 d) 5.6

7) 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

8) 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

9) 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

10) 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

11) Truncation error in Trapezoidal rule is of order _____.
   a) h
   b) h^2
   c) h^3
   d) h^4

12) 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

13) 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

14) The Newton - Raphson method fails when _____.
   a) $f'(x)$ is negative
   b) $f'(x)$ is positive
   c) Never fails
   d) $f'(x)$ is zero

Seat No.	

Set **Q**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 decimal places by Regula falsi method. **05**

b) Find the positive real root of the equation $x^3 - 9x + 1 = 0$ by Bisection method.(Carry out 6 iterations) **04**

OR

b) Use $N\,R$ 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 $x_0 = 3.5$, $y_0 = -1.8$ **05**

b) Solve the following equations by using factorization method. **05**
$x + 5\,y + z = 14, 2x + y + 3z = 13, 3x + y + 4z = 17$

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. **04**
$x + 4y + 9z = 16\,, 2x + y + z = 10, 3x + 2y + 3z = 18$

b) Using Trapezoidal rule evaluate $\int_1^2 \int_3^4 \frac{1}{(x+y)^2}\,dxdy,\ h = k = 0.5$ **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. **04**

$C(x) = 1 \qquad 0 \le x \le b$
$\quad = 0 \qquad otherwise$

OR

a) Prove that: **04**
i) $\alpha(A \cup B) = \alpha_A \cup \alpha_B$
ii) $\alpha_+(A \cap B) = \alpha_{+A} \cap \alpha_{+B}$

b) For given fuzzy numbers find $MIN\ (A, B)$ **06**

$$Where\ A(x) = \frac{x-2}{3} \qquad 2 < x \leq 5$$
$$= \frac{7-x}{3} \qquad 5 < x \leq 7$$
$$= 0 \qquad otherwise$$
$$B(x) = x - 3 \qquad 3 < x \leq 4$$
$$= \frac{9-x}{3} \qquad 4 < x \leq 9$$
$$= 0 \qquad otherwise$$

Q.7 **a)** For the following fuzzy sets **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**

$$B(x) = \frac{x-10}{10} \qquad 10 < x \leq 20$$
$$= \frac{35-x}{15} \qquad 20 < x \leq 35$$
$$= 0 \qquad otherwise$$
$$A(x) = x - 4 \qquad 4 < x \leq 5$$
$$= 6 - x \qquad 5 < x \leq 6$$
$$= 0 \qquad otherwise$$

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 function for all $x \in X$ then by using extension principle find $f(A)$. **05**

b) Calculate α-cuts and strong α-cuts for the fuzzy set B, **04**

$$B(x) = 0 \qquad x > 13, x < 7$$
$$= \frac{x-7}{3} \qquad 7 < x \leq 10$$
$$= \frac{13-x}{3} \qquad 10 < x \leq 13 \text{ where } \alpha = 0.7, 0.8, 1$$

Q.9 **a)** Solve the fuzzy equation $A + X = B$ where **05**

$$A(x) = x - 3 \qquad 3 < x \leq 4$$
$$= 5 - x \qquad 4 < x < 5$$
$$= 0 \qquad otherwise$$
$$B(x) = \frac{(x-12)}{8} \qquad 12 < x \leq 20$$
$$= \frac{32-x}{12} \qquad 20 < x \leq 32$$
$$= 0 \qquad otherwise$$

b) Explain the concept of fuzzy quantifiers and their types. **04**

Seat No.	

Set **R**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 and 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 (A, B, C, D) on Top of Page.
3) 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) 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 b) Relative
   c) Approximate d) Modified

6) Consider
   i) $A(x) = x \quad 0 \le x \le 1$
   $= 0 \quad ow$
   ii) $B(x) = \min\{1, x\} \quad x \ge 0$
   $= 0 \quad x < 0$
   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

8) The fuzzy sets A and B are defined as follows,
$A = \frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.6}{x_3}$ $B = \frac{0.1}{x_1} + \frac{0.4}{x_2} + \frac{0.5}{x_3}$ the set $A \cap B^c$ *is* _____.

a) $\frac{0.9}{x_1} + \frac{0.6}{x_2} + \frac{0.5}{x_3}$ b) $\frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.5}{x_3}$

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9) For the fuzzy set defined by the function $A(x) = 1 - \frac{x}{10,}, x \in \{0,1,2, \ldots 10\}$
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

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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^2

c) h^3 d) h^4

Seat No.	

Set **R**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 decimal places by Regula falsi method. **05**

b) Find the positive real root of the equation $x^3 - 9x + 1 = 0$ by Bisection method.(Carry out 6 iterations) **04**

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$x + 5\,y + z = 14, 2x + y + 3z = 13, 3x + y + 4z = 17$

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b) Use Romberg's method to evaluate $\int_0^1 \frac{dx}{x^2+4}\,dx$ take $n = 2$ **06**

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$x + 4y + 9z = 16\,, 2x + y + z = 10, 3x + 2y + 3z = 18$

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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. **04**

$C(x) = 1 \qquad 0 \le x \le b$
$\quad = 0 \qquad otherwise$

OR

a) Prove that: **04**
i) $\alpha(A \cup B) = \alpha_A \cup \alpha_B$
ii) $\alpha_+(A \cap B) = \alpha_{+A} \cap \alpha_{+B}$

b) For given fuzzy numbers find $MIN\ (A, B)$ **06**

$$Where\ A(x) = \frac{x-2}{3} \qquad 2 < x \leq 5$$
$$= \frac{7-x}{3} \qquad 5 < x \leq 7$$
$$= 0 \qquad otherwise$$
$$B(x) = x - 3 \qquad 3 < x \leq 4$$
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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**

$$B(x) = \frac{x-10}{10} \qquad 10 < x \leq 20$$
$$= \frac{35-x}{15} \qquad 20 < x \leq 35$$
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$$A(x) = x - 4 \qquad 4 < x \leq 5$$
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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 function for all $x \in X$ then by using extension principle find $f(A)$. **05**

b) Calculate α-cuts and strong α-cuts for the fuzzy set B, **04**

$$B(x) = 0 \qquad x > 13, x < 7$$
$$= \frac{x-7}{3} \qquad 7 < x \leq 10$$
$$= \frac{13-x}{3} \qquad 10 < x \leq 13 \text{ where } \alpha = 0.7, 0.8, 1$$

Q.9 **a)** Solve the fuzzy equation $A + X = B$ where **05**

$$A(x) = x - 3 \qquad 3 < x \leq 4$$
$$= 5 - x \qquad 4 < x < 5$$
$$= 0 \qquad otherwise$$
$$B(x) = \frac{(x-12)}{8} \qquad 12 < x \leq 20$$
$$= \frac{32-x}{12} \qquad 20 < x \leq 32$$
$$= 0 \qquad otherwise$$

b) Explain the concept of fuzzy quantifiers and their types. **04**

Seat No.	

Set **S**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 and 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 (A, B, C, D) on Top of Page.
3) 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) Consider
i) $A(x) = x \quad 0 \le x \le 1$
$= 0 \quad ow$
ii) $B(x) = \min\{1, x\} \quad x \ge 0$
$= 0 \quad x < 0$
Then the fuzzy number are _____.
a) Both i) and ii) b) Only ii)
c) Only i) d) Neither i) or nor ii)

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,
$A = \frac{0.2}{x_1} + \frac{0.5}{x_2} + \frac{0.6}{x_3}$ $B = \frac{0.1}{x_1} + \frac{0.4}{x_2} + \frac{0.5}{x_3}$ the set $A \cap B^c$ *is* _____.
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) For the fuzzy set defined by the function $A(x) = 1 - \frac{x}{10,}, x \in \{0,1,2, \ldots 10\}$
The scalar cardinality of t set A is _____.
a) 5.2 b) 5.4
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   a) $[-15,20]$ b) $\left[\frac{1}{15}, \frac{1}{20}\right]$
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Seat No.	

Set **S**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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.
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Section – I

Q.2 **a)** Find the positive real root of the equation $e^{-x} = \sin x$ Correct to three decimal places by Regula falsi method. **05**

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$x + 4y + 9z = 16\,, 2x + y + z = 10, 3x + 2y + 3z = 18$

b) Using Trapezoidal rule evaluate $\int_1^2 \int_3^4 \frac{1}{(x+y)^2}\,dxdy,\ h = k = 0.5$ **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. **04**

$C(x) = 1 \qquad 0 \le x \le b$
$\quad = 0 \qquad otherwise$

OR

a) Prove that: **04**
i) $\alpha(A \cup B) = \alpha_A \cup \alpha_B$
ii) $\alpha_+(A \cap B) = \alpha_{+A} \cap \alpha_{+B}$

b) For given fuzzy numbers find $MIN\ (A, B)$ **06**

$$Where\ A(x) = \frac{x-2}{3} \qquad 2 < x \leq 5$$
$$= \frac{7-x}{3} \qquad 5 < x \leq 7$$
$$= 0 \qquad otherwise$$
$$B(x) = x - 3 \qquad 3 < x \leq 4$$
$$= \frac{9-x}{3} \qquad 4 < x \leq 9$$
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Q.7 **a)** For the following fuzzy sets **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**

$$B(x) = \frac{x-10}{10} \qquad 10 < x \leq 20$$
$$= \frac{35-x}{15} \qquad 20 < x \leq 35$$
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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 function for all $x \in X$ then by using extension principle find $f(A)$. **05**

b) Calculate α-cuts and strong α-cuts for the fuzzy set B, **04**

$$B(x) = 0 \qquad x > 13, x < 7$$
$$= \frac{x-7}{3} \qquad 7 < x \leq 10$$
$$= \frac{13-x}{3} \qquad 10 < x \leq 13 \text{ where } \alpha = 0.7, 0.8, 1$$

Q.9 **a)** Solve the fuzzy equation $A + X = B$ where **05**

$$A(x) = x - 3 \qquad 3 < x \leq 4$$
$$= 5 - x \qquad 4 < x < 5$$
$$= 0 \qquad otherwise$$
$$B(x) = \frac{(x-12)}{8} \qquad 12 < x \leq 20$$
$$= \frac{32-x}{12} \qquad 20 < x \leq 32$$
$$= 0 \qquad otherwise$$

b) Explain the concept of fuzzy quantifiers and their types. **04**

Seat No.	

Set **P**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 70
Time: 02:30 PM To 05:30 PM

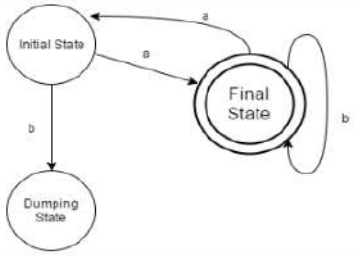
Instructions: 1) All questions are compulsory.
2) Figures to the right indicates full marks.

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 will not be accepted by the following DFA?



a) ababaabaa b) abbbaa
c) abbbaabb d) abbaabb

2) Can a DFA recognize a palindrome number?
a) Yes b) No
c) Yes, with input alphabet as Σ^* d) Can't be determined

3) Which of the following does not represents the given language?
Language: $\{0,01\}$
a) 0+01 b) $\{0\} \cup \{01\}$
c) $\{0\} \cup \{0\}\{1\}$ d) $\{0\}$ ^ $\{01\}$

4) δ^ tells us the best: _____.
a) how the DFA S behaves on a word u
b) the state is the dumping state
c) the final state has been reached
d) Kleene operation is performed on the set

5) A regular language over an alphabet a is one that can be obtained from _____.
a) union b) concatenation
c) kleene d) All of the mentioned

6) Which of the following is a regular language?
a) String whose length is a sequence of prime numbers
b) String with substring ww^r in between
c) Palindrome string
d) String with even number of Zero's

7) Following context free grammar _____.
$S \rightarrow aB \mid bA$
$A \rightarrow b \mid aS \mid bAA$
$B \rightarrow b \mid bS \mid aBB$ generates strings of terminals that have
a) equal number of a's and b's
b) odd number of a's and odd number b's
c) even number of a's and even number of b's
d) None

8) The regular expression with all strings of 0's and 1's with atleast two consecutive 0's, is: _____.
a) 1 + (10)* b) (0+1)*00(0+1)*
c) (0+1)*011 d) 0*1*2*

9) In one move the turing machine: _____.
a) May change its state
b) Write a symbol on the cell being scanned
c) Move the head one position left or right
d) All of the above

10) A push down automata is different than finite automata by _____.
a) Its memory (stack) b) Number of states
c) Both (a) and (b) d) None of these

11) In the Universal TM, the non halting states of a TM T1 are encoded as _____.
a) $s(qi) = 0^{i+1}$ b) e(qi) = 0i + 2
c) s(qi) = 0i d) s(qi) = 0i+2

12) Which of the following is not true?
a) Power of deterministic automata is equivalent to power of non-deterministic automata
b) Power of deterministic pushdown automata is equivalent to power of non-deterministic pushdown automata
c) Power of deterministic TM is equivalent to power of non- deterministic TM
d) All above

13) The δ (transition function) for PDA is _____.
a) $\delta: Q \times \Sigma \times \Gamma => Q \times \Gamma^*$ b) $\delta: Q \times \Sigma => Q \times \Gamma$
c) $\delta: Q \times \Gamma => \Sigma \times \Gamma^*$ d) $\delta: Q \times \Gamma => Q \times \Sigma$

14) The instantaneous description is PDA shows _____.
a) Present state b) Stack symbol
c) String to be processed d) All of these

Seat No.	

Set **P**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicates full marks.

Section – I

Q.2 Attempt any three of the following question. **12**

a) What is useless symbol?
b) Determine whether the grammar G has a useless production?
c) Define:
1) Finite Automaton (FA)
2) NFA
d) Define CNF.

Q.3 **a)** Explain Kleen's theorem. **16**
b) Write short notes on Minimization of DFA with example.

Section – II

Q.4 Attempt any three of the following question. **12**

a) TM with semi infinite tape.
b) Define PDA and explain types of PDA.
c) Design a TM to recognize all strings consisting of an odd number of α's.
d) Prove that L={0^p | p is prime} is not CFL.

Q.5 Attempt any two of the following question. **16**

a) Explain the following.
1) TM with multiple track
2) Offline TM
b) Write a note on Universal TM.
c) State pumping lemma. Prove that $L = \{a^i b^i c^i | n >= 0\}$ is not regular.

Seat No.	

Set **Q**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 70
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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) The regular expression with all strings of 0's and 1's with atleast two consecutive 0's, is: _____.
   a) 1 + (10)* b) (0+1)*00(0+1)*
   c) (0+1)*011 d) 0*1*2*

2) In one move the turing machine: _____.
   a) May change its state
   b) Write a symbol on the cell being scanned
   c) Move the head one position left or right
   d) All of the above

3) A push down automata is different than finite automata by _____.
   a) Its memory (stack) b) Number of states
   c) Both (a) and (b) d) None of these

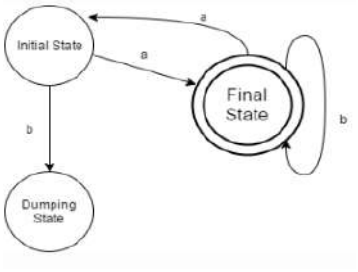
4) In the Universal TM, the non halting states of a TM T1 are encoded as _____.
   a) $s(qi) = 0^{i+1}$ b) e(qi) = 0i + 2
   c) s(qi) = 0i d) s(qi) = 0i+2

5) Which of the following is not true?
   a) Power of deterministic automata is equivalent to power of non-deterministic automata
   b) Power of deterministic pushdown automata is equivalent to power of non-deterministic pushdown automata
   c) Power of deterministic TM is equivalent to power of non- deterministic TM
   d) All above

6) The δ (transition function) for PDA is _____.
   a) $\delta: Q \times \Sigma \times \Gamma => Q \times \Gamma^*$ b) $\delta: Q \times \Sigma => Q \times \Gamma$
   c) $\delta: Q \times \Gamma => \Sigma \times \Gamma^*$ d) $\delta: Q \times \Gamma => Q \times \Sigma$

7) The instantaneous description is PDA shows _____.
   a) Present state b) Stack symbol
   c) String to be processed d) All of these

8) Which of the following will not be accepted by the following DFA?



a) ababaabaa
b) abbbaa
c) abbbaabb
d) abbaabb

9) Can a DFA recognize a palindrome number?
a) Yes
b) No
c) Yes, with input alphabet as Σ^*
d) Can't be determined

10) Which of the following does not represents the given language?
Language: $\{0,01\}$
a) 0+01
b) $\{0\} \cup \{01\}$
c) $\{0\} \cup \{0\}\{1\}$
d) $\{0\}$ ^ $\{01\}$

11) δ^ tells us the best: _____.
a) how the DFA S behaves on a word u
b) the state is the dumping state
c) the final state has been reached
d) Kleene operation is performed on the set

12) A regular language over an alphabet a is one that can be obtained from _____.
a) union
b) concatenation
c) kleene
d) All of the mentioned

13) Which of the following is a regular language?
a) String whose length is a sequence of prime numbers
b) String with substring ww^r in between
c) Palindrome string
d) String with even number of Zero's

14) Following context free grammar _____.
$S \rightarrow aB \mid bA$
$A \rightarrow b \mid aS \mid bAA$
$B \rightarrow b \mid bS \mid aBB$ generates strings of terminals that have
a) equal number of a's and b's
b) odd number of a's and odd number b's
c) even number of a's and even number of b's
d) None

Seat No.	

Set **Q**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicates full marks.

Section – I

Q.2 Attempt any three of the following question. **12**

a) What is useless symbol?
b) Determine whether the grammar G has a useless production?
c) Define:
1) Finite Automaton (FA)
2) NFA
d) Define CNF.

Q.3 **a)** Explain Kleen's theorem. **16**
b) Write short notes on Minimization of DFA with example.

Section – II

Q.4 Attempt any three of the following question. **12**

a) TM with semi infinite tape.
b) Define PDA and explain types of PDA.
c) Design a TM to recognize all strings consisting of an odd number of α's.
d) Prove that L={0^p | p is prime} is not CFL.

Q.5 Attempt any two of the following question. **16**

a) Explain the following.
1) TM with multiple track
2) Offline TM
b) Write a note on Universal TM.
c) State pumping lemma. Prove that $L = \{a^i b^i c^i | n >= 0\}$ is not regular.

Seat No.	

Set **R**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 70
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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) A regular language over an alphabet a is one that can be obtained from _____.
   a) union b) concatenation
   c) kleene d) All of the mentioned

2) Which of the following is a regular language?
   a) String whose length is a sequence of prime numbers
   b) String with substring ww^r in between
   c) Palindrome string
   d) String with even number of Zero's

3) Following context free grammar _____.
   $S \rightarrow aB \mid bA$
   $A \rightarrow b \mid aS \mid bAA$
   $B \rightarrow b \mid bS \mid aBB$ generates strings of terminals that have
   a) equal number of a's and b's
   b) odd number of a's and odd number b's
   c) even number of a's and even number of b's
   d) None

4) The regular expression with all strings of 0's and 1's with atleast two consecutive 0's, is: _____.
   a) 1 + (10)* b) (0+1)*00(0+1)*
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5) In one move the turing machine: _____.
   a) May change its state
   b) Write a symbol on the cell being scanned
   c) Move the head one position left or right
   d) All of the above

6) A push down automata is different than finite automata by _____.
   a) Its memory (stack) b) Number of states
   c) Both (a) and (b) d) None of these

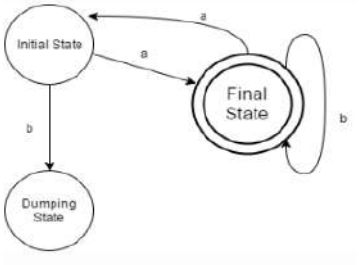
7) In the Universal TM, the non halting states of a TM T1 are encoded as _____.
   a) $s(qi) = 0^{i+1}$ b) e(qi) = 0i + 2
   c) s(qi) = 0i d) s(qi) = 0i+2

8) Which of the following is not true?
   a) Power of deterministic automata is equivalent to power of non-deterministic automata
   b) Power of deterministic pushdown automata is equivalent to power of non-deterministic pushdown automata
   c) Power of deterministic TM is equivalent to power of non- deterministic TM
   d) All above

9) The $^{\delta}$ (transition function) for PDA is _____.
   a) $\delta: Q \times \Sigma \times \lceil => Q \times \lceil^*$
   b) $\delta: Q \times \Sigma => Q \times \lceil$
   c) $\delta: Q \times \lceil => \Sigma \times \lceil^*$
   d) $\delta: Q \times \lceil => Q \times \Sigma$

10) The instantaneous description is PDA shows _____.
   a) Present state
   b) Stack symbol
   c) String to be processed
   d) All of these

11) Which of the following will not be accepted by the following DFA?



   a) ababaabaa
   b) abbbaa
   c) abbbaabb
   d) abbaabb

12) Can a DFA recognize a palindrome number?
   a) Yes
   b) No
   c) Yes, with input alphabet as Σ^*
   d) Can't be determined

13) Which of the following does not represents the given language?
   Language: $\{0,01\}$
   a) 0+01
   b) $\{0\} \cup \{01\}$
   c) $\{0\} \cup \{0\}\{1\}$
   d) $\{0\}$ ^ $\{01\}$

14) δ^ tells us the best: _____.
   a) how the DFA S behaves on a word u
   b) the state is the dumping state
   c) the final state has been reached
   d) Kleene operation is performed on the set

Seat No.	

Set **R**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicates full marks.

Section – I

Q.2 Attempt any three of the following question. **12**

a) What is useless symbol?
b) Determine whether the grammar G has a useless production?
c) Define:
1) Finite Automaton (FA)
2) NFA
d) Define CNF.

Q.3 **a)** Explain Kleen's theorem. **16**
b) Write short notes on Minimization of DFA with example.

Section – II

Q.4 Attempt any three of the following question. **12**

a) TM with semi infinite tape.
b) Define PDA and explain types of PDA.
c) Design a TM to recognize all strings consisting of an odd number of α's.
d) Prove that L={0^p | p is prime} is not CFL.

Q.5 Attempt any two of the following question. **16**

a) Explain the following.
1) TM with multiple track
2) Offline TM
b) Write a note on Universal TM.
c) State pumping lemma. Prove that $L = \{a^i b^i c^i | n >= 0\}$ is not regular.

Seat No.	

Set | S

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
THEORY OF COMPUTATION

Day & Date: Saturday, 23-11-2019 Max. Marks: 70
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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) A push down automata is different than finite automata by _____.
   a) Its memory (stack) b) Number of states
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2) In the Universal TM, the non halting states of a TM T1 are encoded as _____.
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   c) $s(qi) = 0i$ d) $s(qi) = 0i+2$

3) Which of the following is not true?
   a) Power of deterministic automata is equivalent to power of non-deterministic automata
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4) The δ (transition function) for PDA is _____.
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5) The instantaneous description is PDA shows _____.
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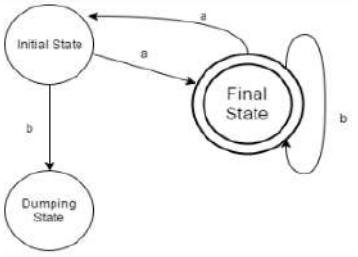

   a) ababaabaa b) abbbaa
   c) abbbaabb d) abbaabb

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d) String with even number of Zero's

12) Following context free grammar _____.
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$A \rightarrow b \mid aS \mid bAA$
$B \rightarrow b \mid bS \mid aBB$ generates strings of terminals that have
a) equal number of a's and b's
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13) The regular expression with all strings of 0's and 1's with atleast two consecutive 0's, is: _____.
a) 1 + (10)*
b) (0+1)*00(0+1)*
c) (0+1)*011
d) 0*1*2*

14) In one move the turing machine: _____.
a) May change its state
b) Write a symbol on the cell being scanned
c) Move the head one position left or right
d) All of the above

Seat No.	

Set **S**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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 indicates full marks.

Section – I

Q.2 Attempt any three of the following question. **12**

a) What is useless symbol?
b) Determine whether the grammar G has a useless production?
c) Define:
1) Finite Automaton (FA)
2) NFA
d) Define CNF.

Q.3 **a)** Explain Kleen's theorem. **16**
b) Write short notes on Minimization of DFA with example.

Section – II

Q.4 Attempt any three of the following question. **12**

a) TM with semi infinite tape.
b) Define PDA and explain types of PDA.
c) Design a TM to recognize all strings consisting of an odd number of α's.
d) Prove that L={0^p | p is prime} is not CFL.

Q.5 Attempt any two of the following question. **16**

a) Explain the following.
1) TM with multiple track
2) Offline TM
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c) State pumping lemma. Prove that $L = \{a^i b^i c^i | n >= 0\}$ is not regular.

Seat No.	

Set **P**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MICROPROCESSORS

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 is the microprocessor comprises?
   a) Register section b) One or more ALU
   c) Control unit d) All of these

2) Accumulator based microprocessor example are: _____.
   a) Intel 8085 b) Intel 8086
   c) Both a and b d) None of these

3) Consider the following statements:
   In 8085 microprocessor, data-bus and address bus are multiplexed in order to
   1) Increase the speed of microprocessor.
   2) Reduce the number of pins.
   3) Connect more peripheral chips.
   Which of these statements is/are correct?
   a) (I) only b) (II) only
   c) (II) & (III) d) (I), (II) & (III)

4) In intel 8085A microprocessor ALE signal is made high to _____.
   a) Enable the data bus to be used as low order address bus
   b) To latch data D_0 –D_7 from data bus
   c) To disable data bus
   d) To achieve all the functions listed above

5) Temporary registers in 8085 are _____.
   a) B and C b) D and E
   c) H and L d) W and Z

6) 8085 Instruction MOV M B operation is _____.
   a) copy the data from register B in to a memory location
   b) copy the data from register M in to a memory location
   c) copy the data from register B in to Accumulator Register
   d) none of the above

7) Which of the instructions perform logic operations on the contents of the accumulator?
   a) ANA b) ANI
   c) ORA d) All of the above

8) NMI Stand for: _____.
   a) Non maskable interrupt
   b) Non mistake interrupt
   c) Both a and b
   d) None of these

9) Port C of 8255 can function independently as _____.
   a) input port
   b) output port
   c) either input or output ports
   d) both input and output ports

10) Timing diagram of 8085 Instruction MVI A, 45h contains _____ many machine cycle.
   a) Op-Code Fetch Cycle
   b) Memory Read Cycle
   c) Both a and b
   d) None

11) Time required to execute and fetch an entire instruction is called instruction cycle It consists _____.
   a) Fetch cycle
   b) Decode instruction
   c) Reading effective address & Execution cycle
   d) All of the above

12) The advantage of memory mapped I/O over I/O mapped I/O is, _____.
   a) Faster
   b) Many instructions supporting memory mapped I/O
   c) Require a bigger address decoder
   d) All of the above

13) In 8086 the overflow flag is set when _____.
   a) the sum is more than 16 bits
   b) signed numbers go out of their range after an arithmetic operation
   c) carry and sign flags are set
   d) Subtraction

14) The processor 80386/80486 and the Pentium processor uses _____ bits address bus.
   a) 16
   b) 32
   c) 36
   d) 64

Seat No.	

Set **P**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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**

a) Describe the salient features of 8085 microprocessor.
b) With a neat diagram explain the demultiplexing of address and data bus.
c) Mention the purpose of SID and SOD lines and Explain the difference between a JMP instruction and CALL instruction.
d) Explain the different 8085 instruction formats with examples.
1) LXI SP, FFFFH
2) PUSH B
3) POP D
4) CALL 4000H
e) Explain the purpose of the I/O instructions IN and OUT.

Q.3 Attempt any two. **16**

a) With a neat diagram describe the 8085 MPU architecture.
b) With a neat diagram explain the Timing Diagram of LXI A, FO45h instruction.
c) Describe the Thumbwheel switches application of microprocessor.

Section – II

Q.4 Attempt any three. **12**

a) Explain priority interrupts of 8085.
b) Describe the Features and Block Diagram of DMA Controller 8257.
c) What are the basic modes of operation of 8255?
d) Write the features of 80286 microprocessor in detail.
e) What is the purpose of segment registers in 8086?

Q.5 Attempt any two. **16**

a) List the four instructions which control the interrupt structure of the 8085 microprocessor.
b) Describe the Block Diagram of 8255 Programmable Peripheral Interface.
c) Write the features and architecture of 8086 in detail.

Seat No.	

Set **Q**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MICROPROCESSORS

Day & Date: Monday, 25-11-2019 Max. Marks: 70
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Instructions: 1) Q. No. 1 is compulsory and should be solved in first 30 minutes in answer Book.
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MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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14) Which of the instructions perform logic operations on the contents of the accumulator?
    a) ANA b) ANI
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Seat No.	

Set **Q**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MICROPROCESSORS

Day & Date: Monday, 25-11-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Attempt any three. **12**

a) Describe the salient features of 8085 microprocessor.
b) With a neat diagram explain the demultiplexing of address and data bus.
c) Mention the purpose of SID and SOD lines and Explain the difference between a JMP instruction and CALL instruction.
d) Explain the different 8085 instruction formats with examples.
1) LXI SP, FFFFH
2) PUSH B
3) POP D
4) CALL 4000H
e) Explain the purpose of the I/O instructions IN and OUT.

Q.3 Attempt any two. **16**

a) With a neat diagram describe the 8085 MPU architecture.
b) With a neat diagram explain the Timing Diagram of LXI A, FO45h instruction.
c) Describe the Thumbwheel switches application of microprocessor.

Section – II

Q.4 Attempt any three. **12**

a) Explain priority interrupts of 8085.
b) Describe the Features and Block Diagram of DMA Controller 8257.
c) What are the basic modes of operation of 8255?
d) Write the features of 80286 microprocessor in detail.
e) What is the purpose of segment registers in 8086?

Q.5 Attempt any two. **16**

a) List the four instructions which control the interrupt structure of the 8085 microprocessor.
b) Describe the Block Diagram of 8255 Programmable Peripheral Interface.
c) Write the features and architecture of 8086 in detail.

Seat No.	

Set **R**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MICROPROCESSORS

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) Temporary registers in 8085 are _____.
   a) B and C b) D and E
   c) H and L d) W and Z

2) 8085 Instruction MOV M B operation is _____.
   a) copy the data from register B in to a memory location
   b) copy the data from register M in to a memory location
   c) copy the data from register B in to Accumulator Register
   d) none of the above

3) Which of the instructions perform logic operations on the contents of the accumulator?
   a) ANA b) ANI
   c) ORA d) All of the above

4) NMI Stand for: _____.
   a) Non maskable interrupt b) Non mistake interrupt
   c) Both a and b d) None of these

5) Port C of 8255 can function independently as _____.
   a) input port b) output port
   c) either input or output ports d) both input and output ports

6) Timing diagram of 8085 Instruction MVI A, 45h contains _____ many machine cycle.
   a) Op-Code Fetch Cycle b) Memory Read Cycle
   c) Both a and b d) None

7) Time required to execute and fetch an entire instruction is called instruction cycle It consists _____.
   a) Fetch cycle
   b) Decode instruction
   c) Reading effective address & Execution cycle
   d) All of the above

8) The advantage of memory mapped I/O over I/O mapped I/O is, _____.
   a) Faster
   b) Many instructions supporting memory mapped I/O
   c) Require a bigger address decoder
   d) All of the above

9) In 8086 the overflow flag is set when _____.
   a) the sum is more than 16 bits
   b) signed numbers go out of their range after an arithmetic operation
   c) carry and sign flags are set
   d) Subtraction

10) The processor 80386/80486 and the Pentium processor uses _____ bits address bus.
   a) 16 b) 32
   c) 36 d) 64

11) Which is the microprocessor comprises?
   a) Register section b) One or more ALU
   c) Control unit d) All of these

12) Accumulator based microprocessor example are: _____.
   a) Intel 8085 b) Intel 8086
   c) Both a and b d) None of these

13) Consider the following statements:
   In 8085 microprocessor, data-bus and address bus are multiplexed in order to
   1) Increase the speed of microprocessor.
   2) Reduce the number of pins.
   3) Connect more peripheral chips.
   Which of these statements is/are correct?
   a) (I) only b) (II) only
   c) (II) & (III) d) (I), (II) & (III)

14) In intel 8085A microprocessor ALE signal is made high to _____.
   a) Enable the data bus to be used as low order address bus
   b) To latch data D_0 –D_7 from data bus
   c) To disable data bus
   d) To achieve all the functions listed above

Seat No.	

Set **R**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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**

a) Describe the salient features of 8085 microprocessor.
b) With a neat diagram explain the demultiplexing of address and data bus.
c) Mention the purpose of SID and SOD lines and Explain the difference between a JMP instruction and CALL instruction.
d) Explain the different 8085 instruction formats with examples.
1) LXI SP, FFFFH
2) PUSH B
3) POP D
4) CALL 4000H
e) Explain the purpose of the I/O instructions IN and OUT.

Q.3 Attempt any two. **16**

a) With a neat diagram describe the 8085 MPU architecture.
b) With a neat diagram explain the Timing Diagram of LXI A, FO45h instruction.
c) Describe the Thumbwheel switches application of microprocessor.

Section – II

Q.4 Attempt any three. **12**

a) Explain priority interrupts of 8085.
b) Describe the Features and Block Diagram of DMA Controller 8257.
c) What are the basic modes of operation of 8255?
d) Write the features of 80286 microprocessor in detail.
e) What is the purpose of segment registers in 8086?

Q.5 Attempt any two. **16**

a) List the four instructions which control the interrupt structure of the 8085 microprocessor.
b) Describe the Block Diagram of 8255 Programmable Peripheral Interface.
c) Write the features and architecture of 8086 in detail.

Seat No.	

Set **S**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
MICROPROCESSORS

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) Timing diagram of 8085 Instruction MVI A, 45h contains _____ many machine cycle.
   a) Op-Code Fetch Cycle b) Memory Read Cycle
   c) Both a and b d) None

2) Time required to execute and fetch an entire instruction is called instruction cycle It consists _____.
   a) Fetch cycle
   b) Decode instruction
   c) Reading effective address & Execution cycle
   d) All of the above

3) The advantage of memory mapped I/O over I/O mapped I/O is, _____.
   a) Faster
   b) Many instructions supporting memory mapped I/O
   c) Require a bigger address decoder
   d) All of the above

4) In 8086 the overflow flag is set when _____.
   a) the sum is more than 16 bits
   b) signed numbers go out of their range after an arithmetic operation
   c) carry and sign flags are set
   d) Subtraction

5) The processor 80386/80486 and the Pentium processor uses _____ bits address bus.
   a) 16 b) 32
   c) 36 d) 64

6) Which is the microprocessor comprises?
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   c) Control unit d) All of these

7) Accumulator based microprocessor example are: _____.
   a) Intel 8085 b) Intel 8086
   c) Both a and b d) None of these

8) Consider the following statements:
In 8085 microprocessor, data-bus and address bus are multiplexed in order to
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2) Reduce the number of pins.
3) Connect more peripheral chips.
Which of these statements is/are correct?
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b) (II) only
c) (II) & (III)
d) (I), (II) & (III)

9) In intel 8085A microprocessor ALE signal is made high to _____.
a) Enable the data bus to be used as low order address bus
b) To latch data D_0 –D_7 from data bus
c) To disable data bus
d) To achieve all the functions listed above

10) Temporary registers in 8085 are _____.
a) B and C
b) D and E
c) H and L
d) W and Z

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b) copy the data from register M in to a memory location
c) copy the data from register B in to Accumulator Register
d) none of the above

12) Which of the instructions perform logic operations on the contents of the accumulator?
a) ANA
b) ANI
c) ORA
d) All of the above

13) NMI Stand for: _____.
a) Non maskable interrupt
b) Non mistake interrupt
c) Both a and b
d) None of these

14) Port C of 8255 can function independently as _____.
a) input port
b) output port
c) either input or output ports
d) both input and output ports

Seat No.	

Set **S**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
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**

a) Describe the salient features of 8085 microprocessor.
b) With a neat diagram explain the demultiplexing of address and data bus.
c) Mention the purpose of SID and SOD lines and Explain the difference between a JMP instruction and CALL instruction.
d) Explain the different 8085 instruction formats with examples.
1) LXI SP, FFFFH
2) PUSH B
3) POP D
4) CALL 4000H
e) Explain the purpose of the I/O instructions IN and OUT.

Q.3 Attempt any two. **16**

a) With a neat diagram describe the 8085 MPU architecture.
b) With a neat diagram explain the Timing Diagram of LXI A, FO45h instruction.
c) Describe the Thumbwheel switches application of microprocessor.

Section – II

Q.4 Attempt any three. **12**

a) Explain priority interrupts of 8085.
b) Describe the Features and Block Diagram of DMA Controller 8257.
c) What are the basic modes of operation of 8255?
d) Write the features of 80286 microprocessor in detail.
e) What is the purpose of segment registers in 8086?

Q.5 Attempt any two. **16**

a) List the four instructions which control the interrupt structure of the 8085 microprocessor.
b) Describe the Block Diagram of 8255 Programmable Peripheral Interface.
c) Write the features and architecture of 8086 in detail.

SLR-FM-713

Seat No.	

Set P

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 Max. Marks: 100
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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. **20**

1) A binary tree can easily be converted into q 2-tree
   a) by replacing each empty sub tree by a new internal node ·
   b) by inserting an internal nodes for non-empty node
   c) by inserting an external nodes for non-empty node
   d) by replacing each empty Sub tree by a new external node

2) A binary tree in which if all its levels except possibly the last, have the maximum number of nodes and all the nodes at the last level appear as far left as possible, is known as
   a) full binary tree b) AVL tree
   c) threaded tree d) complete binary tree

3) A binary tree of depth d is an almost complete binary tree if
   a) Each leaf in the tree is either at level d or at level d-1
   b) For any node n in the tree with a right descendant at level d all the left descendants of n that are leaves, are also at level d
   c) Both (a) & (b)
   d) None of the above

4) A binary tree whose every node has either zero or two children is called
   a) Complete binary tree b) Binary search tree
   c) Extended binary tree d) None of above

5) A full binary tree with 2n+1 nodes contain
   a) n leaf nodes b) n non-leaf nodes
   c) n-1 leaf nodes. d) n-1 non-leaf nodes

6) A full Binary tree with n leaves contains
   a) n nodes. b) 2n -1 nodes.
   c) log n nodes. d) 2^n nodes.

7) If a node having two children is deleted from a binary tree, it is replaced by its
   a) Inorder predecessor b) Inorder successor
   c) Preorder predecessor d) None of the above

8) In a binary tree, certain null entries are replaced by special pointers which point to nodes higher in the tree for efficiency. These special pointers are called
   a) Leaf b) branch
   c) path d) thread

9) One can convert a binary tree into its mirror image by traversing it in
   a) inorder b) preorder
   c) postorder d) any order

10) The depth of a complete binary tree is given by
   a) $Dn = n\,log2n$ b) $Dn = n\,log2n + 1$
   c) $Dn = log2n$ d) $Dn = log2n + 1$

11) The number of leaf nodes in a complete binary tree of depth d is
   a) 2^d b) 2^(d+1) – 1
   c) 2^(d-1)-1 d) 2^d + 1

12) To arrange a binary tree in ascending order we need
   a) Post order traversal b) In order traversal
   c) Pre order traversal d) None of the above

13) When converting binary tree into extended binary tree, all the original nodes in binary tree are
   a) internal nodes on extended tree
   b) external nodes on extended tree
   c) vanished on extended tree
   d) None of above

14) If a node in a BST has two children, then its inorder predecessor has
   a) no left child b) no right child
   c) two children d) no child

15) A BST is traversed in the following order recursively: Right, root, left The output sequence will be in
   a) Ascending order b) Bitomic sequence
   c) Descending order d) No specific order

16) Queue can be used to implement
   a) Radix sort b) Quck Sort
   c) Recursion d) Depth of first

17) Two dimensional arrays are also called
   a) tables arrays b) matrix arrays
   c) both of above d) None of these

18) A variable P is called pointer if
   a) P contains the address of an element in DATA.
   b) P points to the address of first element in DATA
   c) P can store only memory addresses
   d) P contain the DATA and the address of DATA

19) The complexity of linear search algorithm is
   a) O(n) b) O(log n)
   c) O(n2) d) O(n log n)

20) The complexity of Binary search algorithm is
   a) O(n) b) O(log n)
   c) O(n2) d) O(n log n)

Seat No.	

Set **P**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 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) What is a big-O notation? Explain its significance.

b) Write a short on complexity of algorithm.

c) What are the factors to be considered during the selection of a sorting technique.

d) What is the time complexity of the quick sort algorithm to sort a list of n equal elements. Explain.

e) What is hashing? What are the different methods used for calculating hash functions? Explain with suitable example.

Q.3 Explain the algorithm of the following collision resolution techniques. **10**

a) Closed hashing (also called linear probing)

b) Open hashing (also called chaining)

Q.4 Arrange the following elements in the sorted order using insertion sort. **10**

30,20,35,14,90,25,32.

Show the step by step process. Explain its Best case time complexity & Worst case time complexity.

Section – II

Q.5 **Attempt any four.** **20**

a) Write a C function to delete a node from a binary search tree.

b) Explain the difference between depth-first search and breadth-first search traversing technique of a graph.

c) Define & explain Strictly binary tree & Completely binary tree.

d) Write a C function to count the number of leaf nodes in a binary tree.

e) Explain in detail shortest path using Dijkstra's Algorithm.

Q.6 Draw the AVL tree resulting from the insertion of the following integer keys. **10**
50, 72, 96,94,107,26,12,11,9,2

Q.7 Construct the tree if preorder & Inorder traversal of a binary tree is Given. **10**
Preorder :G B Q A C K F P D E R H
Inorder :Q B K C F A G P E D H R

Seat No.	

Set **Q**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 Max. Marks: 100
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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. **20**

1) A full Binary tree with n leaves contains
   a) n nodes. b) 2n -1 nodes.
   c) log n nodes. d) 2^n nodes.

2) If a node having two children is deleted from a binary tree, it is replaced by its
   a) Inorder predecessor b) Inorder successor
   c) Preorder predecessor d) None of the above

3) In a binary tree, certain null entries are replaced by special pointers which point to nodes higher in the tree for efficiency. These special pointers are called
   a) Leaf b) branch
   c) path d) thread

4) One can convert a binary tree into its mirror image by traversing it in
   a) inorder b) preorder
   c) postorder d) any order

5) The depth of a complete binary tree is given by
   a) $Dn = n\,log2n$ b) $Dn = n\,log2n + 1$
   c) $Dn = log2n$ d) $Dn = log2n + 1$

6) The number of leaf nodes in a complete binary tree of depth d is
   a) 2^d b) 2^(d+1) – 1
   c) 2^(d-1)-1 d) 2^d + 1

7) To arrange a binary tree in ascending order we need
   a) Post order traversal b) In order traversal
   c) Pre order traversal d) None of the above

8) When converting binary tree into extended binary tree, all the original nodes in binary tree are
   a) internal nodes on extended tree
   b) external nodes on extended tree
   c) vanished on extended tree
   d) None of above

9) If a node in a BST has two children, then its inorder predecessor has
   a) no left child
   b) no right child
   c) two children
   d) no child

10) A BST is traversed in the following order recursively: Right, root, left The output sequence will be in
   a) Ascending order
   b) Bitomic sequence
   c) Descending order
   d) No specific order

11) Queue can be used to implement
   a) Radix sort
   b) Quck Sort
   c) Recursion
   d) Depth of first

12) Two dimensional arrays are also called
   a) tables arrays
   b) matrix arrays
   c) both of above
   d) None of these

13) A variable P is called pointer if
   a) P contains the address of an element in DATA.
   b) P points to the address of first element in DATA
   c) P can store only memory addresses
   d) P contain the DATA and the address of DATA

14) The complexity of linear search algorithm is
   a) O(n)
   b) O(log n)
   c) O(n2)
   d) O(n log n)

15) The complexity of Binary search algorithm is
   a) O(n)
   b) O(log n)
   c) O(n2)
   d) O(n log n)

16) A binary tree can easily be converted into q 2-tree
   a) by replacing each empty sub tree by a new internal node ·
   b) by inserting an internal nodes for non-empty node
   c) by inserting an external nodes for non-empty node
   d) by replacing each empty Sub tree by a new external node

17) A binary tree in which if all its levels except possibly the last, have the maximum number of nodes and all the nodes at the last level appear as far left as possible, is known as
   a) full binary tree
   b) AVL tree
   c) threaded tree
   d) complete binary tree

18) A binary tree of depth d is an almost complete binary tree if
   a) Each leaf in the tree is either at level d or at level d-1
   b) For any node n in the tree with a right descendant at level d all the left descendants of n that are leaves, are also at level d
   c) Both (a) & (b)
   d) None of the above

19) A binary tree whose every node has either zero or two children is called
   a) Complete binary tree
   b) Binary search tree
   c) Extended binary tree
   d) None of above

20) A full binary tree with 2n+1 nodes contain
   a) n leaf nodes
   b) n non-leaf nodes
   c) n-1 leaf nodes.
   d) n-1 non-leaf nodes

Seat No.	

Set **Q**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 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) What is a big-O notation? Explain its significance.

b) Write a short on complexity of algorithm.

c) What are the factors to be considered during the selection of a sorting technique.

d) What is the time complexity of the quick sort algorithm to sort a list of n equal elements. Explain.

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Q.4 Arrange the following elements in the sorted order using insertion sort. **10**

30,20,35,14,90,25,32.

Show the step by step process. Explain its Best case time complexity & Worst case time complexity.

Section – II

Q.5 **Attempt any four.** **20**

a) Write a C function to delete a node from a binary search tree.

b) Explain the difference between depth-first search and breadth-first search traversing technique of a graph.

c) Define & explain Strictly binary tree & Completely binary tree.

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50, 72, 96,94,107,26,12,11,9,2

Q.7 Construct the tree if preorder & Inorder traversal of a binary tree is Given. **10**
Preorder :G B Q A C K F P D E R H
Inorder :Q B K C F A G P E D H R

Seat No.	

Set **R**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 Max. Marks: 100
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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. **20**

1) The number of leaf nodes in a complete binary tree of depth d is
   a) 2^d b) 2^(d+1) – 1
   c) 2^(d-1)-1 d) 2^d + 1

2) To arrange a binary tree in ascending order we need
   a) Post order traversal b) In order traversal
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   a) internal nodes on extended tree
   b) external nodes on extended tree
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4) If a node in a BST has two children, then its inorder predecessor has
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5) A BST is traversed in the following order recursively: Right, root, left The output sequence will be in
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   a) Radix sort b) Quck Sort
   c) Recursion d) Depth of first

7) Two dimensional arrays are also called
   a) tables arrays b) matrix arrays
   c) both of above d) None of these

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   c) O(n2) d) O(n log n)

10) The complexity of Binary search algorithm is
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   c) O(n2) d) O(n log n)

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   b) For any node n in the tree with a right descendant at level d all the left descendants of n that are leaves, are also at level d
   c) Both (a) & (b)
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   c) Extended binary tree d) None of above

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   c) log n nodes. d) 2^n nodes.

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   c) Preorder predecessor d) None of the above

18) In a binary tree, certain null entries are replaced by special pointers which point to nodes higher in the tree for efficiency. These special pointers are called
   a) Leaf b) branch
   c) path d) thread

19) One can convert a binary tree into its mirror image by traversing it in
   a) inorder b) preorder
   c) postorder d) any order

20) The depth of a complete binary tree is given by
   a) $Dn = n\,log2n$ b) $Dn = n\,log2n + 1$
   c) $Dn = log2n$ d) $Dn = log2n + 1$

Seat No.	

Set **R**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 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) What is a big-O notation? Explain its significance.

b) Write a short on complexity of algorithm.

c) What are the factors to be considered during the selection of a sorting technique.

d) What is the time complexity of the quick sort algorithm to sort a list of n equal elements. Explain.

e) What is hashing? What are the different methods used for calculating hash functions? Explain with suitable example.

Q.3 Explain the algorithm of the following collision resolution techniques. **10**

a) Closed hashing (also called linear probing)

b) Open hashing (also called chaining)

Q.4 Arrange the following elements in the sorted order using insertion sort. **10**

30,20,35,14,90,25,32.

Show the step by step process. Explain its Best case time complexity & Worst case time complexity.

Section – II

Q.5 **Attempt any four.** **20**

a) Write a C function to delete a node from a binary search tree.

b) Explain the difference between depth-first search and breadth-first search traversing technique of a graph.

c) Define & explain Strictly binary tree & Completely binary tree.

d) Write a C function to count the number of leaf nodes in a binary tree.

e) Explain in detail shortest path using Dijkstra's Algorithm.

Q.6 Draw the AVL tree resulting from the insertion of the following integer keys. **10**
50, 72, 96,94,107,26,12,11,9,2

Q.7 Construct the tree if preorder & Inorder traversal of a binary tree is Given. **10**
Preorder :G B Q A C K F P D E R H
Inorder :Q B K C F A G P E D H R

Seat No.	

Set | S

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 Max. Marks: 100
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

Q.1 Choose the correct alternatives from the options and rewrite the sentence. **20**

1) Queue can be used to implement
   a) Radix sort b) Quck Sort
   c) Recursion d) Depth of first

2) Two dimensional arrays are also called
   a) tables arrays b) matrix arrays
   c) both of above d) None of these

3) A variable P is called pointer if
   a) P contains the address of an element in DATA.
   b) P points to the address of first element in DATA
   c) P can store only memory addresses
   d) P contain the DATA and the address of DATA

4) The complexity of linear search algorithm is
   a) O(n) b) O(log n)
   c) O(n2) d) O(n log n)

5) The complexity of Binary search algorithm is
   a) O(n) b) O(log n)
   c) O(n2) d) O(n log n)

6) A binary tree can easily be converted into q 2-tree
   a) by replacing each empty sub tree by a new internal node ·
   b) by inserting an internal nodes for non-empty node
   c) by inserting an external nodes for non-empty node
   d) by replacing each empty Sub tree by a new external node

7) A binary tree in which if all its levels except possibly the last, have the maximum number of nodes and all the nodes at the last level appear as far left as possible, is known as
   a) full binary tree b) AVL tree
   c) threaded tree d) complete binary tree

8) A binary tree of depth d is an almost complete binary tree if
   a) Each leaf in the tree is either at level d or at level d-1
   b) For any node n in the tree with a right descendant at level d all the left descendants of n that are leaves, are also at level d
   c) Both (a) & (b)
   d) None of the above

9) A binary tree whose every node has either zero or two children is called
   a) Complete binary tree b) Binary search tree
   c) Extended binary tree d) None of above

10) A full binary tree with 2n+1 nodes contain
   a) n leaf nodes b) n non-leaf nodes
   c) n-1 leaf nodes. d) n-1 non-leaf nodes

11) A full Binary tree with n leaves contains
   a) n nodes. b) 2n -1 nodes.
   c) log n nodes. d) 2^n nodes.

12) If a node having two children is deleted from a binary tree, it is replaced by its
   a) Inorder predecessor b) Inorder successor
   c) Preorder predecessor d) None of the above

13) In a binary tree, certain null entries are replaced by special pointers which point to nodes higher in the tree for efficiency. These special pointers are called
   a) Leaf b) branch
   c) path d) thread

14) One can convert a binary tree into its mirror image by traversing it in
   a) inorder b) preorder
   c) postorder d) any order

15) The depth of a complete binary tree is given by
   a) $Dn = n\,log2n$ b) $Dn = n\,log2n + 1$
   c) $Dn = log2n$ d) $Dn = log2n + 1$

16) The number of leaf nodes in a complete binary tree of depth d is
   a) 2^d b) 2^(d+1) – 1
   c) 2^(d-1)-1 d) 2^d + 1

17) To arrange a binary tree in ascending order we need
   a) Post order traversal b) In order traversal
   c) Pre order traversal d) None of the above

18) When converting binary tree into extended binary tree, all the original nodes in binary tree are
   a) internal nodes on extended tree
   b) external nodes on extended tree
   c) vanished on extended tree
   d) None of above

19) If a node in a BST has two children, then its inorder predecessor has
   a) no left child b) no right child
   c) two children d) no child

20) A BST is traversed in the following order recursively: Right, root, left The output sequence will be in
   a) Ascending order b) Bitomic sequence
   c) Descending order d) No specific order

Seat No.	

Set **S**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA STRUCTURES

Day & Date: Tuesday, 26-11-2019 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) What is a big-O notation? Explain its significance.

b) Write a short on complexity of algorithm.

c) What are the factors to be considered during the selection of a sorting technique.

d) What is the time complexity of the quick sort algorithm to sort a list of n equal elements. Explain.

e) What is hashing? What are the different methods used for calculating hash functions? Explain with suitable example.

Q.3 Explain the algorithm of the following collision resolution techniques. **10**

a) Closed hashing (also called linear probing)

b) Open hashing (also called chaining)

Q.4 Arrange the following elements in the sorted order using insertion sort. **10**

30,20,35,14,90,25,32.

Show the step by step process. Explain its Best case time complexity & Worst case time complexity.

Section – II

Q.5 Attempt any four. **20**

a) Write a C function to delete a node from a binary search tree.

b) Explain the difference between depth-first search and breadth-first search traversing technique of a graph.

c) Define & explain Strictly binary tree & Completely binary tree.

d) Write a C function to count the number of leaf nodes in a binary tree.

e) Explain in detail shortest path using Dijkstra's Algorithm.

Q.6 Draw the AVL tree resulting from the insertion of the following integer keys. **10**
50, 72, 96,94,107,26,12,11,9,2

Q.7 Construct the tree if preorder & Inorder traversal of a binary tree is Given. **10**
Preorder :G B Q A C K F P D E R H
Inorder :Q B K C F A G P E D H R

SLR-FM-714

Seat No.	

Set P

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

Day & Date: Wednesday, 27-11-2019 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) A television broadcast is an example of _____ transmission.
   a) Half-duplex b) Simplex
   c) Full-duplex d) Automatic

2) The Process-to-Process delivery of the entire message is the responsibility of the _____ layer.
   a) Transport b) Application
   c) Physical d) Network

3) When a host on network A sends a message to a host on network B, which address does the router look at?
   a) Logical b) Physical
   c) Port d) None of the above

4) _____ is a type of transmission impairment in which the signal loses strength due to the different propagation speeds of each frequency that makes up the signal.
   a) Noise b) Distortion
   c) Attenuation d) Decibel

5) In Manchester and differential Manchester encoding, the transition at the middle of the bit is used for _____.
   a) Bit transfer b) Synchronization
   c) Baud transfer d) None of the above

6) _____ consists of a central conductor and a shield.
   a) Twisted-pair b) Coaxial
   c) Fiber-optic d) None of the above

7) The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called.
   a) Piggybacking b) Cyclic redundancy check
   c) Fletcher's checksum d) None of the mentioned

8) A Bit map protocol is also known as _____.
   a) Collision free protocol b) Reservation protocol
   c) Limited contention protocol d) None

9) How many bytes are reserved for data field of IEEE 802.3 std?
   a) 32 Bytes
   b) 1500 Bytes
   c) 8182
   d) 16 Bytes

10) Algorithm in which Route from source to destination is already computed in advanced.
   a) Adaptive Routing algorithm
   b) Non- Adaptive Routing algorithm
   c) Both a & b
   d) None of above

11) Flooding routing algorithm is _____.
   a) Static Routing algorithm
   b) Dynamic Routing algorithm
   c) Both a &b
   d) None of above

12) Looping problem is occur in which type of bridge.
   a) Spanning tree bridge
   b) Source routing bridge
   c) Remote bridge
   d) Transparent Bridge

13) Find the class of address 123.12.14.87.
   a) A
   b) B
   c) C
   d) D

14) Host id of class A reserve _____ bits.
   a) 32 bits
   b) 16 bits
   c) 8 bits
   d) 24 bits

Seat No.	

Set **P**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

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.

Section – I

Q.2 Attempt Any three (each carries 4 marks). **12**

a) Explain different types of errors in data transmission.
b) Write a short note on Flow control and Error Control.
c) Write a short note on Channel Capacity.
d) Explain Simplex Stop and Wait Protocol.

Q.3 Attempt any one. **08**

a) Explain Hamming Code in detail with a suitable example.
b) What is framing? Explain different framing methods with example?

Q.4 Explain TCP/IP reference model with neat diagram. **08**

Section – II

Q.5 Attempt any four (each carries 5 marks). **20**

a) Describe the concept of CSMA/CD.
b) Explain ALOHA with diagram.
c) Explain class of IP4 address.
d) Explain difference between switch and bridge.
e) Explain Link State Routing algorithm

Q.6 Explain shortest path routing algorithm. **08**

OR

Short Note on NAT.

Seat No.	

Set **Q**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

Day & Date: Wednesday, 27-11-2019 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) A Bit map protocol is also known as _____.
   a) Collision free protocol b) Reservation protocol
   c) Limited contention protocol d) None

2) How many bytes are reserved for data field of IEEE 802.3 std?
   a) 32 Bytes b) 1500 Bytes
   c) 8182 d) 16 Bytes

3) Algorithm in which Route from source to destination is already computed in advanced.
   a) Adaptive Routing algorithm
   b) Non- Adaptive Routing algorithm
   c) Both a & b
   d) None of above

4) Flooding routing algorithm is _____.
   a) Static Routing algorithm b) Dynamic Routing algorithm
   c) Both a &b d) None of above

5) Looping problem is occur in which type of bridge.
   a) Spanning tree bridge b) Source routing bridge
   c) Remote bridge d) Transparent Bridge

6) Find the class of address 123.12.14.87.
   a) A b) B
   c) C d) D

7) Host id of class A reserve _____ bits.
   a) 32 bits b) 16 bits
   c) 8 bits d) 24 bits

8) A television broadcast is an example of _____ transmission.
   a) Half-duplex b) Simplex
   c) Full-duplex d) Automatic

9) The Process-to-Process delivery of the entire message is the responsibility of the _____ layer.
   a) Transport b) Application
   c) Physical d) Network

10) When a host on network A sends a message to a host on network B, which address does the router look at?
   a) Logical
   b) Physical
   c) Port
   d) None of the above

11) _____ is a type of transmission impairment in which the signal loses strength due to the different propagation speeds of each frequency that makes up the signal.
   a) Noise
   b) Distortion
   c) Attenuation
   d) Decibel

12) In Manchester and differential Manchester encoding, the transition at the middle of the bit is used for _____.
   a) Bit transfer
   b) Synchronization
   c) Baud transfer
   d) None of the above

13) _____ consists of a central conductor and a shield.
   a) Twisted-pair
   b) Coaxial
   c) Fiber-optic
   d) None of the above

14) The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called.
   a) Piggybacking
   b) Cyclic redundancy check
   c) Fletcher's checksum
   d) None of the mentioned

Seat No.	

Set **Q**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

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.

Section – I

Q.2 Attempt Any three (each carries 4 marks). **12**

a) Explain different types of errors in data transmission.
b) Write a short note on Flow control and Error Control.
c) Write a short note on Channel Capacity.
d) Explain Simplex Stop and Wait Protocol.

Q.3 Attempt any one. **08**

a) Explain Hamming Code in detail with a suitable example.
b) What is framing? Explain different framing methods with example?

Q.4 Explain TCP/IP reference model with neat diagram. **08**

Section – II

Q.5 Attempt any four (each carries 5 marks). **20**

a) Describe the concept of CSMA/CD.
b) Explain ALOHA with diagram.
c) Explain class of IP4 address.
d) Explain difference between switch and bridge.
e) Explain Link State Routing algorithm

Q.6 Explain shortest path routing algorithm. **08**

OR

Short Note on NAT.

Seat No.	

Set **R**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

Day & Date: Wednesday, 27-11-2019 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) In Manchester and differential Manchester encoding, the transition at the middle of the bit is used for _____.
   a) Bit transfer b) Synchronization
   c) Baud transfer d) None of the above

2) _____ consists of a central conductor and a shield.
   a) Twisted-pair b) Coaxial
   c) Fiber-optic d) None of the above

3) The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called.
   a) Piggybacking b) Cyclic redundancy check
   c) Fletcher's checksum d) None of the mentioned

4) A Bit map protocol is also known as _____.
   a) Collision free protocol b) Reservation protocol
   c) Limited contention protocol d) None

5) How many bytes are reserved for data field of IEEE 802.3 std?
   a) 32 Bytes b) 1500 Bytes
   c) 8182 d) 16 Bytes

6) Algorithm in which Route from source to destination is already computed in advanced.
   a) Adaptive Routing algorithm
   b) Non- Adaptive Routing algorithm
   c) Both a & b
   d) None of above

7) Flooding routing algorithm is _____.
   a) Static Routing algorithm b) Dynamic Routing algorithm
   c) Both a &b d) None of above

8) Looping problem is occur in which type of bridge.
   a) Spanning tree bridge b) Source routing bridge
   c) Remote bridge d) Transparent Bridge

9) Find the class of address 123.12.14.87.
   a) A b) B
   c) C d) D

10) Host id of class A reserve _____ bits.
   a) 32 bits b) 16 bits
   c) 8 bits d) 24 bits

11) A television broadcast is an example of _____ transmission.
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   c) Full-duplex d) Automatic

12) The Process-to-Process delivery of the entire message is the responsibility of the _____ layer.
   a) Transport b) Application
   c) Physical d) Network

13) When a host on network A sends a message to a host on network B, which address does the router look at?
   a) Logical b) Physical
   c) Port d) None of the above

14) _____ is a type of transmission impairment in which the signal loses strength due to the different propagation speeds of each frequency that makes up the signal.
   a) Noise b) Distortion
   c) Attenuation d) Decibel

Seat No.	

Set **R**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

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.

Section – I

Q.2 Attempt Any three (each carries 4 marks). **12**

a) Explain different types of errors in data transmission.
b) Write a short note on Flow control and Error Control.
c) Write a short note on Channel Capacity.
d) Explain Simplex Stop and Wait Protocol.

Q.3 Attempt any one. **08**

a) Explain Hamming Code in detail with a suitable example.
b) What is framing? Explain different framing methods with example?

Q.4 Explain TCP/IP reference model with neat diagram. **08**

Section – II

Q.5 Attempt any four (each carries 5 marks). **20**

a) Describe the concept of CSMA/CD.
b) Explain ALOHA with diagram.
c) Explain class of IP4 address.
d) Explain difference between switch and bridge.
e) Explain Link State Routing algorithm

Q.6 Explain shortest path routing algorithm. **08**

OR

Short Note on NAT.

Seat No.	

Set **S**

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

Day & Date: Wednesday, 27-11-2019 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) Algorithm in which Route from source to destination is already computed in advanced.
   a) Adaptive Routing algorithm
   b) Non- Adaptive Routing algorithm
   c) Both a & b
   d) None of above

2) Flooding routing algorithm is _____.
   a) Static Routing algorithm b) Dynamic Routing algorithm
   c) Both a &b d) None of above

3) Looping problem is occur in which type of bridge.
   a) Spanning tree bridge b) Source routing bridge
   c) Remote bridge d) Transparent Bridge

4) Find the class of address 123.12.14.87.
   a) A b) B
   c) C d) D

5) Host id of class A reserve _____ bits.
   a) 32 bits b) 16 bits
   c) 8 bits d) 24 bits

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10) In Manchester and differential Manchester encoding, the transition at the middle of the bit is used for _____.
   a) Bit transfer b) Synchronization
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11) _____ consists of a central conductor and a shield.
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   c) Fiber-optic d) None of the above

12) The technique of temporarily delaying outgoing acknowledgements so that they can be hooked onto the next outgoing data frame is called.
   a) Piggybacking b) Cyclic redundancy check
   c) Fletcher's checksum d) None of the mentioned

13) A Bit map protocol is also known as _____.
   a) Collision free protocol b) Reservation protocol
   c) Limited contention protocol d) None

14) How many bytes are reserved for data field of IEEE 802.3 std?
   a) 32 Bytes b) 1500 Bytes
   c) 8182 d) 16 Bytes

SLR-FM-714

Seat No.	

Set S

S.E. (Part – II) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DATA COMMUNICATION

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.

Section – I

Q.2 Attempt Any three (each carries 4 marks). **12**

a) Explain different types of errors in data transmission.
b) Write a short note on Flow control and Error Control.
c) Write a short note on Channel Capacity.
d) Explain Simplex Stop and Wait Protocol.

Q.3 Attempt any one. **08**

a) Explain Hamming Code in detail with a suitable example.
b) What is framing? Explain different framing methods with example?

Q.4 Explain TCP/IP reference model with neat diagram. **08**

Section – II

Q.5 Attempt any four (each carries 5 marks). **20**

a) Describe the concept of CSMA/CD.
b) Explain ALOHA with diagram.
c) Explain class of IP4 address.
d) Explain difference between switch and bridge.
e) Explain Link State Routing algorithm

Q.6 Explain shortest path routing algorithm. **08**

OR

Short Note on NAT.

Seat No.	

Set **P**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK MANAGEMENT

Day & Date: Friday, 13-12-2019 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) Which protocol ensures reliable delivery?
   a) TCP b) UDP
   c) Both a and b d) None of these

2) TCP/IP is mainly used for _____.
   a) File transfer b) Email
   c) Remote Login d) All of these

3) TCP/IP is _____.
   a) Network hardware b) Network software
   c) Protocol d) None of these

4) Which is the lowest layer of the TCP/IP model?
   a) Host to Host layer b) Network Access layer
   c) Internet layer d) Application layer

5) In a TCP header source and destination header contains.
   a) 8 bits b) 16 bits
   c) 32 bits d) 128 bits

6) Which of the following is not a networking device?
   a) gateways b) linux
   c) routers d) bridges

7) Which of the following can be a software?
   a) routers b) modems
   c) gateways d) firewalls

8) _____ Management is also referred as Internet management.
   a) SNMP b) SMTP
   c) Both d) None

9) SNMP management is mostly widely used _____.
   a) NMS b) NOC
   c) MOC d) none

10) In SNMP information model consists of _____.
   a) MIB b) SMI
   c) Both d) None

11) ICMP was developed to manage _____.
   a) ARPANET b) INTERNET
   c) INTRANET d) none

12) PING stands for _____.
   a) Packet internal group b) Packet internet group
   c) Packet Internet Groper d) None

13) SNMP manager contains additional object than SNMP agent is _____.
   a) DLC b) Trap
   c) Management data d) None

14) RFC 1157 describes SNMP _____.
   a) Architecture b) Structure
   c) Management information d) None

SLR-FM-715

Seat No.	

Set P

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK MANAGEMENT

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 Attempt any three of the following. **12**

a) Explain the different UDP operations.
b) Explain the Three Way Handshaking in TCP connection.
c) Explain DHCP packet format.
d) Explain DNS query and DNS response message in detail.
e) Explain BOOTP and the operations on BOOTP.

Q.3 Attempt any two of the following. **16**

a) What is Congestion window? Explain all congestion control policies used by TCP.
b) Explain the architecture of E-Mail along with neat diagrams of all scenarios.
c) Describe the Hyper Text transfer Protocol in detail.

Section – II

Q.4 Attempt any three of the following.. **12**

a) What are security policies?
b) Explain proxy server organization model with diagram.
c) What factors involve in configuration management of SNMP?
d) How SNMP manage objects and management information base?

Q.5 Attempt any two of the following. **16**

a) What are the event correlation techniques?
b) What are the performance metrics in performance management?
c) Explain network provisioning.

Seat No.	

Set **Q**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK MANAGEMENT

Day & Date: Friday, 13-12-2019 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) _____ Management is also referred as Internet management.
   a) SNMP b) SMTP
   c) Both d) None

2) SNMP management is mostly widely used _____.
   a) NMS b) NOC
   c) MOC d) none

3) In SNMP information model consists of _____.
   a) MIB b) SMI
   c) Both d) None

4) ICMP was developed to manage _____.
   a) ARPANET b) INTERNET
   c) INTRANET d) none

5) PING stands for _____.
   a) Packet internal group b) Packet internet group
   c) Packet Internet Groper d) None

6) SNMP manager contains additional object than SNMP agent is _____.
   a) DLC b) Trap
   c) Management data d) None

7) RFC 1157 describes SNMP _____.
   a) Architecture b) Structure
   c) Management information d) None

8) Which protocol ensures reliable delivery?
   a) TCP b) UDP
   c) Both a and b d) None of these

9) TCP/IP is mainly used for _____.
   a) File transfer b) Email
   c) Remote Login d) All of these

10) TCP/IP is _____.
   a) Network hardware b) Network software
   c) Protocol d) None of these

11) Which is the lowest layer of the TCP/IP model?
   a) Host to Host layer
   b) Network Access layer
   c) Internet layer
   d) Application layer

12) In a TCP header source and destination header contains.
   a) 8 bits
   b) 16 bits
   c) 32 bits
   d) 128 bits

13) Which of the following is not a networking device?
   a) gateways
   b) linux
   c) routers
   d) bridges

14) Which of the following can be a software?
   a) routers
   b) modems
   c) gateways
   d) firewalls

Seat No.	

Set **Q**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK MANAGEMENT

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 Attempt any three of the following. **12**

a) Explain the different UDP operations.
b) Explain the Three Way Handshaking in TCP connection.
c) Explain DHCP packet format.
d) Explain DNS query and DNS response message in detail.
e) Explain BOOTP and the operations on BOOTP.

Q.3 Attempt any two of the following. **16**

a) What is Congestion window? Explain all congestion control policies used by TCP.
b) Explain the architecture of E-Mail along with neat diagrams of all scenarios.
c) Describe the Hyper Text transfer Protocol in detail.

Section – II

Q.4 Attempt any three of the following.. **12**

a) What are security policies?
b) Explain proxy server organization model with diagram.
c) What factors involve in configuration management of SNMP?
d) How SNMP manage objects and management information base?

Q.5 Attempt any two of the following. **16**

a) What are the event correlation techniques?
b) What are the performance metrics in performance management?
c) Explain network provisioning.

Seat No.	

Set **R**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK MANAGEMENT

Day & Date: Friday, 13-12-2019 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) In a TCP header source and destination header contains.
   a) 8 bits b) 16 bits
   c) 32 bits d) 128 bits

2) Which of the following is not a networking device?
   a) gateways b) linux
   c) routers d) bridges

3) Which of the following can be a software?
   a) routers b) modems
   c) gateways d) firewalls

4) _____ Management is also referred as Internet management.
   a) SNMP b) SMTP
   c) Both d) None

5) SNMP management is mostly widely used _____.
   a) NMS b) NOC
   c) MOC d) none

6) In SNMP information model consists of _____.
   a) MIB b) SMI
   c) Both d) None

7) ICMP was developed to manage _____.
   a) ARPANET b) INTERNET
   c) INTRANET d) none

8) PING stands for _____.
   a) Packet internal group b) Packet internet group
   c) Packet Internet Groper d) None

9) SNMP manager contains additional object than SNMP agent is _____.
   a) DLC b) Trap
   c) Management data d) None

10) RFC 1157 describes SNMP _____.
   a) Architecture b) Structure
   c) Management information d) None

11) Which protocol ensures reliable delivery?
   a) TCP
   b) UDP
   c) Both a and b
   d) None of these

12) TCP/IP is mainly used for _____.
   a) File transfer
   b) Email
   c) Remote Login
   d) All of these

13) TCP/IP is _____.
   a) Network hardware
   b) Network software
   c) Protocol
   d) None of these

14) Which is the lowest layer of the TCP/IP model?
   a) Host to Host layer
   b) Network Access layer
   c) Internet layer
   d) Application layer

Seat No.	

Set **R**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK MANAGEMENT

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 Attempt any three of the following. **12**

a) Explain the different UDP operations.
b) Explain the Three Way Handshaking in TCP connection.
c) Explain DHCP packet format.
d) Explain DNS query and DNS response message in detail.
e) Explain BOOTP and the operations on BOOTP.

Q.3 Attempt any two of the following. **16**

a) What is Congestion window? Explain all congestion control policies used by TCP.
b) Explain the architecture of E-Mail along with neat diagrams of all scenarios.
c) Describe the Hyper Text transfer Protocol in detail.

Section – II

Q.4 Attempt any three of the following.. **12**

a) What are security policies?
b) Explain proxy server organization model with diagram.
c) What factors involve in configuration management of SNMP?
d) How SNMP manage objects and management information base?

Q.5 Attempt any two of the following. **16**

a) What are the event correlation techniques?
b) What are the performance metrics in performance management?
c) Explain network provisioning.

Seat No.	

Set **S**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK MANAGEMENT

Day & Date: Friday, 13-12-2019 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) In SNMP information model consists of _____.
   a) MIB b) SMI
   c) Both d) None

2) ICMP was developed to manage _____.
   a) ARPANET b) INTERNET
   c) INTRANET d) none

3) PING stands for _____.
   a) Packet internal group b) Packet internet group
   c) Packet Internet Groper d) None

4) SNMP manager contains additional object than SNMP agent is _____.
   a) DLC b) Trap
   c) Management data d) None

5) RFC 1157 describes SNMP _____.
   a) Architecture b) Structure
   c) Management information d) None

6) Which protocol ensures reliable delivery?
   a) TCP b) UDP
   c) Both a and b d) None of these

7) TCP/IP is mainly used for _____.
   a) File transfer b) Email
   c) Remote Login d) All of these

8) TCP/IP is _____.
   a) Network hardware b) Network software
   c) Protocol d) None of these

9) Which is the lowest layer of the TCP/IP model?
   a) Host to Host layer b) Network Access layer
   c) Internet layer d) Application layer

10) In a TCP header source and destination header contains.
   a) 8 bits b) 16 bits
   c) 32 bits d) 128 bits

11) Which of the following is not a networking device?
   a) gateways
   b) linux
   c) routers
   d) bridges

12) Which of the following can be a software?
   a) routers
   b) modems
   c) gateways
   d) firewalls

13) _____ Management is also referred as Internet management.
   a) SNMP
   b) SMTP
   c) Both
   d) None

14) SNMP management is mostly widely used _____.
   a) NMS
   b) NOC
   c) MOC
   d) none

SLR-FM-715

Seat No.	

Set S

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
NETWORK MANAGEMENT

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 Attempt any three of the following. **12**

a) Explain the different UDP operations.
b) Explain the Three Way Handshaking in TCP connection.
c) Explain DHCP packet format.
d) Explain DNS query and DNS response message in detail.
e) Explain BOOTP and the operations on BOOTP.

Q.3 Attempt any two of the following. **16**

a) What is Congestion window? Explain all congestion control policies used by TCP.
b) Explain the architecture of E-Mail along with neat diagrams of all scenarios.
c) Describe the Hyper Text transfer Protocol in detail.

Section – II

Q.4 Attempt any three of the following.. **12**

a) What are security policies?
b) Explain proxy server organization model with diagram.
c) What factors involve in configuration management of SNMP?
d) How SNMP manage objects and management information base?

Q.5 Attempt any two of the following. **16**

a) What are the event correlation techniques?
b) What are the performance metrics in performance management?
c) Explain network provisioning.

Seat No.	

Set **P**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

Day & Date: Monday, 16-12-2019 Max. Marks: 100
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: 20

Q.1 Choose the correct alternatives from the options. **20**

1) _____ is the period of third generation computer.
   a) 1965-1971 b) 1979-1985
   c) 1989-1995 d) None

2) Who is regarded as the founder of Computer Architecture?
   a) Alan Turing b) Konrad Zuse
   c) John von Neumann d) None

3) The two's complement representation of -10 is _____.
   a) 11110110 b) 11011001
   c) 00001010 d) 11111100

4) Both the CISC and RISC architectures have been developed to reduce the _____.
   a) Cost b) Time delay
   c) Semantic gap d) All of the mentioned

5) In IEEE 32-bit representations, the mantissa of the fraction is said to occupy _____ bits.
   a) 24 b) 23
   c) 20 d) 16

6) A "0" in the sign bit represents a _____ and a "1"in the sign bit represents a _____.
   a) Positive number b) Negative number
   c) Both d) None of these

7) _____ are the different type/s of generating control signals.
   a) Micro-programmed
   b) Hardwired
   c) Micro-instruction
   d) Both Micro-programmed and Hardwired

8) The disadvantage/s of the hardwired approach is _____.
   a) It is less flexible
   b) It cannot be used for complex instructions
   c) It is costly
   d) less flexible & cannot be used for complex instructions

9) Which is the fastest storage unit in a usual memory hierarchy?
   a) Cache
   b) Main memory
   c) Hard disk
   d) Register

10) What is usually regarded as the von Neumann Bottleneck?
   a) Processor/memory interface
   b) Control unit
   c) Arithmetic logical unit
   d) Instruction set

11) The effectiveness of the cache memory is based on the property of ____.
   a) Locality of reference
   b) Memory localization
   c) Memory size
   d) None of the above

12) Consider a small two-way set-associative cache memory, consisting of four blocks. For choosing the block to be replaced, use the least recently used (LRU) scheme. The number of cache misses for the following sequence of block addresses is 8, 12, 0, 12, 8.
   a) 2
   b) 3
   c) 4
   d) 5

13) Virtual memory is _____.
   a) Large secondary memory
   b) Large main memory
   c) The illusion of large main memory
   d) None of the above

14) To which class of systems does the von Neumann computer belong?
   a) SIMD (Single Instruction Multiple Data)
   b) MIMD (Multiple Instruction Multiple Data)
   c) MISD (Multiple Instruction Single Data)
   d) SISD (Single Instruction Single Data)

15) Which value has the speedup of a parallel program that achieves an efficiency of 75% on 32 processors?
   a) 18
   b) 24
   c) 16
   d) 20

16) How many latches are required in an n-stage pipelined processor?
   a) n
   b) n-1
   c) 2n
   d) n/2

17) An instruction pipeline can be implemented using a _____.
   a) LIFO buffer
   b) FIFO buffer
   c) Stack
   d) None of the above

18) A branch instruction is known as a _____ if the processor assumes that all the succeeding instructions that are fetched before its outcome has been determined, are on the correct path.
   a) Taken branch
   b) Frozen branch
   c) Delayed branch
   d) None of the above

19) A multiprocessor operating system should perform _____.
   a) a mechanism to split a task into concurrent subtasks
   b) optimize the system performance
   c) handling structural or architectural changes
   d) all of the mentioned

20) Which of the following is not a pipeline stage?
   a) Operand fetch
   b) Execute
   c) Pipeline flush
   d) Memory Access

Seat No.	

Set **P**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

Day & Date: Monday, 16-12-2019 Max. Marks: 80
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 four. **20**

a) Describe the five generations of computers in detail.
b) Describe IEEE format for floating point numbers.
c) Define Virtual memory and explain its advantages.
d) Explain Segmentation and paging in memory with an example.
e) List and explain different instruction types.

Q.3 Attempt any two. **20**

a) Describe the Hardwired Control Unit using Sequence counter Design Method.
b) Multiply the following using Booth's algorithm.
Multiplicand = -8
Multiplier = -9
c) Explain First - fit and Best - fit memory allocations with diagrams.

Section – II

Q.4 Attempt any four. **20**

a) What is cache memory? Discuss how to improve cache performance?
b) What are the different Flynn’s classifications of computers?
c) Explain in brief concept of interleaved memories.
d) What is need of replacement algorithm explain in detail?
e) Write Difference between Linear and Nonlinear pipeline.

Q.5 Attempt any two. **20**

a) With a neat diagram, discuss the classic 5-stage pipeline for a RISC processor, that highlight how an instruction flows through the data path?
b) Explain the structure of associative memory. Give the logic diagram of 1 bit associative memory cell.
c) **Write notes.**
1) Tightly coupled multiprocessor
2) Loosely coupled multiprocessor

Seat No.	

Set **Q**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

Day & Date: Monday, 16-12-2019 Max. Marks: 100
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: 20

Q.1 Choose the correct alternatives from the options. 20

1) A "0" in the sign bit represents a _____ and a “1”in the sign bit represents a _____.
   a) Positive number b) Negative number
   c) Both d) None of these

2) _____ are the different type/s of generating control signals.
   a) Micro-programmed
   b) Hardwired
   c) Micro-instruction
   d) Both Micro-programmed and Hardwired

3) The disadvantage/s of the hardwired approach is _____.
   a) It is less flexible
   b) It cannot be used for complex instructions
   c) It is costly
   d) less flexible & cannot be used for complex instructions

4) Which is the fastest storage unit in a usual memory hierarchy?
   a) Cache b) Main memory
   c) Hard disk d) Register

5) What is usually regarded as the von Neumann Bottleneck?
   a) Processor/memory interface b) Control unit
   c) Arithmetic logical unit d) Instruction set

6) The effectiveness of the cache memory is based on the property of ____.
   a) Locality of reference b) Memory localization
   c) Memory size d) None of the above

7) Consider a small two-way set-associative cache memory, consisting of four blocks. For choosing the block to be replaced, use the least recently used (LRU) scheme. The number of cache misses for the following sequence of block addresses is 8, 12, 0, 12, 8.
   a) 2 b) 3
   c) 4 d) 5

8) Virtual memory is _____.
   a) Large secondary memory
   b) Large main memory
   c) The illusion of large main memory
   d) None of the above

9) To which class of systems does the von Neumann computer belong?
   a) SIMD (Single Instruction Multiple Data)
   b) MIMD (Multiple Instruction Multiple Data)
   c) MISD (Multiple Instruction Single Data)
   d) SISD (Single Instruction Single Data)

10) Which value has the speedup of a parallel program that achieves an efficiency of 75% on 32 processors?
   a) 18 b) 24
   c) 16 d) 20

11) How many latches are required in an n-stage pipelined processor?
   a) n b) n-1
   c) 2n d) n/2

12) An instruction pipeline can be implemented using a _____.
   a) LIFO buffer b) FIFO buffer
   c) Stack d) None of the above

13) A branch instruction is known as a _____ if the processor assumes that all the succeeding instructions that are fetched before its outcome has been determined, are on the correct path.
   a) Taken branch b) Frozen branch
   c) Delayed branch d) None of the above

14) A multiprocessor operating system should perform _____.
   a) a mechanism to split a task into concurrent subtasks
   b) optimize the system performance
   c) handling structural or architectural changes
   d) all of the mentioned

15) Which of the following is not a pipeline stage?
   a) Operand fetch b) Execute
   c) Pipeline flush d) Memory Access

16) _____ is the period of third generation computer.
   a) 1965-1971 b) 1979-1985
   c) 1989-1995 d) None

17) Who is regarded as the founder of Computer Architecture?
   a) Alan Turing b) Konrad Zuse
   c) John von Neumann d) None

18) The two's complement representation of -10 is _____.
   a) 11110110 b) 11011001
   c) 00001010 d) 11111100

19) Both the CISC and RISC architectures have been developed to reduce the _____.
   a) Cost
   b) Time delay
   c) Semantic gap
   d) All of the mentioned

20) In IEEE 32-bit representations, the mantissa of the fraction is said to occupy _____ bits.
   a) 24
   b) 23
   c) 20
   d) 16

Seat No.	

Set **Q**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

Day & Date: Monday, 16-12-2019 Max. Marks: 80
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 four. **20**

a) Describe the five generations of computers in detail.
b) Describe IEEE format for floating point numbers.
c) Define Virtual memory and explain its advantages.
d) Explain Segmentation and paging in memory with an example.
e) List and explain different instruction types.

Q.3 Attempt any two. **20**

a) Describe the Hardwired Control Unit using Sequence counter Design Method.
b) Multiply the following using Booth's algorithm.
Multiplicand = -8
Multiplier = -9
c) Explain First - fit and Best - fit memory allocations with diagrams.

Section – II

Q.4 Attempt any four. **20**

a) What is cache memory? Discuss how to improve cache performance?
b) What are the different Flynn’s classifications of computers?
c) Explain in brief concept of interleaved memories.
d) What is need of replacement algorithm explain in detail?
e) Write Difference between Linear and Nonlinear pipeline.

Q.5 Attempt any two. **20**

a) With a neat diagram, discuss the classic 5-stage pipeline for a RISC processor, that highlight how an instruction flows through the data path?
b) Explain the structure of associative memory. Give the logic diagram of 1 bit associative memory cell.
c) **Write notes.**
1) Tightly coupled multiprocessor
2) Loosely coupled multiprocessor

Seat No.	

Set **R**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

Day & Date: Monday, 16-12-2019 Max. Marks: 100
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: 20

Q.1 Choose the correct alternatives from the options. 20

1) The effectiveness of the cache memory is based on the property of ____.
   a) Locality of reference b) Memory localization
   c) Memory size d) None of the above

2) Consider a small two-way set-associative cache memory, consisting of four blocks. For choosing the block to be replaced, use the least recently used (LRU) scheme. The number of cache misses for the following sequence of block addresses is 8, 12, 0, 12, 8.
   a) 2 b) 3
   c) 4 d) 5

3) Virtual memory is _____.
   a) Large secondary memory
   b) Large main memory
   c) The illusion of large main memory
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4) To which class of systems does the von Neumann computer belong?
   a) SIMD (Single Instruction Multiple Data)
   b) MIMD (Multiple Instruction Multiple Data)
   c) MISD (Multiple Instruction Single Data)
   d) SISD (Single Instruction Single Data)

5) Which value has the speedup of a parallel program that achieves an efficiency of 75% on 32 processors?
   a) 18 b) 24
   c) 16 d) 20

6) How many latches are required in an n-stage pipelined processor?
   a) n b) n-1
   c) 2n d) n/2

7) An instruction pipeline can be implemented using a _____.
   a) LIFO buffer b) FIFO buffer
   c) Stack d) None of the above

8) A branch instruction is known as a _____ if the processor assumes that all the succeeding instructions that are fetched before its outcome has been determined, are on the correct path.
   a) Taken branch
   b) Frozen branch
   c) Delayed branch
   d) None of the above

9) A multiprocessor operating system should perform _____.
   a) a mechanism to split a task into concurrent subtasks
   b) optimize the system performance
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   d) all of the mentioned

10) Which of the following is not a pipeline stage?
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   a) 11110110
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14) Both the CISC and RISC architectures have been developed to reduce the _____.
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   c) Semantic gap
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15) In IEEE 32-bit representations, the mantissa of the fraction is said to occupy _____ bits.
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   b) 23
   c) 20
   d) 16

16) A "0" in the sign bit represents a _____ and a "1"in the sign bit represents a _____.
   a) Positive number
   b) Negative number
   c) Both
   d) None of these

17) _____ are the different type/s of generating control signals.
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   b) Hardwired
   c) Micro-instruction
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19) Which is the fastest storage unit in a usual memory hierarchy?
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   c) Hard disk
   d) Register

20) What is usually regarded as the von Neumann Bottleneck?
   a) Processor/memory interface
   b) Control unit
   c) Arithmetic logical unit
   d) Instruction set

Seat No.	

Set **R**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

Day & Date: Monday, 16-12-2019 Max. Marks: 80
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 four. **20**

a) Describe the five generations of computers in detail.
b) Describe IEEE format for floating point numbers.
c) Define Virtual memory and explain its advantages.
d) Explain Segmentation and paging in memory with an example.
e) List and explain different instruction types.

Q.3 Attempt any two. **20**

a) Describe the Hardwired Control Unit using Sequence counter Design Method.
b) Multiply the following using Booth's algorithm.
Multiplicand = -8
Multiplier = -9
c) Explain First - fit and Best - fit memory allocations with diagrams.

Section – II

Q.4 Attempt any four. **20**

a) What is cache memory? Discuss how to improve cache performance?
b) What are the different Flynn’s classifications of computers?
c) Explain in brief concept of interleaved memories.
d) What is need of replacement algorithm explain in detail?
e) Write Difference between Linear and Nonlinear pipeline.

Q.5 Attempt any two. **20**

a) With a neat diagram, discuss the classic 5-stage pipeline for a RISC processor, that highlight how an instruction flows through the data path?
b) Explain the structure of associative memory. Give the logic diagram of 1 bit associative memory cell.
c) **Write notes.**
1) Tightly coupled multiprocessor
2) Loosely coupled multiprocessor

Seat No.	

Set **S**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

Day & Date: Monday, 16-12-2019 Max. Marks: 100
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: 20

Q.1 Choose the correct alternatives from the options. 20

1) How many latches are required in an n-stage pipelined processor?
   a) n b) n-1
   c) 2n d) n/2

2) An instruction pipeline can be implemented using a _____.
   a) LIFO buffer b) FIFO buffer
   c) Stack d) None of the above

3) A branch instruction is known as a _____ if the processor assumes that all the succeeding instructions that are fetched before its outcome has been determined, are on the correct path.
   a) Taken branch b) Frozen branch
   c) Delayed branch d) None of the above

4) A multiprocessor operating system should perform _____.
   a) a mechanism to split a task into concurrent subtasks
   b) optimize the system performance
   c) handling structural or architectural changes
   d) all of the mentioned

5) Which of the following is not a pipeline stage?
   a) Operand fetch b) Execute
   c) Pipeline flush d) Memory Access

6) _____ is the period of third generation computer.
   a) 1965-1971 b) 1979-1985
   c) 1989-1995 d) None

7) Who is regarded as the founder of Computer Architecture?
   a) Alan Turing b) Konrad Zuse
   c) John von Neumann d) None

8) The two's complement representation of -10 is _____.
   a) 11110110 b) 11011001
   c) 00001010 d) 11111100

9) Both the CISC and RISC architectures have been developed to reduce the _____.
   a) Cost
   b) Time delay
   c) Semantic gap
   d) All of the mentioned

10) In IEEE 32-bit representations, the mantissa of the fraction is said to occupy _____ bits.
   a) 24
   b) 23
   c) 20
   d) 16

11) A "0" in the sign bit represents a _____ and a “1”in the sign bit represents a _____.
   a) Positive number
   b) Negative number
   c) Both
   d) None of these

12) _____ are the different type/s of generating control signals.
   a) Micro-programmed
   b) Hardwired
   c) Micro-instruction
   d) Both Micro-programmed and Hardwired

13) The disadvantage/s of the hardwired approach is _____.
   a) It is less flexible
   b) It cannot be used for complex instructions
   c) It is costly
   d) less flexible & cannot be used for complex instructions

14) Which is the fastest storage unit in a usual memory hierarchy?
   a) Cache
   b) Main memory
   c) Hard disk
   d) Register

15) What is usually regarded as the von Neumann Bottleneck?
   a) Processor/memory interface
   b) Control unit
   c) Arithmetic logical unit
   d) Instruction set

16) The effectiveness of the cache memory is based on the property of ____.
   a) Locality of reference
   b) Memory localization
   c) Memory size
   d) None of the above

17) Consider a small two-way set-associative cache memory, consisting of four blocks. For choosing the block to be replaced, use the least recently used (LRU) scheme. The number of cache misses for the following sequence of block addresses is 8, 12, 0, 12, 8.
   a) 2
   b) 3
   c) 4
   d) 5

18) Virtual memory is _____.
   a) Large secondary memory
   b) Large main memory
   c) The illusion of large main memory
   d) None of the above

19) To which class of systems does the von Neumann computer belong?
   a) SIMD (Single Instruction Multiple Data)
   b) MIMD (Multiple Instruction Multiple Data)
   c) MISD (Multiple Instruction Single Data)
   d) SISD (Single Instruction Single Data)

20) Which value has the speedup of a parallel program that achieves an efficiency of 75% on 32 processors?
   a) 18
   b) 24
   c) 16
   d) 20

Seat No.	

Set **S**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
COMPUTER ORGANIZATION & ARCHITECTURE

Day & Date: Monday, 16-12-2019 Max. Marks: 80
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 four. **20**

a) Describe the five generations of computers in detail.
b) Describe IEEE format for floating point numbers.
c) Define Virtual memory and explain its advantages.
d) Explain Segmentation and paging in memory with an example.
e) List and explain different instruction types.

Q.3 Attempt any two. **20**

a) Describe the Hardwired Control Unit using Sequence counter Design Method.
b) Multiply the following using Booth's algorithm.
Multiplicand = -8
Multiplier = -9
c) Explain First - fit and Best - fit memory allocations with diagrams.

Section – II

Q.4 Attempt any four. **20**

a) What is cache memory? Discuss how to improve cache performance?
b) What are the different Flynn’s classifications of computers?
c) Explain in brief concept of interleaved memories.
d) What is need of replacement algorithm explain in detail?
e) Write Difference between Linear and Nonlinear pipeline.

Q.5 Attempt any two. **20**

a) With a neat diagram, discuss the classic 5-stage pipeline for a RISC processor, that highlight how an instruction flows through the data path?
b) Explain the structure of associative memory. Give the logic diagram of 1 bit associative memory cell.
c) **Write notes.**
1) Tightly coupled multiprocessor
2) Loosely coupled multiprocessor

Seat No.	

Set **P**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

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 it 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) A macro prototype statement declares _____.
   a) Name of the macro
   b) Name and kinds of its parameters
   c) Both (a) & (b)
   d) None of the above

2) Which of the following loading method uses various cards for relocation & linking?
   a) Relocating loader b) Direct-linking loader
   c) Dynamic loading d) None of these

3) Instruction cost of ADD 4(R0), *12(R1) is _____.
   a) 2 b) 3
   c) 4 d) 5

4) Peephole optimization uses which of the following transformations _____.
   a) Redundant instruction elimination
   b) Algebraic transformations
   c) Use of machine idioms
   d) All of these

5) Problem oriented language used in language processing affects.
   a) Specification gap b) Execution gap
   c) Both a & b d) Semantic gap

6) Which of the following is a Phrase-structure grammar?
   a) $A ::= \pi$ b) $\alpha ::= \beta$
   c) $A ::= Bt \mid t$ d) $\alpha A \beta ::= \alpha \pi \beta$

7) Which table is used to process forward references during assembly of a program?
   a) Symbol Table & CRT b) SRT
   c) FRT d) All of these

8) Parsing table used for Predictive parser can be constructed by using _____.
   a) Subset construction algorithm b) First & follow algorithm
   c) Shift-reduce algorithm d) None of these

9) Compilers are _____.
   a) Recursive b) Non-reusable
   c) Re-enterable d) Serially usable

10) Number of digits used for Opcode in m/c instruction format are.
a) 1 b) 2
c) 3 d) None

11) Regular expressions are used as input for _____.
a) Assembler b) Syntax analysis
c) LEX d) YACC

12) Which of the following is not an advanced assembler directive?
a) START b) ORIGIN
c) EQU d) LTORG

13) Action & Goto tables are part of _____.
a) Predictive parser b) Shif-reduce parser
c) LR parser d) None of these

14) Which of the following is not a part of Object modules?
a) Machine program b) Relocation table
c) Linking table d) None of these

Seat No.	

Set **P**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

Day & Date: Monday, 09-12-2019 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 Attempt any four. **08**

a) What is a execution gap? Illustrate.
b) What is a language processor? Give examples.
c) List the aspects of compilation.
d) How is input buffering useful?
e) What are the organizational issues in assembler design?

Q.3 Attempt any Two. **10**

a) List the language processing activities and explain each in detail?
b) Compare between:
1) Problem and procedure oriented languages
2) Compilers and assemblers
c) State and elaborate on the components of assembly language programming? Illustrate each.

Q.4 Attempt any Two. **10**

a) What are sentinels? Illustrate their use.
b) Explain the concept of Nested macro. How do they work?
c) Explain the role of a analyzer in compilers.

Section – II

Q.5 Attempt any Four. **08**

a) Give the characteristics of a basic block.
b) What are pre address codes?
c) What are the situations under which relocation is required?
d) What is relocation factor? What values is it permitted to take?
e) List the different loader schemes.

Q.6 Attempt any Two. **10**

a) How relocation factor is calculated? Take examples of different situations and find relocation factor.
b) Develop a design of a linker in form of an algorithm?
c) Explain steps involved in design of –
1) Compile and go loader
2) Direct linking loaders

Q.7 Attempt any Two. **10**

a) List the cards used in Direct Linking Loaders and give functions of each.
b) What are Subroutine linkages? Give its involvement in Relocating Loader scheme.
c) What is Peephole optimization? Give its characteristics.

Seat No.	

Set **Q**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

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 it 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) Parsing table used for Predictive parser can be constructed by using _____.
   a) Subset construction algorithm b) First & follow algorithm
   c) Shift-reduce algorithm d) None of these

2) Compilers are _____.
   a) Recursive b) Non-reusable
   c) Re-enterable d) Serially usable

3) Number of digits used for Opcode in m/c instruction format are.
   a) 1 b) 2
   c) 3 d) None

4) Regular expressions are used as input for _____.
   a) Assembler b) Syntax analysis
   c) LEX d) YACC

5) Which of the following is not an advanced assembler directive?
   a) START b) ORIGIN
   c) EQU d) LTORG

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   c) LR parser d) None of these

7) Which of the following is not a part of Object modules?
   a) Machine program b) Relocation table
   c) Linking table d) None of these

8) A macro prototype statement declares _____.
   a) Name of the macro
   b) Name and kinds of its parameters
   c) Both (a) & (b)
   d) None of the above

9) Which of the following loading method uses various cards for relocation & linking?
   a) Relocating loader b) Direct-linking loader
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10) Instruction cost of ADD 4(R0), *12(R1) is _____.
   a) 2 b) 3
   c) 4 d) 5

11) Peephole optimization uses which of the following transformations _____.
   a) Redundant instruction elimination
   b) Algebraic transformations
   c) Use of machine idioms
   d) All of these

12) Problem oriented language used in language processing affects.
   a) Specification gap
   b) Execution gap
   c) Both a & b
   d) Semantic gap

13) Which of the following is a Phrase-structure grammar?
   a) $A ::= \pi$
   b) $\alpha ::= \beta$
   c) $A ::= Bt | t$
   d) $\alpha A \beta ::= \alpha \pi \beta$

14) Which table is used to process forward references during assembly of a program?
   a) Symbol Table & CRT
   b) SRT
   c) FRT
   d) All of these

Seat No.	

Set **Q**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

Day & Date: Monday, 09-12-2019 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 Attempt any four. **08**

a) What is a execution gap? Illustrate.
b) What is a language processor? Give examples.
c) List the aspects of compilation.
d) How is input buffering useful?
e) What are the organizational issues in assembler design?

Q.3 Attempt any Two. **10**

a) List the language processing activities and explain each in detail?
b) Compare between:
1) Problem and procedure oriented languages
2) Compilers and assemblers
c) State and elaborate on the components of assembly language programming? Illustrate each.

Q.4 Attempt any Two. **10**

a) What are sentinels? Illustrate their use.
b) Explain the concept of Nested macro. How do they work?
c) Explain the role of a analyzer in compilers.

Section – II

Q.5 Attempt any Four. **08**

a) Give the characteristics of a basic block.
b) What are pre address codes?
c) What are the situations under which relocation is required?
d) What is relocation factor? What values is it permitted to take?
e) List the different loader schemes.

Q.6 Attempt any Two. **10**

a) How relocation factor is calculated? Take examples of different situations and find relocation factor.
b) Develop a design of a linker in form of an algorithm?
c) Explain steps involved in design of –
1) Compile and go loader
2) Direct linking loaders

Q.7 Attempt any Two. **10**

a) List the cards used in Direct Linking Loaders and give functions of each.
b) What are Subroutine linkages? Give its involvement in Relocating Loader scheme.
c) What is Peephole optimization? Give its characteristics.

Seat No.	

Set **R**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

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 it 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) Problem oriented language used in language processing affects.
   a) Specification gap b) Execution gap
   c) Both a & b d) Semantic gap

2) Which of the following is a Phrase-structure grammar?
   a) $A ::= \pi$ b) $\alpha ::= \beta$
   c) $A ::= Bt \mid t$ d) $\alpha A \beta ::= \alpha \pi \beta$

3) Which table is used to process forward references during assembly of a program?
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   c) FRT d) All of these

4) Parsing table used for Predictive parser can be constructed by using _____.
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   c) Shift-reduce algorithm d) None of these

5) Compilers are _____.
   a) Recursive b) Non-reusable
   c) Re-enterable d) Serially usable

6) Number of digits used for Opcode in m/c instruction format are.
   a) 1 b) 2
   c) 3 d) None

7) Regular expressions are used as input for _____.
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8) Which of the following is not an advanced assembler directive?
   a) START b) ORIGIN
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9) Action & Goto tables are part of _____.
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   a) Name of the macro
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   a) Relocating loader
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   c) Dynamic loading
   d) None of these

13) Instruction cost of ADD 4(R0), *12(R1) is _____.
   a) 2
   b) 3
   c) 4
   d) 5

14) Peephole optimization uses which of the following transformations _____.
   a) Redundant instruction elimination
   b) Algebraic transformations
   c) Use of machine idioms
   d) All of these

Seat No.	

Set **R**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

Day & Date: Monday, 09-12-2019 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 Attempt any four. **08**

a) What is a execution gap? Illustrate.
b) What is a language processor? Give examples.
c) List the aspects of compilation.
d) How is input buffering useful?
e) What are the organizational issues in assembler design?

Q.3 Attempt any Two. **10**

a) List the language processing activities and explain each in detail?
b) Compare between:
1) Problem and procedure oriented languages
2) Compilers and assemblers
c) State and elaborate on the components of assembly language programming? Illustrate each.

Q.4 Attempt any Two. **10**

a) What are sentinels? Illustrate their use.
b) Explain the concept of Nested macro. How do they work?
c) Explain the role of a analyzer in compilers.

Section – II

Q.5 Attempt any Four. **08**

a) Give the characteristics of a basic block.
b) What are pre address codes?
c) What are the situations under which relocation is required?
d) What is relocation factor? What values is it permitted to take?
e) List the different loader schemes.

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c) Explain steps involved in design of –
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2) Direct linking loaders

Q.7 Attempt any Two. **10**

a) List the cards used in Direct Linking Loaders and give functions of each.
b) What are Subroutine linkages? Give its involvement in Relocating Loader scheme.
c) What is Peephole optimization? Give its characteristics.

Seat No.	

Set | S

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

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 it 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) Number of digits used for Opcode in m/c instruction format are.
   a) 1 b) 2
   c) 3 d) None

2) Regular expressions are used as input for _____.
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6) A macro prototype statement declares _____.
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8) Instruction cost of ADD 4(R0), *12(R1) is _____.
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   b) Execution gap
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   c) $A ::= Bt \mid t$
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   c) FRT
   d) All of these

13) Parsing table used for Predictive parser can be constructed by using _____.
   a) Subset construction algorithm
   b) First & follow algorithm
   c) Shift-reduce algorithm
   d) None of these

14) Compilers are _____.
   a) Recursive
   b) Non-reusable
   c) Re-enterable
   d) Serially usable

SLR-FM-717

Seat No.	

Set S

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
SYSTEM SOFTWARE

Day & Date: Monday, 09-12-2019 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 Attempt any four. **08**

a) What is a execution gap? Illustrate.
b) What is a language processor? Give examples.
c) List the aspects of compilation.
d) How is input buffering useful?
e) What are the organizational issues in assembler design?

Q.3 Attempt any Two. **10**

a) List the language processing activities and explain each in detail?
b) Compare between:
1) Problem and procedure oriented languages
2) Compilers and assemblers
c) State and elaborate on the components of assembly language programming? Illustrate each.

Q.4 Attempt any Two. **10**

a) What are sentinels? Illustrate their use.
b) Explain the concept of Nested macro. How do they work?
c) Explain the role of a analyzer in compilers.

Section – II

Q.5 Attempt any Four. **08**

a) Give the characteristics of a basic block.
b) What are pre address codes?
c) What are the situations under which relocation is required?
d) What is relocation factor? What values is it permitted to take?
e) List the different loader schemes.

Q.6 Attempt any Two. **10**

a) How relocation factor is calculated? Take examples of different situations and find relocation factor.
b) Develop a design of a linker in form of an algorithm?
c) Explain steps involved in design of –
1) Compile and go loader
2) Direct linking loaders

Q.7 Attempt any Two. **10**

a) List the cards used in Direct Linking Loaders and give functions of each.
b) What are Subroutine linkages? Give its involvement in Relocating Loader scheme.
c) What is Peephole optimization? Give its characteristics.

Seat No.	

Set **P**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 right indicate marks to question.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) Definiteness property of algorithm means _____.
   a) Instruction is clear and unambiguous
   b) Algorithm terminates after a finite number of steps
   c) At least one quantity is produced
   d) None

2) Which of the following shows correct relationships?
   a) $O(\log n) < O(n) < O(n \log n) < O(2^n)$
   b) $O(1) < O(\log n) < O(n) < O(n \log n)$
   c) $O(1) < O(n \log n) < O(n) < O(\log n)$
   d) None

3) Which is partition exchange?
   a) merge sort b) quick sort
   c) selection sort d) None

4) Worst case time complexity of selection sort _____.
   a) $O(\log n)$ b) $O(n^{2)}$
   c) $O(1)$ d) $O(n \log n)$

5) If there are n vertex then in spanning tree will contain _____ edges.
   a) n b) n^2
   c) $n-1$ d) None

6) Using greedy method an object is placed into the knapsack the value of solution vector x_i is _____.
   a) 0 or 1 b) 0 and 1
   c) $0 <= x_i <= 1$ d) None

7) _____ turns out that one can find the shortest paths from a given source to all points in a graph the same time.
   a) kruskal's algorithm b) Prim's algorithm
   c) Dijkstra's algorithm d) None

8) Which of the following statement is incorrect?
   a) Greedy method uses principle of optimality
   b) Greedy method has forward approach
   c) Greedy method generates only a single decision
   d) Knapsack problem can be solved using greedy method

9) In reliability design problem, if cost of system is 120 and cost of devices are 15, 20, 25 respectively, then maximum no of devices for stage 2 are _____.
   a) 2 b) 3
   c) 4 d) 6

10) Which of the following is not a backtracking algorithm?
   a) Knapsack problem b) N queen problem
   c) Tower of Hanoi d) M coloring problem

11) A greedy algorithm can be used to solve all the dynamic programming problems.
   a) True b) False

12) A node which has been generated and all of whose children have not yet been generated is called _____.
   a) Live node b) E-node
   c) Dead node d) None of these

13) Branch and Bound uses _____ like state space serach.
   a) DFS b) BFS
   c) either of these d) None of these

14) Which of the following problems is NOT solved using dynamic programming?
   a) 0/1 knapsack problem b) Reliability Design problem
   c) Optimal Search Binary Tree d) Fractional knapsack problem

Seat No.	

Set **P**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 Answer any Three. **12**

a) Write a note on space and time complexity with example.

b) Find the time complexity of following algorithm statements.

```
for (i=1;i<=n;i++)
{
for (j=1;j<=m;j++)
{
for (k=1;k<=p;k++)
{
X=x+1;} } }
```

c) Sort the elements using selection sort.
45, -19, 50, 70, 85, 80

d) Search the elements 50, 60, 85 from the following array using step by step binary search method.
45, 50, 55, 60, 65, 70, 80, 85, 90

e) Find feasible solution for job sequencing with deadlines.
$N = 5, (p1, p2, p3, p4, p5) = (20,15,10,5,1)$ and deadlines$(d1, d2, d3, d4, d5) = (2,2,1,3,3)$

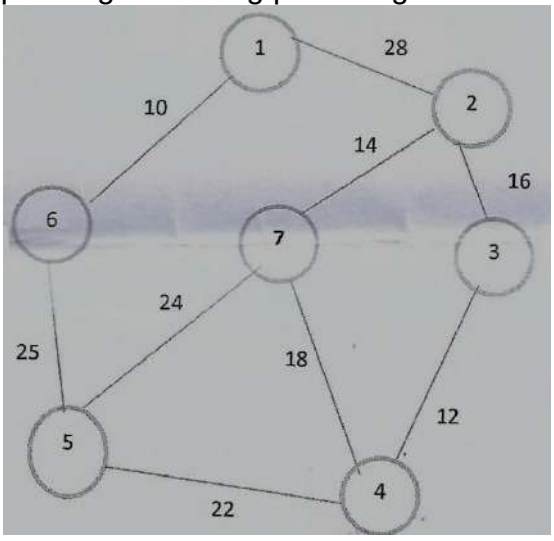
Q.3 Answer any one. **08**

a) Solve the following knapsack problem.
n=7, m=15, (p1-------p7)=(10,5,15,7,6,18,3) And (w1….w7)=(2,3,5,7,1,4,1)

OR

b) Sort the following array elements using merge and quick sort.
50, 25, 28, 7, 38, 35, 49, 80, 89, 84

Q.4 Find minimum cost spanning tree using prim's algorithm and kruskal's algorithm. **08**



Section – II

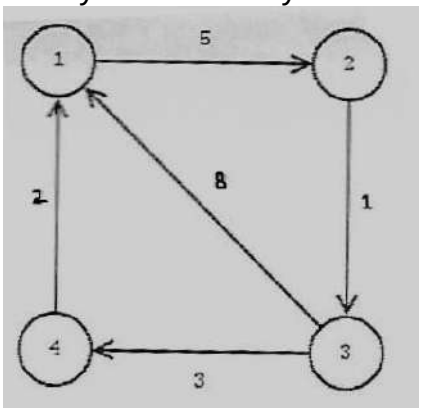
Q.5 Attempt any Three. **12**

a) let w= {5,7,10,12,15,18,20} and m=35. Find all possible subsets of w that sum to m.

b) Draw state space tree for m-coloring when n=3 and m=3.

c) Explain least cost search in branch and bound.

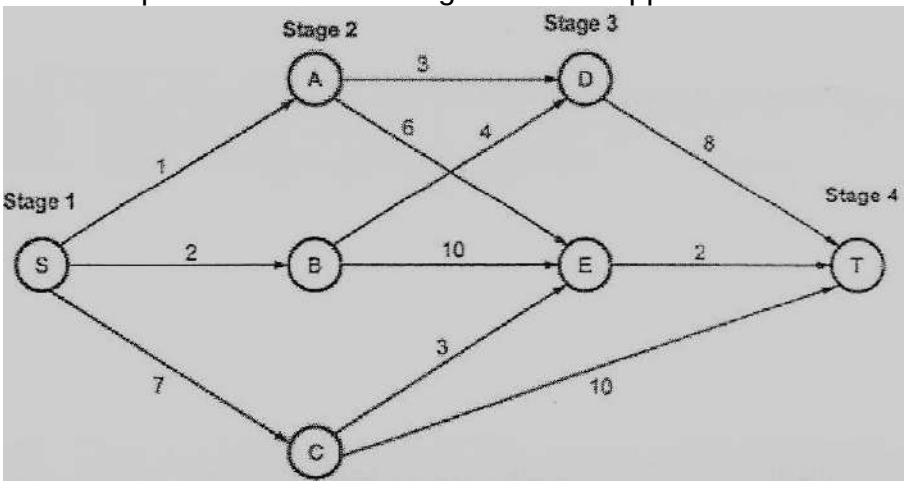
d) Find the shortest path from every node to every other node



e) n=3 , (w1,w2,w3)= (2,3,4), (p1,p2,p3)= (1,2,5) and m=6. Obtain maximum profit using dynamic programming.

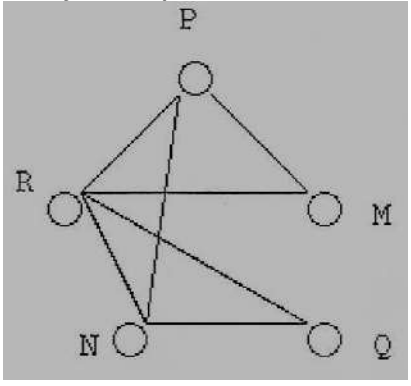
Q.6 Attempt any One. **08**

a) Find shortest path from S to T using backward approach.



b) How to obtain reduced cost matrix for travelling salesperson problem using branch and bound.

Q.7 Write an algorithm to find whether Hamilton cycle is present in the graph? Using algorithm find whether Hamilton cycle is present in the following graph? **08**



Seat No.	

Set **Q**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 right indicate marks to question.

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 statement is incorrect?
   a) Greedy method uses principle of optimality
   b) Greedy method has forward approach
   c) Greedy method generates only a single decision
   d) Knapsack problem can be solved using greedy method

2) In reliability design problem, if cost of system is 120 and cost of devices are 15, 20, 25 respectively, then maximum no of devices for stage 2 are _____.
   a) 2 b) 3
   c) 4 d) 6

3) Which of the following is not a backtracking algorithm?
   a) Knapsack problem b) N queen problem
   c) Tower of Hanoi d) M coloring problem

4) A greedy algorithm can be used to solve all the dynamic programming problems.
   a) True b) False

5) A node which has been generated and all of whose children have not yet been generated is called _____.
   a) Live node b) E-node
   c) Dead node d) None of these

6) Branch and Bound uses _____ like state space serach.
   a) DFS b) BFS
   c) either of these d) None of these

7) Which of the following problems is NOT solved using dynamic programming?
   a) 0/1 knapsack problem b) Reliability Design problem
   c) Optimal Search Binary Tree d) Fractional knapsack problem

8) Definiteness property of algorithm means _____.
   a) Instruction is clear and unambiguous
   b) Algorithm terminates after a finite number of steps
   c) At least one quantity is produced
   d) None

9) Which of the following shows correct relationships?
   a) $O(\log n) < O(n) < O(n \log n) < O(2^n)$
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   c) $O(1) < O(n \log n) < O(n) < O(\log n)$
   d) None

10) Which is partition exchange?
   a) merge sort
   b) quick sort
   c) selection sort
   d) None

11) Worst case time complexity of selection sort _____.
   a) $O(\log n)$
   b) $O(n^{2)}$
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12) If there are n vertex then in spanning tree will contain _____ edges.
   a) n
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13) Using greedy method an object is placed into the knapsack the value of solution vector x_i is _____.
   a) 0 or 1
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14) _____ turns out that one can find the shortest paths from a given source to all points in a graph the same time.
   a) kruskal's algorithm
   b) Prim's algorithm
   c) Dijkstra's algorithm
   d) None

Seat No.	

Set **Q**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 Answer any Three. **12**

a) Write a note on space and time complexity with example.

b) Find the time complexity of following algorithm statements.

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for (i=1;i<=n;i++)
{
for (j=1;j<=m;j++)
{
for (k=1;k<=p;k++)
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c) Sort the elements using selection sort.
45, -19, 50, 70, 85, 80

d) Search the elements 50, 60, 85 from the following array using step by step binary search method.
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e) Find feasible solution for job sequencing with deadlines.
$N = 5, (p1, p2, p3, p4, p5) = (20,15,10,5,1)$ and deadlines$(d1, d2, d3, d4, d5) = (2,2,1,3,3)$

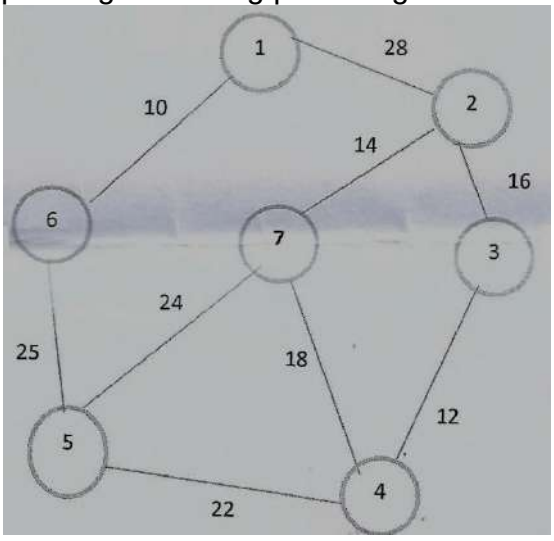
Q.3 Answer any one. **08**

a) Solve the following knapsack problem.
n=7, m=15, (p1-------p7)=(10,5,15,7,6,18,3) And (w1….w7)=(2,3,5,7,1,4,1)

OR

b) Sort the following array elements using merge and quick sort.
50, 25, 28, 7, 38, 35, 49, 80, 89, 84

Q.4 Find minimum cost spanning tree using prim's algorithm and kruskal's algorithm. **08**



Section – II

Q.5 Attempt any Three. **12**

a) let w= {5,7,10,12,15,18,20} and m=35. Find all possible subsets of w that sum to m.

b) Draw state space tree for m-coloring when n=3 and m=3.

c) Explain least cost search in branch and bound.

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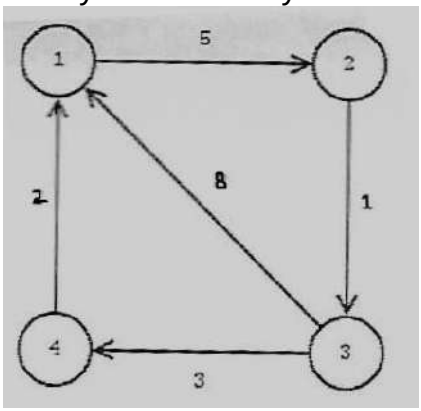
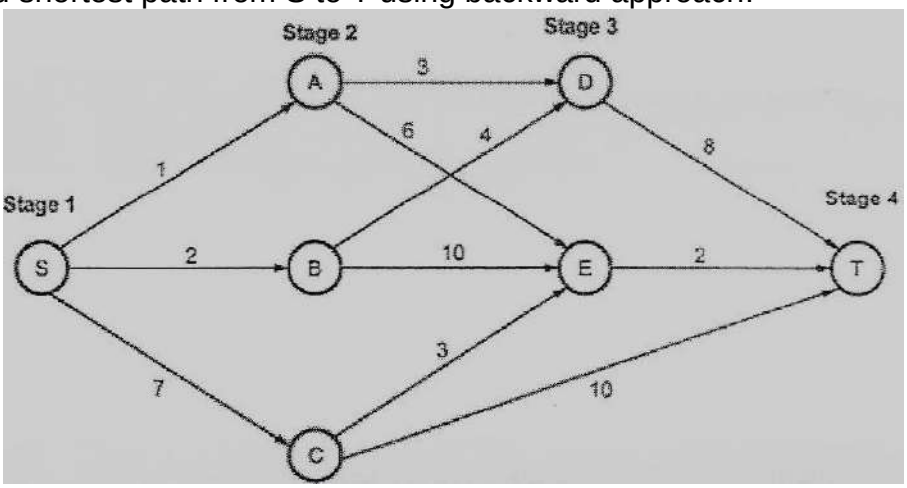


e) n=3 , (w1,w2,w3)= (2,3,4), (p1,p2,p3)= (1,2,5) and m=6. Obtain maximum profit using dynamic programming.

Q.6 Attempt any One. **08**

a) Find shortest path from S to T using backward approach.



b) How to obtain reduced cost matrix for travelling salesperson problem using branch and bound.

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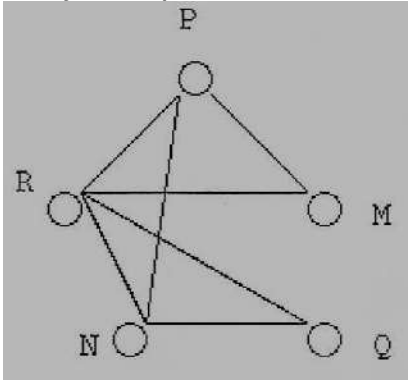

Seat No.	

Set **R**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 right indicate marks to question.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

1) If there are n vertex then in spanning tree will contain _____ edges.
   a) n b) n^2
   c) $n-1$ d) None

2) Using greedy method an object is placed into the knapsack the value of solution vector x_i is _____.
   a) 0 or 1 b) 0 and 1
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3) _____ turns out that one can find the shortest paths from a given source to all points in a graph the same time.
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4) Which of the following statement is incorrect?
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5) In reliability design problem, if cost of system is 120 and cost of devices are 15, 20, 25 respectively, then maximum no of devices for stage 2 are _____.
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6) Which of the following is not a backtracking algorithm?
   a) Knapsack problem b) N queen problem
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8) A node which has been generated and all of whose children have not yet been generated is called _____.
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   c) $O(1) < O(n \log n) < O(n) < O(\log n)$
   d) None

13) Which is partition exchange?
   a) merge sort
   b) quick sort
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   d) None

14) Worst case time complexity of selection sort _____.
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Seat No.	

Set **R**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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

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a) Write a note on space and time complexity with example.

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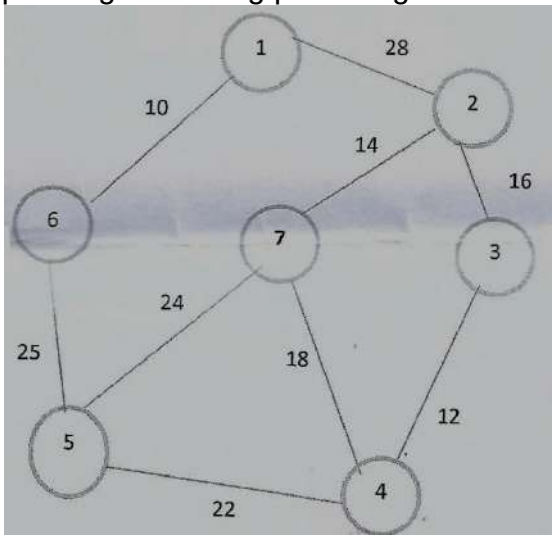

Section – II

Q.5 Attempt any Three. **12**

a) let w= {5,7,10,12,15,18,20} and m=35. Find all possible subsets of w that sum to m.

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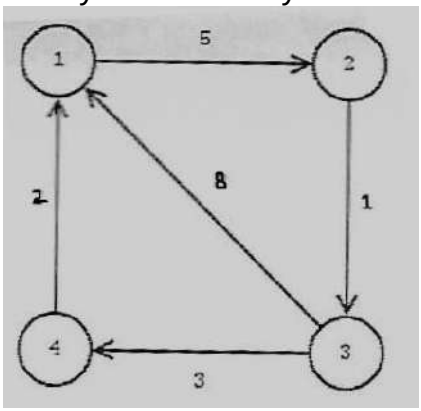

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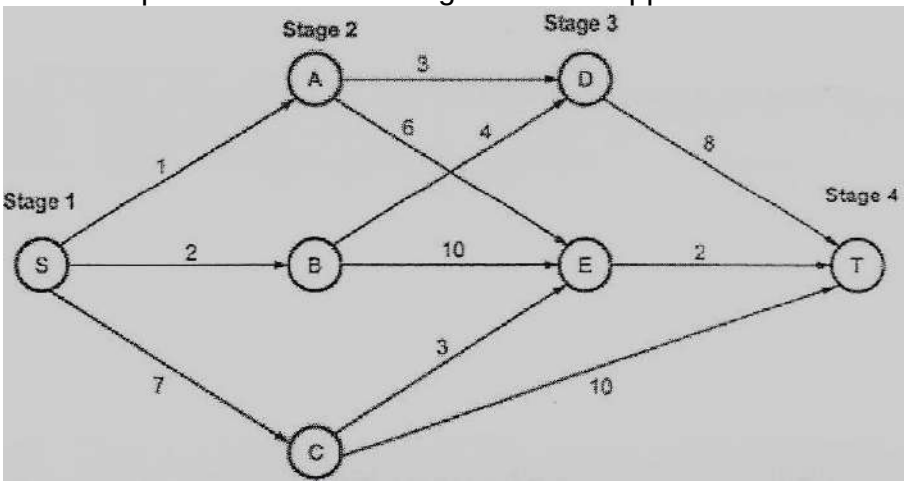

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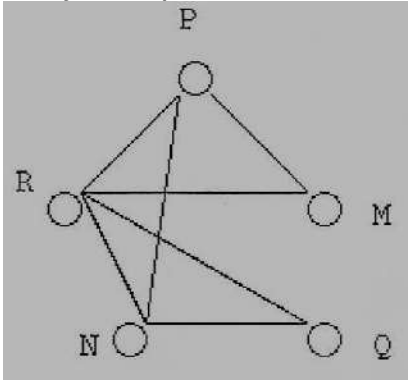

Seat No.		Set	S

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 right indicate marks to question.

MCQ/Objective Type Questions

Duration: 30 Minutes Marks: 14

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

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Seat No.	

Set **S**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
DESIGN & ANALYSIS OF ALGORITHMS

Day & Date: Wednesday, 11-12-2019 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 Answer any Three. **12**

a) Write a note on space and time complexity with example.

b) Find the time complexity of following algorithm statements.

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Q.3 Answer any one. **08**

a) Solve the following knapsack problem.
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OR

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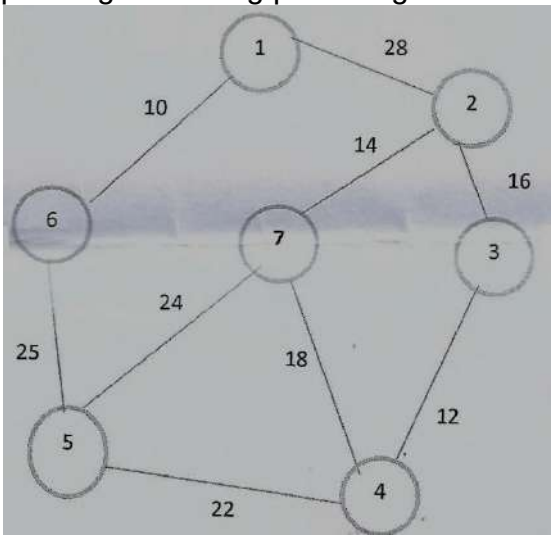
Q.4 Find minimum cost spanning tree using prim's algorithm and kruskal's algorithm. **08**



Section – II

Q.5 Attempt any Three. **12**

a) let w= {5,7,10,12,15,18,20} and m=35. Find all possible subsets of w that sum to m.

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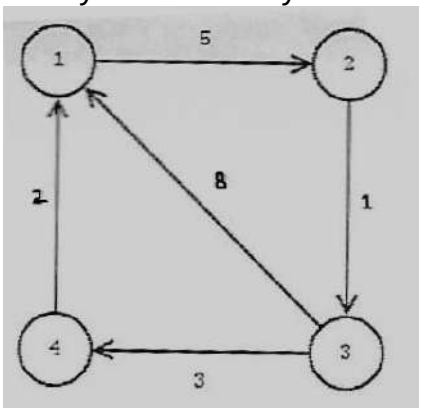

e) n=3 , (w1,w2,w3)= (2,3,4), (p1,p2,p3)= (1,2,5) and m=6. Obtain maximum profit using dynamic programming.

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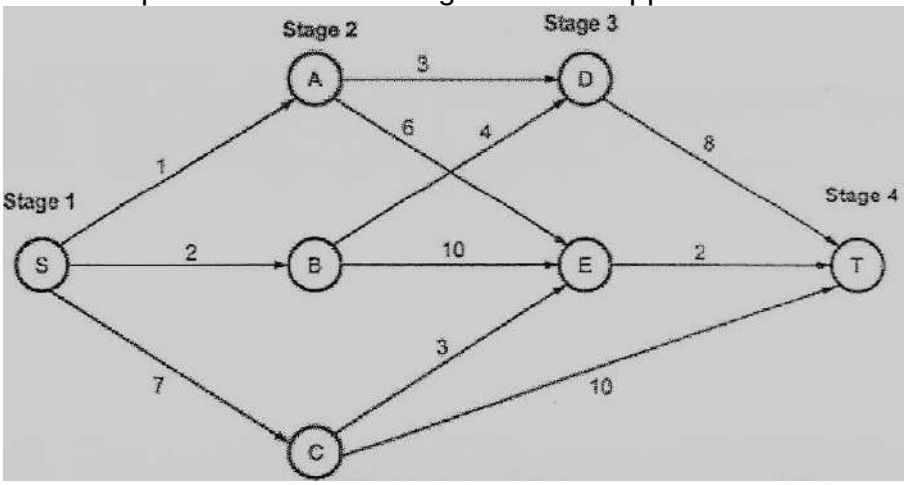

b) How to obtain reduced cost matrix for travelling salesperson problem using branch and bound.

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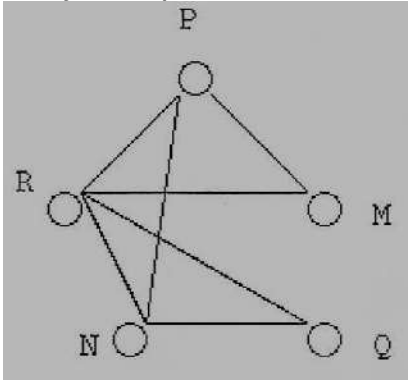

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Seat No.	

Set P

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

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

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

1) Which one of the following is False?
   a) Multiprogramming will cause starvation
   b) Time sharing does not improve performance
   c) Scheduler should able to prioritize some applications
   d) Kernel runs in a protected mode

2) Match the following.

i)	a.out	a)	compiles the program
ii)	Process state	b)	Stored in hard disk
iii)	gcc hello.c	c)	executes from RAM
iv)	Process	d)	Hidden section of process maintained by OS

   a) i-b, ii-d, iii-a, iv-c b) i-b, ii-d, iii-c, iv-a
   c) i-d, ii-b, iii-a, iv-c d) i-a, ii-d, iii-b, iv-c

3) The bootloader switches the OS from _____ to _____.
   a) Protected mode, real mode
   b) User mode, kernel mode
   c) User mode, protected mode
   d) Real mode, Protected mode

4) Consider a set of process P1, P2, P3, P4 arriving in the same order at time zero in the ready queue. Their burst times are 7ms, 5ms, 3ms, 4ms respectively. Using Round Robin scheduling, with time slice of 4 ms. What is the time at which process P1 completes execution?
   a) 7 b) 18
   c) 19 d) 8

5) Which process can affect of be affected by other processes executing in the system?
   a) cooperating process b) child process
   c) parent process d) init process

6) A solution to the problem of indefinite blockage of low - priority processes is __.
   a) Starvation b) Wait queue
   c) Ready queue d) Aging

7) State True/False: In dining philosopher problem (with K philosophers), all the even numbered philosophers takes the right fork first and then the left fork and the odd numbered philosopher takes the left fork first and then the right fork. This arrangement will prevent deadlock.
   a) True b) False

8) Response time is _____.
   a) the total time taken from the submission time till the completion time
   b) the total time taken from the submission time till the first response is produced
   c) the total time taken from submission time till the response is output
   d) none of these

9) Statement is True or False - In hold and wait, a process holding at least one resource is waiting to acquire additional resources held by other processes.
   a) True b) False

10) Physical memory is broken into fixed-sized blocks called _____.
   a) frames b) pages
   c) backing store d) none of these

11) A solution to the problem of external fragmentation is _____.
   a) compaction b) larger memory space
   c) smaller memory space d) none of these

12) External fragmentation exists when _____.
   a) enough total memory exists to satisfy a request but it is not contiguous
   b) the total memory is insufficient to satisfy a request
   c) a request cannot be satisfied even when the total memory is free
   d) none of these

13) With paging there is no _____ fragmentation.
   a) internal b) external
   c) either type of d) None of these

14) The segment base contains the _____.
   a) starting logical address of the process
   b) starting physical address of the segment in memory
   c) segment length
   d) none of these

Seat No.	

Set **P**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

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) Explain the concept of Cooperating processes with example.
b) Explain different states of process with the help of diagram.
c) Explain multiprogramming and multiprocessing system with its pros and cons.
d) Explain race condition and critical-section problem.

Q.3 Attempt any One. **08**

a) Explain in detail the following schedulers with diagram.
i) Short-term scheduler
ii) Long-term scheduler
b) Explain the following Scheduling algorithms with help of example.
i) First Come First Serve Scheduling
ii) Priority scheduling

Q.4 Attempt any One. **08**

a) Write and explain Banker's algorithm to solve the critical section problem with example.
b) Differentiate between First Come First Serve and Shortest Job First scheduling algorithms (minimum four differentiate points). Consider the following 5 processes (that arrive at time 0) with the length of CPU burst time given in milliseconds. The order of arrival of processes at time '0' is P1, P2, P3, P4, P5.

Process	Burst Time
P1	11
P2	12
P3	4
P4	6
P5	8

If Non-preemptive SJF scheduling is used then what will be average waiting time and average turnaround time?

Section – II

Q.5 Attempt any Three. **12**

a) Explain deadlock problem using bridge crossing example.
b) Explain Polling in I/O with example.
c) Explain Virtual memory concept with necessity.
d) Explain contiguous allocation mechanism in memory management with diagram.

Q.6 Attempt any One. **08**

a) Explain the concept of transforming I/O requests to Hardware operations with the help of diagram.

b) What is deadlock avoidance? Explain different ways available for recovery from deadlock.

Q.7 Attempt any One.

a) i) Given five memory partitions of 100KB, 500KB, 200KB, 300KB, and 600KB (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of 212KB. 417KB, 112KB, and 426 KB (in order)? Which algorithm makes the most efficient use of memory? **08**

ii) Consider the following segment table.

Segment	Base	Length
0	219	600
1	2300	14
2	90	100
3	1327	580

What are the physical addresses for the following logical addresses?

i) 0,430
ii) 1,10
iii) 2,500
iv) 3,400

b) Explain the concept of segmentation with paging with the help of diagram and demonstrate address translation.

Seat No.	

Set **Q**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

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

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

1) Response time is _____.
   a) the total time taken from the submission time till the completion time
   b) the total time taken from the submission time till the first response is produced
   c) the total time taken from submission time till the response is output
   d) none of these

2) Statement is True or False - In hold and wait, a process holding at least one resource is waiting to acquire additional resources held by other processes.
   a) True b) False

3) Physical memory is broken into fixed-sized blocks called _____.
   a) frames b) pages
   c) backing store d) none of these

4) A solution to the problem of external fragmentation is _____.
   a) compaction b) larger memory space
   c) smaller memory space d) none of these

5) External fragmentation exists when _____.
   a) enough total memory exists to satisfy a request but it is not contiguous
   b) the total memory is insufficient to satisfy a request
   c) a request cannot be satisfied even when the total memory is free
   d) none of these

6) With paging there is no _____ fragmentation.
   a) internal b) external
   c) either type of d) None of these

7) The segment base contains the _____.
   a) starting logical address of the process
   b) starting physical address of the segment in memory
   c) segment length
   d) none of these

8) Which one of the following is False?
   a) Multiprogramming will cause starvation
   b) Time sharing does not improve performance
   c) Scheduler should able to prioritize some applications
   d) Kernel runs in a protected mode

9) Match the following.

i)	a.out	a)	compiles the program
ii)	Process state	b)	Stored in hard disk
iii)	gcc hello.c	c)	executes from RAM
iv)	Process	d)	Hidden section of process maintained by OS

   a) i-b, ii-d, iii-a, iv-c
   b) i-b, ii-d, iii-c, iv-a
   c) i-d, ii-b, iii-a, iv-c
   d) i-a, ii-d, iii-b, iv-c

10) The bootloader switches the OS from _____ to _____.
   a) Protected mode, real mode
   b) User mode, kernel mode
   c) User mode, protected mode
   d) Real mode, Protected mode

11) Consider a set of process P1, P2, P3, P4 arriving in the same order at time zero in the ready queue. Their burst times are 7ms, 5ms, 3ms, 4ms respectively. Using Round Robin scheduling, with time slice of 4 ms. What is the time at which process P1 completes execution?
   a) 7
   b) 18
   c) 19
   d) 8

12) Which process can affect of be affected by other processes executing in the system?
   a) cooperating process
   b) child process
   c) parent process
   d) init process

13) A solution to the problem of indefinite blockage of low - priority processes is __.
   a) Starvation
   b) Wait queue
   c) Ready queue
   d) Aging

14) State True/False: In dining philosopher problem (with K philosophers), all the even numbered philosophers takes the right fork first and then the left fork and the odd numbered philosopher takes the left fork first and then the right fork. This arrangement will prevent deadlock.
   a) True
   b) False

Seat No.	

Set **Q**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

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) Explain the concept of Cooperating processes with example.
b) Explain different states of process with the help of diagram.
c) Explain multiprogramming and multiprocessing system with its pros and cons.
d) Explain race condition and critical-section problem.

Q.3 Attempt any One. **08**

a) Explain in detail the following schedulers with diagram.
i) Short-term scheduler
ii) Long-term scheduler
b) Explain the following Scheduling algorithms with help of example.
i) First Come First Serve Scheduling
ii) Priority scheduling

Q.4 Attempt any One. **08**

a) Write and explain Banker's algorithm to solve the critical section problem with example.
b) Differentiate between First Come First Serve and Shortest Job First scheduling algorithms (minimum four differentiate points). Consider the following 5 processes (that arrive at time 0) with the length of CPU burst time given in milliseconds. The order of arrival of processes at time '0' is P1, P2, P3, P4, P5.

Process	Burst Time
P1	11
P2	12
P3	4
P4	6
P5	8

If Non-preemptive SJF scheduling is used then what will be average waiting time and average turnaround time?

Section – II

Q.5 Attempt any Three. **12**

a) Explain deadlock problem using bridge crossing example.
b) Explain Polling in I/O with example.
c) Explain Virtual memory concept with necessity.
d) Explain contiguous allocation mechanism in memory management with diagram.

Q.6 Attempt any One. **08**

a) Explain the concept of transforming I/O requests to Hardware operations with the help of diagram.

b) What is deadlock avoidance? Explain different ways available for recovery from deadlock.

Q.7 Attempt any One.

a) i) Given five memory partitions of 100KB, 500KB, 200KB, 300KB, and 600KB (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of 212KB. 417KB, 112KB, and 426 KB (in order)? Which algorithm makes the most efficient use of memory? **08**

ii) Consider the following segment table.

Segment	Base	Length
0	219	600
1	2300	14
2	90	100
3	1327	580

What are the physical addresses for the following logical addresses?

i) 0,430
ii) 1,10
iii) 2,500
iv) 3,400

b) Explain the concept of segmentation with paging with the help of diagram and demonstrate address translation.

Seat No.	

Set **R**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

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

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

1) Which process can affect of be affected by other processes executing in the system?
   a) cooperating process b) child process
   c) parent process d) init process

2) A solution to the problem of indefinite blockage of low - priority processes is __.
   a) Starvation b) Wait queue
   c) Ready queue d) Aging

3) State True/False: In dining philosopher problem (with K philosophers), all the even numbered philosophers takes the right fork first and then the left fork and the odd numbered philosopher takes the left fork first and then the right fork. This arrangement will prevent deadlock.
   a) True b) False

4) Response time is _____.
   a) the total time taken from the submission time till the completion time
   b) the total time taken from the submission time till the first response is produced
   c) the total time taken from submission time till the response is output
   d) none of these

5) Statement is True or False - In hold and wait, a process holding at least one resource is waiting to acquire additional resources held by other processes.
   a) True b) False

6) Physical memory is broken into fixed-sized blocks called _____.
   a) frames b) pages
   c) backing store d) none of these

7) A solution to the problem of external fragmentation is _____.
   a) compaction b) larger memory space
   c) smaller memory space d) none of these

8) External fragmentation exists when _____.
   a) enough total memory exists to satisfy a request but it is not contiguous
   b) the total memory is insufficient to satisfy a request
   c) a request cannot be satisfied even when the total memory is free
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9) With paging there is no _____ fragmentation.
   a) internal
   b) external
   c) either type of
   d) None of these

10) The segment base contains the _____.
   a) starting logical address of the process
   b) starting physical address of the segment in memory
   c) segment length
   d) none of these

11) Which one of the following is False?
   a) Multiprogramming will cause starvation
   b) Time sharing does not improve performance
   c) Scheduler should able to prioritize some applications
   d) Kernel runs in a protected mode

12) Match the following.

i)	a.out	a)	compiles the program
ii)	Process state	b)	Stored in hard disk
iii)	gcc hello.c	c)	executes from RAM
iv)	Process	d)	Hidden section of process maintained by OS

   a) i-b, ii-d, iii-a, iv-c
   b) i-b, ii-d, iii-c, iv-a
   c) i-d, ii-b, iii-a, iv-c
   d) i-a, ii-d, iii-b, iv-c

13) The bootloader switches the OS from _____ to _____.
   a) Protected mode, real mode
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   c) User mode, protected mode
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14) Consider a set of process P1, P2, P3, P4 arriving in the same order at time zero in the ready queue. Their burst times are 7ms, 5ms, 3ms, 4ms respectively. Using Round Robin scheduling, with time slice of 4 ms. What is the time at which process P1 completes execution?
   a) 7
   b) 18
   c) 19
   d) 8

Seat No.	

Set **R**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

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) Explain the concept of Cooperating processes with example.
b) Explain different states of process with the help of diagram.
c) Explain multiprogramming and multiprocessing system with its pros and cons.
d) Explain race condition and critical-section problem.

Q.3 Attempt any One. **08**

a) Explain in detail the following schedulers with diagram.
i) Short-term scheduler
ii) Long-term scheduler
b) Explain the following Scheduling algorithms with help of example.
i) First Come First Serve Scheduling
ii) Priority scheduling

Q.4 Attempt any One. **08**

a) Write and explain Banker's algorithm to solve the critical section problem with example.
b) Differentiate between First Come First Serve and Shortest Job First scheduling algorithms (minimum four differentiate points). Consider the following 5 processes (that arrive at time 0) with the length of CPU burst time given in milliseconds. The order of arrival of processes at time '0' is P1, P2, P3, P4, P5.

Process	Burst Time
P1	11
P2	12
P3	4
P4	6
P5	8

If Non-preemptive SJF scheduling is used then what will be average waiting time and average turnaround time?

Section – II

Q.5 Attempt any Three. **12**

a) Explain deadlock problem using bridge crossing example.
b) Explain Polling in I/O with example.
c) Explain Virtual memory concept with necessity.
d) Explain contiguous allocation mechanism in memory management with diagram.

Q.6 Attempt any One. **08**

a) Explain the concept of transforming I/O requests to Hardware operations with the help of diagram.

b) What is deadlock avoidance? Explain different ways available for recovery from deadlock.

Q.7 Attempt any One.

a) i) Given five memory partitions of 100KB, 500KB, 200KB, 300KB, and 600KB (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of 212KB. 417KB, 112KB, and 426 KB (in order)? Which algorithm makes the most efficient use of memory? **08**

ii) Consider the following segment table.

Segment	Base	Length
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1	2300	14
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What are the physical addresses for the following logical addresses?

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iii) 2,500
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b) Explain the concept of segmentation with paging with the help of diagram and demonstrate address translation.

Seat No.	

Set **S**

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

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

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

1) Physical memory is broken into fixed-sized blocks called _____.
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i)	a.out	a)	compiles the program
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8) The bootloader switches the OS from _____ to _____.
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Seat No.	

Set | S

T.E. (Part – I) (Old) (CGPA) Examination Nov/Dec-2019
Information Technology
PRINCIPLES OF OPERATING SYSTEMS

Day & Date: Friday, 06-12-2019 Max. Marks: 56
Time: 02:30 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
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Section – I

Q.2 Attempt any Three. **12**

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d) Explain race condition and critical-section problem.

Q.3 Attempt any One. **08**

a) Explain in detail the following schedulers with diagram.
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If Non-preemptive SJF scheduling is used then what will be average waiting time and average turnaround time?

Section – II

Q.5 Attempt any Three. **12**

a) Explain deadlock problem using bridge crossing example.
b) Explain Polling in I/O with example.
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Q.6 Attempt any One. **08**

a) Explain the concept of transforming I/O requests to Hardware operations with the help of diagram.

b) What is deadlock avoidance? Explain different ways available for recovery from deadlock.

Q.7 Attempt any One.

a) i) Given five memory partitions of 100KB, 500KB, 200KB, 300KB, and 600KB (in order), how would the first-fit, best-fit, and worst-fit algorithms place processes of 212KB. 417KB, 112KB, and 426 KB (in order)? Which algorithm makes the most efficient use of memory? **08**

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What are the physical addresses for the following logical addresses?

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b) Explain the concept of segmentation with paging with the help of diagram and demonstrate address translation.