SLR-TJ – 227

Seat No.	

Set P

S.E. (C.S.E.) Part – I (CBCS) Examination, 2017
APPLIED MATHEMATICS – I (New) (Semester – I)

Day and Date : Tuesday, 12-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions :
1) ***All*** *questions are* ***compulsory****.*
2) *Figures to the* ***right*** *indicate* ***full*** *marks.*
3) ***Use*** *of non-programmable calculator is allowed.*
4) *Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose correct answer : **14**

1) $\frac{1}{D^2+a^2}\cos ax$ is equal to

a) $\frac{x}{2a}\cos ax$ b) $\frac{x}{2a^2}\cos ax$ c) $\frac{x}{2a}\sin ax$ d) $\frac{x}{2a^2}\sin ax$

2) $\frac{1}{D-a}X$ is equal to

a) $\int Xe^{ax}dx$ b) $\int Xe^{-ax}dx$ c) $e^{ax}\int Xe^{-ax}dx$ d) $e^{-ax}\int Xe^{ax}dx$

3) The Laplace transform of t sint is

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

4) The value of the integral $\int_0^\infty e^{-t}t^5dt$ is

a) 1 b) 6 c) 24 d) 120

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

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

6) $z\{1\} =$

a) $\frac{1}{z-1}$ b) $\frac{1}{z+1}$ c) $\frac{z}{z-1}$ d) $\frac{z}{z+1}$

P.T.O.

7) 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) $-\frac{dF(z)}{dz}$

8) Fourier expansion of an odd function has only
a) Sine terms b) Cosine terms
c) Both sine and cosine terms d) None of these

9) If f(x) = $\sqrt{1-\cos x}$ then the constant term in Fourier expansion in (0, 2 π)

a) $\frac{2}{\pi}$ b) $\frac{\sqrt{2}}{\pi}$ c) $\frac{2\sqrt{2}}{\pi}$ d) $\frac{4}{\pi}$

10) If the probability of defective bulbs is 0.2, then the mean of the distribution of defective bulbs in a lot of 1000 bulbs is
a) 200 b) 160 c) 320 d) 440

11) A continuous random variable has the following probability density function f(x) = kx^2, o $\leq$ x $\leq$ 2 then k =
a) 8/3 b) 3/2 c) 2/3 d) 3/8

12) If $\bar{x}$ = 70, $\bar{y}$ = 149 and by 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

13) The fraction of time the system is busy is

a) $\frac{\lambda}{\mu}$ b) $\frac{\mu}{\lambda}$ c) $\frac{\lambda}{\mu^2}$ d) $\frac{\mu}{\lambda^2}$

14) In a M/M/1/∞ system with λ = 12 hours and μ = 16 hours the average number of customers in the system is
a) 5 b) 4 c) 3 d) 2

SLR-TJ – 227

Seat No.	

S.E. (C.S.E.) Part – I (CBCS) Examination, 2017
APPLIED MATHEMATICS – I (New) (Semester – I)

Day and Date : Tuesday, 12-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions :
1) ***All*** *questions are* ***compulsory****.*
2) *Figures to the* ***right*** *indicate* ***full*** *marks.*
3) ***Use*** *of non-programmable calculator is allowed.*

SECTION – I

2. Solve **any three** of the following : **9**

a) Solve $(D^2 + 2D + 1)y = 2x + x^2$.

b) Solve $(D^2 - 2D + 4)y = e^x \cos x$.

c) Find $L\left\{\frac{2\sin t \sin 5t}{t}\right\}$.

d) Find the inverse Laplace transform of $\frac{s}{(s-1)(s^2+4)}$.

e) Find $z\{Ke^{-ak}\}$, $k \geq 0$.

3. Solve **any three** of the following : **9**

a) Solve $(D^4 - 18D^2 + 81)y = 36\, e^{3x}$.

b) Evaluate $\int_0^\infty t e^{-2t} \sin 4t\, dt$, using Laplace transform.

c) Find inverse Laplace transform of $\frac{(s+2)e^{-s}}{(s+1)^4}$

d) Find $z\{2^k \cos(3k + 2)\}$, $k \geq 0$.

e) Find inverse Z-transform of $\frac{1}{(Z-5)^2}$, $|Z| < 5$.

4. Solve **any two** of the following : **10**

a) Solve $(D^2 + 3D + 2)y = \cos(e^x) - x^2$.

b) Find inverse z-transform of $\frac{1}{(z-3)(z-2)}$, where i) $2 < |z| < 3$, ii) $|z| > 3$.

c) Solve $y'' + 2y' + 2y = 5 \sin t$, subject to the conditions $y(0) = 0$ and $y'(0) = 0$, by using Laplace transform method.

SECTION – II

5. Attempt **any three** of the following :

a) Find the Fourier series of f(x) in (0, 2 π) where f(x) = x^2. **3**

b) Find the Fourier sine series of f(x) = x (π – x) in (0, π). **3**

c) Seven coins are tossed and the number of heads obtained is noted. The experiment is repeated 128 times and the following distribution is obtained.

No. of heads	:	0	1	2	3	4	5	6	7
Frequency	:	7	6	19	35	30	23	7	1

Fit a binomial distribution if the nature of the coins is not known. **3**

d) The equations to the two lines of regressions are 6y = 5x + 90 and 15x = 8y + 130 find the means of x and y and the coefficient of correlation. **3**

e) There are two typists in a type-writing shop. Each typist can type on an average 5 letters per hour. The rate of arrivals of letters is 8 per hour.

i) What is the probability that both the typist are busy ?

ii) What is the avearge idle time for which both typist are idle ? **3**

6. Attempt **any three** of the following :

a) If the probability that are of spade will be drawn from a pack of well shuffled cards at least one in 104 consecutive draws. **3**

b) In an examination given by 500 candidates the average and standard deviation of marks obtained are 40 and 10 respectively. Assuming the distribution of marks to be normal find approximately how many will pass if 50 is fixed as a minimum. **3**

(Given : For S.N.V. z area from z = 0 to z = 1 is 0.3413)

c) Compute the coefficient of correlation between x and y from the following data

x	:	2	4	5	6	8	11
y	:	18	12	10	8	7	5

3

d) Find the average waiting time per customer in the queue and in the system for M/M/1/∞ model, if λ = 9 and μ = 15 hours. **3**

e) Obtain Fourier series for f(x) = $|x|$, $-\pi \leq x < \pi$ **3**

7. Attempt **any two** of the following :

a) Expand f(x) = πx, $0 < x < 1$

= 0, $1 < x < 2$

Period '2' into a Fourier series. **5**

b) Customers arrive at a clinic according to a Poisson process with mean interval of 25 min. The physician needs on an average 20 min. for a patient to examine.

i) Find the excepted number of patients at the clinic and in the queue.

ii) Find percentage of patients who are not required to wait.

iii) On an average how much time is spent by a patient in the clinic. **5**

c) The following results were obtained from marks in applied mechanics and Engg. Mathematics in a examination.

	Marks in App. Maths (x)	**Marks in Engg. Maths (y)**
Mean	47.5	39.5
Standard deviation	16.8	10.8

and r = 0.95.

Find both regression equations and also estimate the value of y for x = 30. **5**

SLR-TJ – 227

Seat No.	

Set Q

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APPLIED MATHEMATICS – I (New) (Semester – I)

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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

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   c) Both sine and cosine terms d) None of these

2) If f(x) = $\sqrt{1-\cos x}$ then the constant term in Fourier expansion in (0, 2 π)
   a) $\frac{2}{\pi}$ b) $\frac{\sqrt{2}}{\pi}$ c) $\frac{2\sqrt{2}}{\pi}$ d) $\frac{4}{\pi}$

3) If the probability of defective bulbs is 0.2, then the mean of the distribution of defective bulbs in a lot of 1000 bulbs is
   a) 200 b) 160 c) 320 d) 440

4) A continuous random variable has the following probability density function f(x) = kx^2, o $\leq$ x $\leq$ 2 then k =
   a) 8/3 b) 3/2 c) 2/3 d) 3/8

5) If $\overline{x}$ = 70, $\overline{y}$ = 149 and by x = 0.7 then the line of regression of y on x is
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6) The fraction of time the system is busy is
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7) In a M/M/1/∞ system with λ = 12 hours and μ = 16 hours the average number of customers in the system is
   a) 5 b) 4 c) 3 d) 2

P.T.O.

8) $\frac{1}{D^2+a^2}\cos ax$ is equal to

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14) If z{f(k)} = F(z), then z{Kf(k)} =

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SLR-TJ – 227

Seat No.	

S.E. (C.S.E.) Part – I (CBCS) Examination, 2017
APPLIED MATHEMATICS – I (New) (Semester – I)

Day and Date : Tuesday, 12-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions :
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SECTION – I

2. Solve **any three** of the following : **9**

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Set Q

SECTION – II

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d) Find the average waiting time per customer in the queue and in the system for M/M/1/∞ model, if λ = 9 and μ = 15 hours. **3**

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Standard deviation	16.8	10.8

and r = 0.95.

Find both regression equations and also estimate the value of y for x = 30. **5**

SLR-TJ – 227

Seat No.	

Set R

S.E. (C.S.E.) Part – I (CBCS) Examination, 2017
APPLIED MATHEMATICS – I (New) (Semester – I)

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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose correct answer : **14**

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

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

2) $z\{1\} =$

a) $\frac{1}{z-1}$ b) $\frac{1}{z+1}$ c) $\frac{z}{z-1}$ d) $\frac{z}{z+1}$

3) If $z\{f(k)\} = F(z)$, then $z\{Kf(k)\} =$

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   a) y = 0.8x + 120 b) y = 0.6x + 80 c) y = 0.5x + 60 d) y = 0.7x + 100

4) The fraction of time the system is busy is
   a) $\frac{\lambda}{\mu}$ b) $\frac{\mu}{\lambda}$ c) $\frac{\lambda}{\mu^2}$ d) $\frac{\mu}{\lambda^2}$

5) In a M/M/1/∞ system with λ = 12 hours and μ = 16 hours the average number of customers in the system is
   a) 5 b) 4 c) 3 d) 2

6) $\frac{1}{D^2 + a^2}\cos ax$ is equal to
   a) $\frac{x}{2a}\cos ax$ b) $\frac{x}{2a^2}\cos ax$ c) $\frac{x}{2a}\sin ax$ d) $\frac{x}{2a^2}\sin ax$

7) $\frac{1}{D - a}X$ is equal to
   a) $\int Xe^{ax}dx$ b) $\int Xe^{-ax}dx$ c) $e^{ax}\int Xe^{-ax}dx$ d) $e^{-ax}\int Xe^{ax}dx$

P.T.O.

8) The Laplace transform of t sint is

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

9) The value of the integral $\int_0^\infty e^{-t}t^5 dt$ is

a) 1 b) 6 c) 24 d) 120

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

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

11) z{1} =

a) $\frac{1}{z-1}$ b) $\frac{1}{z+1}$ c) $\frac{z}{z-1}$ d) $\frac{z}{z+1}$

12) 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) $-\frac{dF(z)}{dz}$

13) Fourier expansion of an odd function has only

a) Sine terms b) Cosine terms
c) Both sine and cosine terms d) None of these

14) If f(x) = $\sqrt{1-\cos x}$ then the constant term in Fourier expansion in (0, 2 π)

a) $\frac{2}{\pi}$ b) $\frac{\sqrt{2}}{\pi}$ c) $\frac{2\sqrt{2}}{\pi}$ d) $\frac{4}{\pi}$

SLR-TJ – 227

Seat No.	

S.E. (C.S.E.) Part – I (CBCS) Examination, 2017
APPLIED MATHEMATICS – I (New) (Semester – I)

Day and Date : Tuesday, 12-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions :
1) ***All*** *questions are* ***compulsory****.*
2) *Figures to the* ***right*** *indicate* ***full*** *marks.*
3) ***Use*** *of non-programmable calculator is allowed.*

SECTION – I

2. Solve **any three** of the following : **9**

a) Solve $(D^2 + 2D + 1)y = 2x + x^2$.

b) Solve $(D^2 - 2D + 4)y = e^x \cos x$.

c) Find $L\left\{\frac{2\sin t \sin 5t}{t}\right\}$.

d) Find the inverse Laplace transform of $\frac{s}{(s-1)(s^2+4)}$.

e) Find $z\{Ke^{-ak}\}$, $k \geq 0$.

3. Solve **any three** of the following : **9**

a) Solve $(D^4 - 18D^2 + 81)y = 36\, e^{3x}$.

b) Evaluate $\int_0^\infty t e^{-2t} \sin 4t\, dt$, using Laplace transform.

c) Find inverse Laplace transform of $\frac{(s+2)e^{-s}}{(s+1)^4}$

d) Find $z\{2^k \cos(3k + 2)\}$, $k \geq 0$.

e) Find inverse Z-transform of $\frac{1}{(Z-5)^2}$, $|Z| < 5$.

4. Solve **any two** of the following : **10**

a) Solve $(D^2 + 3D + 2)y = \cos(e^x) - x^2$.

b) Find inverse z-transform of $\frac{1}{(z-3)(z-2)}$, where i) $2 < |z| < 3$, ii) $|z| > 3$.

c) Solve $y'' + 2y' + 2y = 5 \sin t$, subject to the conditions $y(0) = 0$ and $y'(0) = 0$, by using Laplace transform method.

Set S

SECTION – II

5. Attempt **any three** of the following :

a) Find the Fourier series of f(x) in (0, 2 π) where f(x) = x^2. **3**

b) Find the Fourier sine series of f(x) = x (π – x) in (0, π). **3**

c) Seven coins are tossed and the number of heads obtained is noted. The experiment is repeated 128 times and the following distribution is obtained.

No. of heads	:	0	1	2	3	4	5	6	7
Frequency	:	7	6	19	35	30	23	7	1

3

Fit a binomial distribution if the nature of the coins is not known.

d) The equations to the two lines of regressions are 6y = 5x + 90 and 15x = 8y + 130 find the means of x and y and the coefficient of correlation. **3**

e) There are two typists in a type-writing shop. Each typist can type on an average 5 letters per hour. The rate of arrivals of letters is 8 per hour.

i) What is the probability that both the typist are busy ?

ii) What is the avearge idle time for which both typist are idle ? **3**

6. Attempt **any three** of the following :

a) If the probability that are of spade will be drawn from a pack of well shuffled cards at least one in 104 consecutive draws. **3**

b) In an examination given by 500 candidates the average and standard deviation of marks obtained are 40 and 10 respectively. Assuming the distribution of marks to be normal find approximately how many will pass if 50 is fixed as a minimum. **3**

(Given : For S.N.V. z area from z = 0 to z = 1 is 0.3413)

c) Compute the coefficient of correlation between x and y from the following data

x	:	2	4	5	6	8	11
y	:	18	12	10	8	7	5

3

d) Find the average waiting time per customer in the queue and in the system for M/M/1/∞ model, if λ = 9 and μ = 15 hours. **3**

e) Obtain Fourier series for f(x) = $|x|$, $-\pi \leq x < \pi$ **3**

7. Attempt **any two** of the following :

a) Expand f(x) = πx, $0 < x < 1$

= 0, $1 < x < 2$

Period '2' into a Fourier series. **5**

b) Customers arrive at a clinic according to a Poisson process with mean interval of 25 min. The physician needs on an average 20 min. for a patient to examine.

i) Find the excepted number of patients at the clinic and in the queue.

ii) Find percentage of patients who are not required to wait.

iii) On an average how much time is spent by a patient in the clinic. **5**

c) The following results were obtained from marks in applied mechanics and Engg. Mathematics in a examination.

	Marks in App. Maths (x)	**Marks in Engg. Maths (y)**
Mean	47.5	39.5
Standard deviation	16.8	10.8

and r = 0.95.

Find both regression equations and also estimate the value of y for x = 30. **5**

SLR-TJ – 228

Seat No.	

Set P

S.E. (Computer Science and Engineering) (Part – I)
(CBCS Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (New)

Day and Date : Thursday, 14-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume ***suitable*** *data if necessary.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***
6) Symbol ~ indicates negation.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) The valid conclusion from the premises H1 : $P \rightarrow (Q \rightarrow S)$, H2 : ~ R V P and H3 : Q is
a) $P \rightarrow Q \rightarrow S$ b) $R \rightarrow P \rightarrow S$ c) $R \rightarrow S$ d) $Q \rightarrow S$

2) Which of the following suffix notation is valid ?
a) ab *+ b) ab + d/– c) ab + cd –* d) abc+

3) Which of the following two sets are disjoint ?
a) {1, 3, 5} and {1, 3, 6} b) {1, 2, 3} and {1, 2, 3}
c) {1, 3, 5} and (2, 3, 4} d) {1, 3, 5} and {2, 4, 6}

4) The power set of the set S = {3, {1, 4}, 5} is
a) {S, 3, 1, 4, {1, 3, 5}, {1, 4, 5}, {3, 4}, ϕ }
b) {S, 3, {1, 4}, 5}
c) {S, {3}, {3, {1, 4}}, {3, 5}, ϕ }
d) None of these

5) Which of the following is functionally complete set of connectives ?
a) {~, ^, V} b) {~, V}
c) {$\uparrow$ } d) Both b) and c)

P.T.O.

6) A relation R in a set X is _____ if, for every x and y in X, whenever xRy and yRx, then x = y.
   a) Antisymmetric b) Symmetric c) Reflexive d) Transitive

7) $(P \downarrow P)$ is equivalent to _____.
   a) ~ (P V P) b) ~ P ^ ~ P c) ~ P d) All of these

8) If in a monoid <M, *, e > every element is invertible, then the monoid is called a
   a) Group b) Semigroup
   c) Commutative d) None of the above

9) A group <G, *> in which the operation * is commutative is called an _____ group.
   a) abelian b) identity c) reverse d) semi

10) A mapping Ix : X $\rightarrow$ X is called _____ map if Ix = {<x, x> | x € X}.
   a) reverse b) onto c) identity d) invertible

11) A _____ is a partially ordered set <L,≤> in which every pair of elements a, b, € L has a greatest lower bound and a least upper bound.
   a) group b) lattice
   c) algebraic system d) boolean algebra

12) A semigroup <M, o> with an identity element with respect to the operation o is called a
   a) group b) monoid
   c) semigroup d) none of the above

13) A mapping f : X $\rightarrow$ Y is called _____ if distinct elements of X are mapped into distinct elements of Y.
   a) into b) one - to - one onto
   c) onto d) one - to - one

14) The suffix polish notation of the infix a + b/d – is
   a) ab + d/– b) abd +/– c) abd /+ – d) ab + d – /

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SLR-TJ – 228

Seat No.	

S.E. (Computer Science and Engineering) (Part – I)
(CBCS Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (New)

Day and Date : Thursday, 14-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume ***suitable*** *data if necessary.*
4) Symbol ~ indicates negation.

SECTION – I

2. Answer the following (**any 3**) : **(3×4=12)**

a) Show that R ^ (P V Q) is a valid conclusion from the premises P V Q, Q $\rightarrow$ R, P $\rightarrow$ M and ~ M.

b) Show that (P $\rightarrow$ Q) ^ (R $\rightarrow$ Q) $\Leftrightarrow$ (P V R) $\rightarrow$ Q.

c) Obtain the CNF of (P ^ ((P $\rightarrow$ Q)) $\rightarrow$ Q.

d) What is POSET ? Give procedure to draw Hasse diagram for power set of S = {a, b, c}.

e) Explain partition and covering of a set.

3. Answer the following (**any 2**) : **(2×8=16)**

a) Compare between Principle Conjuctive Normal Form (PCNF) and Conjuctive Normal Form (CNF) and obtain PCNF of ~ (P $\rightarrow$ Q).

b) Explain properties of binary relation in a set and solve the following problem Let R = {< 2, 3>, < 4, 5>, <3, 3>} and S = {<5, 3>, <3, 6>, <4, 2>, <2, 4>}.

Find R_oS, S_oR, $R_o(S_oR)$, $(R_oS)_oR$, R_oR, S_oS and R_oR_oR.

c) Explain basic concept of set with an example. If A = {3, 4, 5, 6}, B = {1, 2, 3}, C = {6, 7, 8, 9} then find A + B, B + C, A + B + C and (A + B) + (B + C).

SECTION – II

4. Answer the following (**any 3**) : **(3×4=12)**

   a) Explain the properties of algebraic systems with an examples.

   b) Write a short note on composition of functions.

   c) What is group ? Explain identity of the group with an example.

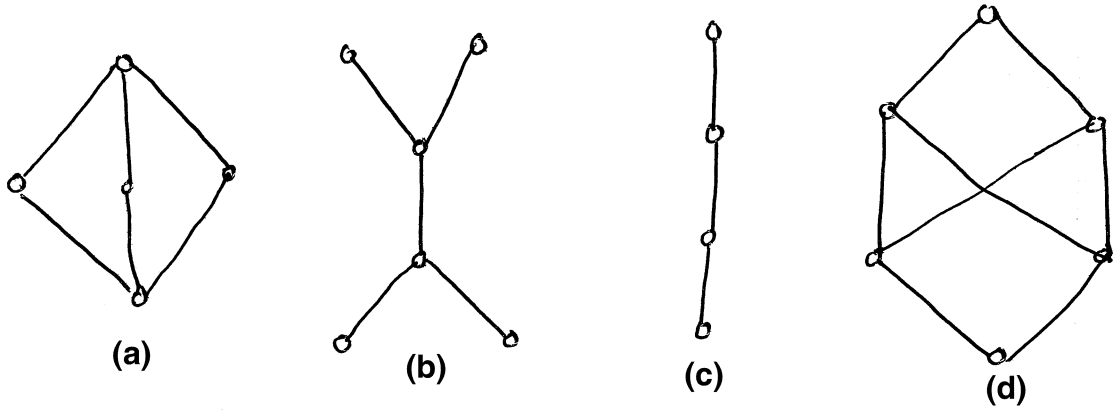
   d) Show that algebraic system <I, +>, where I is the set of integers, is abelian group.

   e) Explain Boolean functions.

5. Answer the following (**any 2**) : **(2×8=16)**

   a) What is function ? List all possible functions from X = {p, q, r} to Y = {0, 1} and indicate in each case whether the function is one - to - one, is onto and is one - to - one onto ?

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



   c) Define polish expression and translate the infix string (a + b ↑ c ↑ d) * (e + f/d) to reverse polish (suffix) expression.

SLR-TJ – 228

Seat No.	

Set Q

S.E. (Computer Science and Engineering) (Part – I)
(CBCS Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (New)

Day and Date : Thursday, 14-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume ***suitable*** *data if necessary.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***
6) Symbol ~ indicates negation.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) If in a monoid <M, *, e > every element is invertible, then the monoid is called a
a) Group b) Semigroup
c) Commutative d) None of the above

2) A group <G, *> in which the operation * is commutative is called an _____ group.
a) abelian b) identity c) reverse d) semi

3) A mapping Ix : X $\rightarrow$ X is called _____ map if Ix = {<x, x> | x € X}.
a) reverse b) onto c) identity d) invertible

4) A _____ is a partially ordered set <L,≤> in which every pair of elements a, b, € L has a greatest lower bound and a least upper bound.
a) group b) lattice
c) algebraic system d) boolean algebra

5) A semigroup <M, o> with an identity element with respect to the operation o is called a
a) group b) monoid
c) semigroup d) none of the above

P.T.O.

6) A mapping $f : X \rightarrow Y$ is called _____ if distinct elements of X are mapped into distinct elements of Y.
   a) into
   b) one - to - one onto
   c) onto
   d) one - to - one

7) The suffix polish notation of the infix a + b/d – is
   a) ab + d/–
   b) abd +/–
   c) abd /+ –
   d) ab + d – /

8) The valid conclusion from the premises H1 : $P \rightarrow (Q \rightarrow S)$, H2 : ~ R V P and H3 : Q is
   a) $P \rightarrow Q \rightarrow S$
   b) $R \rightarrow P \rightarrow S$
   c) $R \rightarrow S$
   d) $Q \rightarrow S$

9) Which of the following suffix notation is valid ?
   a) ab *+
   b) ab + d/–
   c) ab + cd –*
   d) abc+

10) Which of the following two sets are disjoint ?
   a) {1, 3, 5} and {1, 3, 6}
   b) {1, 2, 3} and {1, 2, 3}
   c) {1, 3, 5} and (2, 3, 4}
   d) {1, 3, 5} and {2, 4, 6}

11) The power set of the set S = {3, {1, 4}, 5} is
   a) {S, 3, 1, 4, {1, 3, 5}, {1, 4, 5}, {3, 4}, ϕ }
   b) {S, 3, {1, 4}, 5}
   c) {S, {3}, {3, {1, 4}}, {3, 5}, ϕ }
   d) None of these

12) Which of the following is functionally complete set of connectives ?
   a) {~, ^, V}
   b) {~, V}
   c) {$\uparrow$ }
   d) Both b) and c)

13) A relation R in a set X is _____ if, for every x and y in X, whenever xRy and yRx, then x = y.
   a) Antisymmetric
   b) Symmetric
   c) Reflexive
   d) Transitive

14) $(P \downarrow P)$ is equivalent to _____.
   a) ~ (P V P)
   b) ~ P ^ ~ P
   c) ~ P
   d) All of these

_____

SLR-TJ – 228

Seat No.	

S.E. (Computer Science and Engineering) (Part – I)
(CBCS Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (New)

Day and Date : Thursday, 14-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume ***suitable*** *data if necessary.*
4) Symbol ~ indicates negation.

SECTION – I

2. Answer the following (**any 3**) : **(3×4=12)**

a) Show that R ^ (P V Q) is a valid conclusion from the premises P V Q, Q $\rightarrow$ R, P $\rightarrow$ M and ~ M.

b) Show that (P $\rightarrow$ Q) ^ (R $\rightarrow$ Q) $\Leftrightarrow$ (P V R) $\rightarrow$ Q.

c) Obtain the CNF of (P ^ ((P $\rightarrow$ Q)) $\rightarrow$ Q.

d) What is POSET ? Give procedure to draw Hasse diagram for power set of S = {a, b, c}.

e) Explain partition and covering of a set.

3. Answer the following (**any 2**) : **(2×8=16)**

a) Compare between Principle Conjuctive Normal Form (PCNF) and Conjuctive Normal Form (CNF) and obtain PCNF of ~ (P $\rightarrow$ Q).

b) Explain properties of binary relation in a set and solve the following problem Let R = {< 2, 3>, < 4, 5>, <3, 3>} and S = {<5, 3>, <3, 6>, <4, 2>, <2, 4>}.

Find R_oS, S_oR, $R_o(S_oR)$, $(R_oS)_oR$, R_oR, S_oS and R_oR_oR.

c) Explain basic concept of set with an example. If A = {3, 4, 5, 6}, B = {1, 2, 3}, C = {6, 7, 8, 9} then find A + B, B + C, A + B + C and (A + B) + (B + C).

SECTION – II

4. Answer the following (**any 3**) : **(3×4=12)**

   a) Explain the properties of algebraic systems with an examples.

   b) Write a short note on composition of functions.

   c) What is group ? Explain identity of the group with an example.

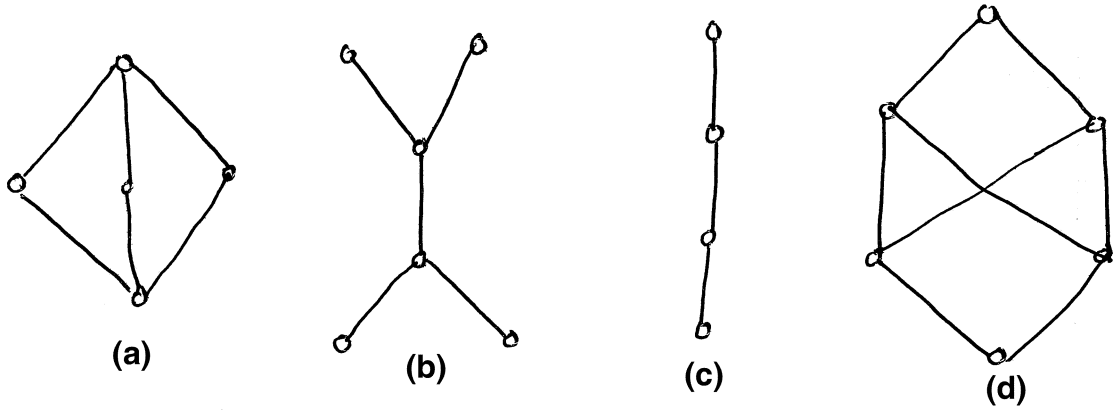
   d) Show that algebraic system <I, +>, where I is the set of integers, is abelian group.

   e) Explain Boolean functions.

5. Answer the following (**any 2**) : **(2×8=16)**

   a) What is function ? List all possible functions from X = {p, q, r} to Y = {0, 1} and indicate in each case whether the function is one - to - one, is onto and is one - to - one onto ?

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



   c) Define polish expression and translate the infix string (a + b ↑ c ↑ d) * (e + f/d) to reverse polish (suffix) expression.

SLR-TJ – 228

Seat No.	

Set R

S.E. (Computer Science and Engineering) (Part – I)
(CBCS Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (New)

Day and Date : Thursday, 14-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume ***suitable*** *data if necessary.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***
6) Symbol ~ indicates negation.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) Which of the following is functionally complete set of connectives ?
a) {~, ^, V} b) {~, V}
c) {↑} d) Both b) and c)

2) A relation R in a set X is _____ if, for every x and y in X, whenever xRy and yRx, then x = y.
a) Antisymmetric b) Symmetric c) Reflexive d) Transitive

3) $(P \downarrow P)$ is equivalent to _____.
a) ~ (P V P) b) ~ P ^ ~ P c) ~ P d) All of these

4) If in a monoid <M, *, e > every element is invertible, then the monoid is called a
a) Group b) Semigroup
c) Commutative d) None of the above

5) A group <G, *> in which the operation * is commutative is called an _____ group.
a) abelian b) identity c) reverse d) semi

6) A mapping Ix : X → X is called _____ map if Ix = {<x, x> | x € X}.
a) reverse b) onto c) identity d) invertible

P.T.O.

7) A _____ is a partially ordered set <L,≤> in which every pair of elements a, b, € L has a greatest lower bound and a least upper bound.
   a) group
   b) lattice
   c) algebraic system
   d) boolean algebra

8) A semigroup <M, o> with an identity element with respect to the operation o is called a
   a) group
   b) monoid
   c) semigroup
   d) none of the above

9) A mapping f : X → Y is called _____ if distinct elements of X are mapped into distinct elements of Y.
   a) into
   b) one - to - one onto
   c) onto
   d) one - to - one

10) The suffix polish notation of the infix a + b/d – is
   a) ab + d/–
   b) abd +/–
   c) abd /+ –
   d) ab + d – /

11) The valid conclusion from the premises H1 : P → (Q → S), H2 : ~ R V P and H3 : Q is
   a) P → Q → S
   b) R → P → S
   c) R → S
   d) Q → S

12) Which of the following suffix notation is valid ?
   a) ab *+
   b) ab + d/–
   c) ab + cd –*
   d) abc+

13) Which of the following two sets are disjoint ?
   a) {1, 3, 5} and {1, 3, 6}
   b) {1, 2, 3} and {1, 2, 3}
   c) {1, 3, 5} and (2, 3, 4}
   d) {1, 3, 5} and {2, 4, 6}

14) The power set of the set S = {3, {1, 4}, 5} is
   a) {S, 3, 1, 4, {1, 3, 5}, {1, 4, 5}, {3, 4}, ϕ }
   b) {S, 3, {1, 4}, 5}
   c) {S, {3}, {3, {1, 4}}, {3, 5}, ϕ }
   d) None of these

_____

SLR-TJ – 228

Seat No.	

S.E. (Computer Science and Engineering) (Part – I)
(CBCS Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (New)

Day and Date : Thursday, 14-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume ***suitable*** *data if necessary.*
4) Symbol ~ indicates negation.

SECTION – I

2. Answer the following (**any 3**) : **(3×4=12)**

a) Show that R ^ (P V Q) is a valid conclusion from the premises P V Q, Q $\rightarrow$ R, P $\rightarrow$ M and ~ M.

b) Show that (P $\rightarrow$ Q) ^ (R $\rightarrow$ Q) $\Leftrightarrow$ (P V R) $\rightarrow$ Q.

c) Obtain the CNF of (P ^ ((P $\rightarrow$ Q)) $\rightarrow$ Q.

d) What is POSET ? Give procedure to draw Hasse diagram for power set of S = {a, b, c}.

e) Explain partition and covering of a set.

3. Answer the following (**any 2**) : **(2×8=16)**

a) Compare between Principle Conjuctive Normal Form (PCNF) and Conjuctive Normal Form (CNF) and obtain PCNF of ~ (P $\rightarrow$ Q).

b) Explain properties of binary relation in a set and solve the following problem Let R = {< 2, 3>, < 4, 5>, <3, 3>} and S = {<5, 3>, <3, 6>, <4, 2>, <2, 4>}.

Find R_oS, S_oR, $R_o(S_oR)$, $(R_oS)_oR$, R_oR, S_oS and R_oR_oR.

c) Explain basic concept of set with an example. If A = {3, 4, 5, 6}, B = {1, 2, 3}, C = {6, 7, 8, 9} then find A + B, B + C, A + B + C and (A + B) + (B + C).

SECTION – II

4. Answer the following (**any 3**) : **(3×4=12)**

   a) Explain the properties of algebraic systems with an examples.

   b) Write a short note on composition of functions.

   c) What is group ? Explain identity of the group with an example.

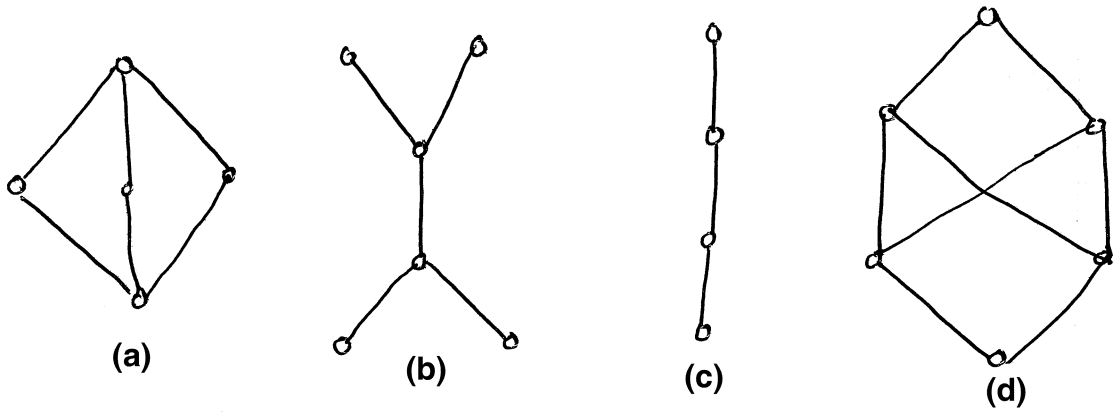
   d) Show that algebraic system <I, +>, where I is the set of integers, is abelian group.

   e) Explain Boolean functions.

5. Answer the following (**any 2**) : **(2×8=16)**

   a) What is function ? List all possible functions from X = {p, q, r} to Y = {0, 1} and indicate in each case whether the function is one - to - one, is onto and is one - to - one onto ?

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



   c) Define polish expression and translate the infix string (a + b ↑ c ↑ d) * (e + f/d) to reverse polish (suffix) expression.

SLR-TJ – 228

Seat No.	

Set **S**

S.E. (Computer Science and Engineering) (Part – I)
(CBCS Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (New)

Day and Date : Thursday, 14-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume ***suitable*** *data if necessary.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***
6) Symbol ~ indicates negation.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) A mapping Ix : X $\rightarrow$ X is called _____ map if Ix = {<x, x> | x € X}.
   a) reverse b) onto
   c) identity d) invertible

2) A _____ is a partially ordered set <L,≤> in which every pair of elements a, b, € L has a greatest lower bound and a least upper bound.
   a) group b) lattice
   c) algebraic system d) boolean algebra

3) A semigroup <M, o> with an identity element with respect to the operation o is called a
   a) group b) monoid
   c) semigroup d) none of the above

4) A mapping f : X $\rightarrow$ Y is called _____ if distinct elements of X are mapped into distinct elements of Y.
   a) into b) one - to - one onto
   c) onto d) one - to - one

5) The suffix polish notation of the infix a + b/d – is
   a) ab + d/– b) abd +/–
   c) abd /+ – d) ab + d – /

P.T.O.

6) The valid conclusion from the premises H1 : $P \rightarrow (Q \rightarrow S)$, H2 : $\sim R \vee P$ and H3 : Q is
   a) $P \rightarrow Q \rightarrow S$ b) $R \rightarrow P \rightarrow S$ c) $R \rightarrow S$ d) $Q \rightarrow S$
7) Which of the following suffix notation is valid ?
   a) ab *+ b) ab + d/– c) ab + cd –* d) abc+
8) Which of the following two sets are disjoint ?
   a) {1, 3, 5} and {1, 3, 6} b) {1, 2, 3} and {1, 2, 3}
   c) {1, 3, 5} and (2, 3, 4} d) {1, 3, 5} and {2, 4, 6}
9) The power set of the set S = {3, {1, 4}, 5} is
   a) {S, 3, 1, 4, {1, 3, 5}, {1, 4, 5}, {3, 4}, ϕ }
   b) {S, 3, {1, 4}, 5}
   c) {S, {3}, {3, {1, 4}}, {3, 5}, ϕ }
   d) None of these
10) Which of the following is functionally complete set of connectives ?
   a) {~, ^, V} b) {~, V}
   c) {$\uparrow$ } d) Both b) and c)
11) A relation R in a set X is _____ if, for every x and y in X, whenever xRy and yRx, then x = y.
   a) Antisymmetric b) Symmetric c) Reflexive d) Transitive
12) $(P \downarrow P)$ is equivalent to _____.
   a) ~ (P V P) b) ~ P ^ ~ P c) ~ P d) All of these
13) If in a monoid <M, *, e > every element is invertible, then the monoid is called a
   a) Group b) Semigroup
   c) Commutative d) None of the above
14) A group <G, *> in which the operation * is commutative is called an _____ group.
   a) abelian b) identity c) reverse d) semi

_____

SLR-TJ – 228

Seat No.	

S.E. (Computer Science and Engineering) (Part – I)
(CBCS Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (New)

Day and Date : Thursday, 14-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume ***suitable*** *data if necessary.*
4) Symbol ~ indicates negation.

SECTION – I

2. Answer the following (**any 3**) : **(3×4=12)**

a) Show that R ^ (P V Q) is a valid conclusion from the premises P V Q, Q $\rightarrow$ R, P $\rightarrow$ M and ~ M.

b) Show that (P $\rightarrow$ Q) ^ (R $\rightarrow$ Q) $\Leftrightarrow$ (P V R) $\rightarrow$ Q.

c) Obtain the CNF of (P ^ ((P $\rightarrow$ Q)) $\rightarrow$ Q.

d) What is POSET ? Give procedure to draw Hasse diagram for power set of S = {a, b, c}.

e) Explain partition and covering of a set.

3. Answer the following (**any 2**) : **(2×8=16)**

a) Compare between Principle Conjuctive Normal Form (PCNF) and Conjuctive Normal Form (CNF) and obtain PCNF of ~ (P $\rightarrow$ Q).

b) Explain properties of binary relation in a set and solve the following problem Let R = {< 2, 3>, < 4, 5>, <3, 3>} and S = {<5, 3>, <3, 6>, <4, 2>, <2, 4>}.

Find R_oS, S_oR, $R_o(S_oR)$, $(R_oS)_oR$, R_oR, S_oS and R_oR_oR.

c) Explain basic concept of set with an example. If A = {3, 4, 5, 6}, B = {1, 2, 3}, C = {6, 7, 8, 9} then find A + B, B + C, A + B + C and (A + B) + (B + C).

SECTION – II

4. Answer the following (**any 3**) : **(3×4=12)**

   a) Explain the properties of algebraic systems with an examples.

   b) Write a short note on composition of functions.

   c) What is group ? Explain identity of the group with an example.

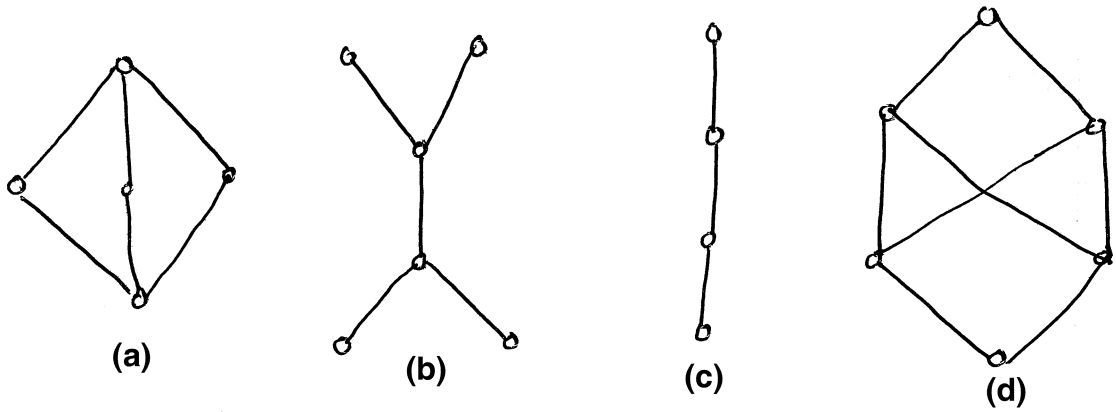
   d) Show that algebraic system <I, +>, where I is the set of integers, is abelian group.

   e) Explain Boolean functions.

5. Answer the following (**any 2**) : **(2×8=16)**

   a) What is function ? List all possible functions from X = {p, q, r} to Y = {0, 1} and indicate in each case whether the function is one - to - one, is onto and is one - to - one onto ?

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



   c) Define polish expression and translate the infix string (a + b ↑ c ↑ d) * (e + f/d) to reverse polish (suffix) expression.

SLR-TJ – 229

Seat No.	

Set **P**

S.E. – C.S.E. (New) (Part – I) (CBCS) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 16-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3. Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(1×14=14)**

1) An _____ signal is one in which the signal intensity varies in a smooth fashion over time.
   a) Analog b) Digital c) Discrete d) All above
2) The bandwidth of a channel is 2 kHz and there are 8 number of digital signals, find channel capacity ?
   a) 6000 bps b) 12000 bps c) 18000 bps d) 1200 bps
3) The sine wave is the fundamental _____ signal.
   a) Periodic b) Digital c) Non periodic d) All
4) Where is a hub specified in the OSI model ?
   a) Session layer b) Physical layer
   c) Data link layer d) Application layer
5) Which of the following are TCP/IP protocols used at the application layer of the OSI model ?
   a) IP b) Both c) and d)
   c) TELNET d) FTP
6) Communication between two layers of the same machine is occurs through
   a) Protocol b) Peer entities
   c) Interface d) Physical medium

7) _____ method is used to detect as well as correct the error.
   a) CRC
   b) Two dimensions parity check
   c) Parity check
   d) Hamming code

8) Protocol which uses contention at low load to provide low delay, but used a collision-free technique at high load to provide good channel efficiency is called as
   a) Limited contention protocol
   b) Binary countdown protocol
   c) A bit map protocol
   d) Reservation protocol

9) IEEE 802.5 std. uses star-shape ring is known as
   a) Token Bus
   b) Token Ring
   c) Wire Centre
   d) DQDB

10) _____ field of IEEE 802.5 std. distinguishes the data frames from various possible control frames.
   a) Frame control byte
   b) Access control byte
   c) Starting delimiter
   d) Ending delimiter

11) The algorithm used by the transparent bridge is
   a) Forward learning
   b) Backward learning
   c) Learning
   d) None of these

12) _____ command is used to allow stations to leave the ring.
   a) Set-successor
   b) Claim-token
   c) Token
   d) None

13) LLC is a sublayer of
   a) Physical layer
   b) Data link layer
   c) Network layer
   d) Transport layer

14) LAN's are distinguished from other kind of networks by which of the following characteristics ?
   a) Their size
   b) Their topology
   c) Their transmission technology
   d) All of the above

SLR-TJ – 229

Seat No.	

S.E. – C.S.E. (New) (Part – I) (CBCS) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 16-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any four** (**Each** carries **4** marks) : **(4×4=16)**

   a) How noise affecting on performance of communication system ? What are its different types ?

   b) What is guided transmission media ? Explain optical fibre cable in detail.

   c) Draw and explain TCP/IP reference model.

   d) Describe unrestricted simplex protocol.

   e) With neat labeled diagram explain LAN topologies.

3. Attempt **any one** : **(6×1=6)**

   a) How "Go-Back-N" and "Selective Repeat" sliding window protocols are dealing with errors in presence of pipelining ? Explain it in detail.

   b) Describe OSI reference model. Explain functions of each layer in detail.

4. Attempt the following : **(6×1=6)**

   What do you mean by Data encoding ? Explain the types of digital-data-to-digital signal encoding.

SECTION – II

5. Attempt **any four** (**Each** carries **4** marks) : **(4×4=16)**

   a) Explain CSMA protocol with its types.

   b) Explain Transparent Bridge with neat diagram.

   c) Compare the different connecting devices like Bridges, Switches and Routers.

   d) Write a short note on Firewall.

   e) Explain Leaky bucket algorithm with its advantages and disadvantages.

6. Attempt **any one** : **(6×1=6)**

   a) What is collision-free protocol ? Explain Binary countdown protocol in detail.

   b) State the problem of Token Ring. Explain working of Wire Centre.

7. Attempt the following : **(6×1=6)**

   Explain Flow-based routing algorithm in detail.

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Seat No.	

Set Q

S.E. – C.S.E. (New) (Part – I) (CBCS) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 16-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3. Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(1×14=14)**

1) Protocol which uses contention at low load to provide low delay, but used a collision-free technique at high load to provide good channel efficiency is called as
   a) Limited contention protocol b) Binary countdown protocol
   c) A bit map protocol d) Reservation protocol
2) IEEE 802.5 std. uses star-shape ring is known as
   a) Token Bus b) Token Ring c) Wire Centre d) DQDB
3) _____ field of IEEE 802.5 std. distinguishes the data frames from various possible control frames.
   a) Frame control byte b) Access control byte
   c) Starting delimiter d) Ending delimiter
4) The algorithm used by the transparent bridge is
   a) Forward learning b) Backward learning
   c) Learning d) None of these
5) _____ command is used to allow stations to leave the ring.
   a) Set-successor b) Claim-token c) Token d) None
6) LLC is a sublayer of
   a) Physical layer b) Data link layer
   c) Network layer d) Transport layer

P.T.O.

7) LAN's are distinguished from other kind of networks by which of the following characteristics ?
   a) Their size
   b) Their topology
   c) Their transmission technology
   d) All of the above

8) An _____ signal is one in which the signal intensity varies in a smooth fashion over time.
   a) Analog
   b) Digital
   c) Discrete
   d) All above

9) The bandwidth of a channel is 2 kHz and there are 8 number of digital signals, find channel capacity ?
   a) 6000 bps
   b) 12000 bps
   c) 18000 bps
   d) 1200 bps

10) The sine wave is the fundamental _____ signal.
   a) Periodic
   b) Digital
   c) Non periodic
   d) All

11) Where is a hub specified in the OSI model ?
   a) Session layer
   b) Physical layer
   c) Data link layer
   d) Application layer

12) Which of the following are TCP/IP protocols used at the application layer of the OSI model ?
   a) IP
   b) Both c) and d)
   c) TELNET
   d) FTP

13) Communication between two layers of the same machine is occurs through
   a) Protocol
   b) Peer entities
   c) Interface
   d) Physical medium

14) _____ method is used to detect as well as correct the error.
   a) CRC
   b) Two dimensions parity check
   c) Parity check
   d) Hamming code

SLR-TJ – 229

Seat No.	

S.E. – C.S.E. (New) (Part – I) (CBCS) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 16-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any four** (**Each** carries **4** marks) : **(4×4=16)**

   a) How noise affecting on performance of communication system ? What are its different types ?

   b) What is guided transmission media ? Explain optical fibre cable in detail.

   c) Draw and explain TCP/IP reference model.

   d) Describe unrestricted simplex protocol.

   e) With neat labeled diagram explain LAN topologies.

3. Attempt **any one** : **(6×1=6)**

   a) How "Go-Back-N" and "Selective Repeat" sliding window protocols are dealing with errors in presence of pipelining ? Explain it in detail.

   b) Describe OSI reference model. Explain functions of each layer in detail.

4. Attempt the following : **(6×1=6)**

   What do you mean by Data encoding ? Explain the types of digital-data-to-digital signal encoding.

SECTION – II

5. Attempt **any four** (**Each** carries **4** marks) : **(4×4=16)**

   a) Explain CSMA protocol with its types.

   b) Explain Transparent Bridge with neat diagram.

   c) Compare the different connecting devices like Bridges, Switches and Routers.

   d) Write a short note on Firewall.

   e) Explain Leaky bucket algorithm with its advantages and disadvantages.

6. Attempt **any one** : **(6×1=6)**

   a) What is collision-free protocol ? Explain Binary countdown protocol in detail.

   b) State the problem of Token Ring. Explain working of Wire Centre.

7. Attempt the following : **(6×1=6)**

   Explain Flow-based routing algorithm in detail.

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Seat No.	

Set **R**

S.E. – C.S.E. (New) (Part – I) (CBCS) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 16-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3. Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(1×14=14)**

1) Which of the following are TCP/IP protocols used at the application layer of the OSI model ?
   a) IP b) Both c) and d)
   c) TELNET d) FTP

2) Communication between two layers of the same machine is occurs through
   a) Protocol b) Peer entities
   c) Interface d) Physical medium

3) _____ method is used to detect as well as correct the error.
   a) CRC b) Two dimensions parity check
   c) Parity check d) Hamming code

4) Protocol which uses contention at low load to provide low delay, but used a collision-free technique at high load to provide good channel efficiency is called as
   a) Limited contention protocol b) Binary countdown protocol
   c) A bit map protocol d) Reservation protocol

5) IEEE 802.5 std. uses star-shape ring is known as
   a) Token Bus b) Token Ring c) Wire Centre d) DQDB

6) _____ field of IEEE 802.5 std. distinguishes the data frames from various possible control frames.
   a) Frame control byte b) Access control byte
   c) Starting delimiter d) Ending delimiter

7) The algorithm used by the transparent bridge is
   a) Forward learning b) Backward learning
   c) Learning d) None of these

8) _____ command is used to allow stations to leave the ring.
   a) Set-successor b) Claim-token c) Token d) None

9) LLC is a sublayer of
   a) Physical layer b) Data link layer
   c) Network layer d) Transport layer

10) LAN's are distinguished from other kind of networks by which of the following characteristics ?
   a) Their size b) Their topology
   c) Their transmission technology d) All of the above

11) An _____ signal is one in which the signal intensity varies in a smooth fashion over time.
   a) Analog b) Digital c) Discrete d) All above

12) The bandwidth of a channel is 2 kHz and there are 8 number of digital signals, find channel capacity ?
   a) 6000 bps b) 12000 bps c) 18000 bps d) 1200 bps

13) The sine wave is the fundamental _____ signal.
   a) Periodic b) Digital c) Non periodic d) All

14) Where is a hub specified in the OSI model ?
   a) Session layer b) Physical layer
   c) Data link layer d) Application layer

_____

SLR-TJ – 229

Seat No.	

S.E. – C.S.E. (New) (Part – I) (CBCS) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 16-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any four** (**Each** carries **4** marks) : **(4×4=16)**

   a) How noise affecting on performance of communication system ? What are its different types ?

   b) What is guided transmission media ? Explain optical fibre cable in detail.

   c) Draw and explain TCP/IP reference model.

   d) Describe unrestricted simplex protocol.

   e) With neat labeled diagram explain LAN topologies.

3. Attempt **any one** : **(6×1=6)**

   a) How "Go-Back-N" and "Selective Repeat" sliding window protocols are dealing with errors in presence of pipelining ? Explain it in detail.

   b) Describe OSI reference model. Explain functions of each layer in detail.

4. Attempt the following : **(6×1=6)**

   What do you mean by Data encoding ? Explain the types of digital-data-to-digital signal encoding.

SECTION – II

5. Attempt **any four** (**Each** carries **4** marks) : **(4×4=16)**

   a) Explain CSMA protocol with its types.

   b) Explain Transparent Bridge with neat diagram.

   c) Compare the different connecting devices like Bridges, Switches and Routers.

   d) Write a short note on Firewall.

   e) Explain Leaky bucket algorithm with its advantages and disadvantages.

6. Attempt **any one** : **(6×1=6)**

   a) What is collision-free protocol ? Explain Binary countdown protocol in detail.

   b) State the problem of Token Ring. Explain working of Wire Centre.

7. Attempt the following : **(6×1=6)**

   Explain Flow-based routing algorithm in detail.

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Seat No.	

Set **S**

S.E. – C.S.E. (New) (Part – I) (CBCS) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 16-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3. Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(1×14=14)**

1) _____ field of IEEE 802.5 std. distinguishes the data frames from various possible control frames.
   a) Frame control byte b) Access control byte
   c) Starting delimiter d) Ending delimiter

2) The algorithm used by the transparent bridge is
   a) Forward learning b) Backward learning
   c) Learning d) None of these

3) _____ command is used to allow stations to leave the ring.
   a) Set-successor b) Claim-token c) Token d) None

4) LLC is a sublayer of
   a) Physical layer b) Data link layer
   c) Network layer d) Transport layer

5) LAN's are distinguished from other kind of networks by which of the following characteristics ?
   a) Their size b) Their topology
   c) Their transmission technology d) All of the above

6) An _____ signal is one in which the signal intensity varies in a smooth fashion over time.
   a) Analog b) Digital c) Discrete d) All above

7) The bandwidth of a channel is 2 kHz and there are 8 number of digital signals, find channel capacity ?
   a) 6000 bps b) 12000 bps c) 18000 bps d) 1200 bps
8) The sine wave is the fundamental _____ signal.
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9) Where is a hub specified in the OSI model ?
   a) Session layer b) Physical layer
   c) Data link layer d) Application layer
10) Which of the following are TCP/IP protocols used at the application layer of the OSI model ?
   a) IP b) Both c) and d)
   c) TELNET d) FTP
11) Communication between two layers of the same machine is occurs through
   a) Protocol b) Peer entities
   c) Interface d) Physical medium
12) _____ method is used to detect as well as correct the error.
   a) CRC b) Two dimensions parity check
   c) Parity check d) Hamming code
13) Protocol which uses contention at low load to provide low delay, but used a collision-free technique at high load to provide good channel efficiency is called as
   a) Limited contention protocol b) Binary countdown protocol
   c) A bit map protocol d) Reservation protocol
14) IEEE 802.5 std. uses star-shape ring is known as
   a) Token Bus b) Token Ring c) Wire Centre d) DQDB

SLR-TJ – 229

Seat No.	

S.E. – C.S.E. (New) (Part – I) (CBCS) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 16-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any four** (**Each** carries **4** marks) : **(4×4=16)**

   a) How noise affecting on performance of communication system ? What are its different types ?

   b) What is guided transmission media ? Explain optical fibre cable in detail.

   c) Draw and explain TCP/IP reference model.

   d) Describe unrestricted simplex protocol.

   e) With neat labeled diagram explain LAN topologies.

3. Attempt **any one** : **(6×1=6)**

   a) How "Go-Back-N" and "Selective Repeat" sliding window protocols are dealing with errors in presence of pipelining ? Explain it in detail.

   b) Describe OSI reference model. Explain functions of each layer in detail.

4. Attempt the following : **(6×1=6)**

   What do you mean by Data encoding ? Explain the types of digital-data-to-digital signal encoding.

SECTION – II

5. Attempt **any four** (**Each** carries **4** marks) : **(4×4=16)**

   a) Explain CSMA protocol with its types.

   b) Explain Transparent Bridge with neat diagram.

   c) Compare the different connecting devices like Bridges, Switches and Routers.

   d) Write a short note on Firewall.

   e) Explain Leaky bucket algorithm with its advantages and disadvantages.

6. Attempt **any one** : **(6×1=6)**

   a) What is collision-free protocol ? Explain Binary countdown protocol in detail.

   b) State the problem of Token Ring. Explain working of Wire Centre.

7. Attempt the following : **(6×1=6)**

   Explain Flow-based routing algorithm in detail.

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Seat No.	

Set P

S.E. (CSE) (Part – I) (New – CBCS) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) How many inputs and outputs does a full adder have ?
   a) Two inputs, two outputs b) Two inputs, one output
   c) Three inputs, two outputs d) None of the above

2) IC 74151 is a multiplexer having
   a) 8 : 1 lines b) 1 : 16 lines c) 1 : 32 lines d) 1 : 8 lines

3) According to Boolean Algebra $(\overline{A} + AB)$ equals
   a) A b) B c) AB d) $\overline{A} + B$

4) Gray code is
   a) Non weighted code b) Weighted code
   c) Alphanumeric code d) None of these

5) Demultiplexer is represented by
   a) $2^n * 1$ b) $2^n * n$ c) $1 * 2^n$ d) $2 * 2^n$

6) The gates required to build a half subtractor are
   a) EX-OR gate and NOR gate b) EX-OR gate and OR gate
   c) EX-OR gate, NOT gate and AND gate d) Four NAND gates

7) When $\overline{A}$, $\overline{B}$ are inputs to NAND gates according to Demorgan theorem the output X could be
   a) X = A + B b) $X = \overline{AB}$ c) X = (A) (B) d) $X = A\overline{B}$

P.T.O.

8) On a master-slave flip-flop, when is the master enabled ?

a) When the gate is LOW
b) When the gate is HIGH
c) Both of the above
d) Neither of the above

9) Which of the following is correct for a gated D flip-flop ?

a) The output toggles if one of the inputs is held HIGH
b) Only one of the inputs can be HIGH at a time
c) The output complement follows the input when enabled
d) Q output follows the input D when the enable is HIGH

10) The full form of HDL is

a) Higher Descriptive Language
b) Higher Definition Language
c) High Definition Language
d) High Descriptive Language

11) Identify port in a verilog

a) inout
b) register
c) wire
d) none of these

12) The four bit binary is represented by

a) 4'h0000
b) 4'b0000
c) 4'o0000
d) 4'0000

13) HDL implementation model are

a) Behavioural level
b) Dataflow level
c) Stack model
d) Both a and b model

14) If an active-HIGH S-R latch has a 0 on the S input and a 1 on the R input and then the R input goes to 0, the latch will be

a) SET
b) RESET
c) Clear
d) Invalid

SLR-TJ – 230

Seat No.	

S.E. (CSE) (Part – I) (New – CBCS) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any one** : **8**

1) Draw the K-map for SOP expression and realize it using NAND gate

$F(A, B, C) = \sum m(0, 1, 2, 3, 5)$.

2) Design and explain driver for 7 segment display using IC 7447.

3. Attempt **any two** : **10**

1) Represent the number $(396)_{10}$ in following codes form
   i) Binary code
   ii) BCD code
   iii) Excess-3 code
   iv) Gray code
   v) Octal code.

2) Minimize the following logic function using K-map and realize it using the basic gates,

$F(A, B, C, D) = \sum m(0, 1, 2, 3, 5, 7, 8, 9, 11, 14, 15)$.

3) Implement 8 : 1 MUX using 2 : 1 MUX.

4. Attempt **any two** : **10**

1) Perform addition using 2's complement of the following number :
   a) 28 + 23
   b) – 28 + 23
   c) 23 – 48.

2) Write a short note on IC 74154.

3) Explain Full Adder using K-Map.

Set P

SECTION – II

5. Attempt **any one** : **(8×1=8)**

   1) What is counter ? Design 3 bit synchronous counter using JK flip-flop.
   2) Explain HDL implementation model with example.

6. Attempt **any two** : **(5×2=10)**

   1) Write a verilog HDL code for 8 : 1 multiplexer.
   2) Explain Master Slave JK flip-flop.
   3) Write a HDL code for RS flip-flop.

7. Attempt **any two** : **(5×2=10)**

   1) What are the different types of shift register ? Explain any one of it.
   2) What is flip flop ? Explain excitation table.
   3) Write a HDL code for 4-bit register.

SLR-TJ – 230

Seat No.	

Set Q

S.E. (CSE) (Part – I) (New – CBCS) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) On a master-slave flip-flop, when is the master enabled ?
   a) When the gate is LOW b) When the gate is HIGH
   c) Both of the above d) Neither of the above

2) Which of the following is correct for a gated D flip-flop ?
   a) The output toggles if one of the inputs is held HIGH
   b) Only one of the inputs can be HIGH at a time
   c) The output complement follows the input when enabled
   d) Q output follows the input D when the enable is HIGH

3) The full form of HDL is
   a) Higher Descriptive Language b) Higher Definition Language
   c) High Definition Language d) High Descriptive Language

4) Identify port in a verilog
   a) inout b) register c) wire d) none of these

5) The four bit binary is represented by
   a) 4'h0000 b) 4'b0000 c) 4'o0000 d) 4'0000

6) HDL implementation model are
   a) Behavioural level b) Dataflow level
   c) Stack model d) Both a and b model

P.T.O.

7) If an active-HIGH S-R latch has a 0 on the S input and a 1 on the R input and then the R input goes to 0, the latch will be

a) SET b) RESET c) Clear d) Invalid

8) How many inputs and outputs does a full adder have ?

a) Two inputs, two outputs b) Two inputs, one output

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9) IC 74151 is a multiplexer having

a) 8 : 1 lines b) 1 : 16 lines c) 1 : 32 lines d) 1 : 8 lines

10) According to Boolean Algebra $(\overline{A} + AB)$ equals

a) A b) B c) AB d) $\overline{A} + B$

11) Gray code is

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12) Demultiplexer is represented by

a) $2^n * 1$ b) $2^n * n$ c) $1 * 2^n$ d) $2 * 2^n$

13) The gates required to build a half subtractor are

a) EX-OR gate and NOR gate b) EX-OR gate and OR gate

c) EX-OR gate, NOT gate and AND gate d) Four NAND gates

14) When $\overline{A}$, $\overline{B}$ are inputs to NAND gates according to Demorgan theorem the output X could be

a) X = A + B b) $X = \overline{AB}$ c) X = (A) (B) d) $X = A\overline{B}$

Seat No.	

S.E. (CSE) (Part – I) (New – CBCS) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any one** : **8**

1) Draw the K-map for SOP expression and realize it using NAND gate

$F(A, B, C) = \sum m(0, 1, 2, 3, 5)$.

2) Design and explain driver for 7 segment display using IC 7447.

3. Attempt **any two** : **10**

1) Represent the number $(396)_{10}$ in following codes form
   i) Binary code
   ii) BCD code
   iii) Excess-3 code
   iv) Gray code
   v) Octal code.

2) Minimize the following logic function using K-map and realize it using the basic gates,

$F(A, B, C, D) = \sum m(0, 1, 2, 3, 5, 7, 8, 9, 11, 14, 15)$.

3) Implement 8 : 1 MUX using 2 : 1 MUX.

4. Attempt **any two** : **10**

1) Perform addition using 2's complement of the following number :
   a) 28 + 23
   b) – 28 + 23
   c) 23 – 48.

2) Write a short note on IC 74154.

3) Explain Full Adder using K-Map.

SECTION – II

5. Attempt **any one** : **(8×1=8)**
   1) What is counter ? Design 3 bit synchronous counter using JK flip-flop.
   2) Explain HDL implementation model with example.

6. Attempt **any two** : **(5×2=10)**
   1) Write a verilog HDL code for 8 : 1 multiplexer.
   2) Explain Master Slave JK flip-flop.
   3) Write a HDL code for RS flip-flop.

7. Attempt **any two** : **(5×2=10)**
   1) What are the different types of shift register ? Explain any one of it.
   2) What is flip flop ? Explain excitation table.
   3) Write a HDL code for 4-bit register.

SLR-TJ – 230

Seat No.	

Set R

S.E. (CSE) (Part – I) (New – CBCS) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) Demultiplexer is represented by

a) $2^n * 1$ b) $2^n * n$ c) $1 * 2^n$ d) $2 * 2^n$

2) The gates required to build a half subtractor are

a) EX-OR gate and NOR gate b) EX-OR gate and OR gate
c) EX-OR gate, NOT gate and AND gate d) Four NAND gates

3) When $\bar{A}$, $\bar{B}$ are inputs to NAND gates according to Demorgan theorem the output X could be

a) X = A + B b) $X = \overline{AB}$ c) X = (A) (B) d) $X = A\bar{B}$

4) On a master-slave flip-flop, when is the master enabled ?

a) When the gate is LOW b) When the gate is HIGH
c) Both of the above d) Neither of the above

5) Which of the following is correct for a gated D flip-flop ?

a) The output toggles if one of the inputs is held HIGH
b) Only one of the inputs can be HIGH at a time
c) The output complement follows the input when enabled
d) Q output follows the input D when the enable is HIGH

6) The full form of HDL is

a) Higher Descriptive Language b) Higher Definition Language
c) High Definition Language d) High Descriptive Language

P.T.O.

7) Identify port in a verilog

a) inout b) register c) wire d) none of these

8) The four bit binary is represented by

a) 4'h0000 b) 4'b0000 c) 4'o0000 d) 4'0000

9) HDL implementation model are

a) Behavioural level b) Dataflow level

c) Stack model d) Both a and b model

10) If an active-HIGH S-R latch has a 0 on the S input and a 1 on the R input and then the R input goes to 0, the latch will be

a) SET b) RESET c) Clear d) Invalid

11) How many inputs and outputs does a full adder have ?

a) Two inputs, two outputs b) Two inputs, one output

c) Three inputs, two outputs d) None of the above

12) IC 74151 is a multiplexer having

a) 8 : 1 lines b) 1 : 16 lines c) 1 : 32 lines d) 1 : 8 lines

13) According to Boolean Algebra $(\overline{A} + AB)$ equals

a) A b) B c) AB d) $\overline{A} + B$

14) Gray code is

a) Non weighted code b) Weighted code

c) Alphanumeric code d) None of these

Seat No.	

S.E. (CSE) (Part – I) (New – CBCS) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any one** : **8**

1) Draw the K-map for SOP expression and realize it using NAND gate

$F(A, B, C) = \sum m(0, 1, 2, 3, 5)$.

2) Design and explain driver for 7 segment display using IC 7447.

3. Attempt **any two** : **10**

1) Represent the number $(396)_{10}$ in following codes form
   i) Binary code
   ii) BCD code
   iii) Excess-3 code
   iv) Gray code
   v) Octal code.

2) Minimize the following logic function using K-map and realize it using the basic gates,

$F(A, B, C, D) = \sum m(0, 1, 2, 3, 5, 7, 8, 9, 11, 14, 15)$.

3) Implement 8 : 1 MUX using 2 : 1 MUX.

4. Attempt **any two** : **10**

1) Perform addition using 2's complement of the following number :
   a) 28 + 23
   b) –28 + 23
   c) 23 – 48.

2) Write a short note on IC 74154.

3) Explain Full Adder using K-Map.

SECTION – II

5. Attempt **any one** : **(8×1=8)**
   1) What is counter ? Design 3 bit synchronous counter using JK flip-flop.
   2) Explain HDL implementation model with example.

6. Attempt **any two** : **(5×2=10)**
   1) Write a verilog HDL code for 8 : 1 multiplexer.
   2) Explain Master Slave JK flip-flop.
   3) Write a HDL code for RS flip-flop.

7. Attempt **any two** : **(5×2=10)**
   1) What are the different types of shift register ? Explain any one of it.
   2) What is flip flop ? Explain excitation table.
   3) Write a HDL code for 4-bit register.

SLR-TJ – 230

Seat No.	

Set S

S.E. (CSE) (Part – I) (New – CBCS) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) The full form of HDL is

a) Higher Descriptive Language b) Higher Definition Language
c) High Definition Language d) High Descriptive Language

2) Identify port in a verilog

a) inout b) register c) wire d) none of these

3) The four bit binary is represented by

a) 4'h0000 b) 4'b0000 c) 4'o0000 d) 4'0000

4) HDL implementation model are

a) Behavioural level b) Dataflow level
c) Stack model d) Both a and b model

5) If an active-HIGH S-R latch has a 0 on the S input and a 1 on the R input and then the R input goes to 0, the latch will be

a) SET b) RESET c) Clear d) Invalid

6) How many inputs and outputs does a full adder have ?

a) Two inputs, two outputs b) Two inputs, one output
c) Three inputs, two outputs d) None of the above

7) IC 74151 is a multiplexer having

a) 8 : 1 lines b) 1 : 16 lines c) 1 : 32 lines d) 1 : 8 lines

P.T.O.

8) According to Boolean Algebra $(\overline{A} + AB)$ equals

a) A b) B c) AB d) $\overline{A} + B$

9) Gray code is

a) Non weighted code b) Weighted code

c) Alphanumeric code d) None of these

10) Demultiplexer is represented by

a) $2^n * 1$ b) $2^n * n$ c) $1 * 2^n$ d) $2 * 2^n$

11) The gates required to build a half subtractor are

a) EX-OR gate and NOR gate b) EX-OR gate and OR gate

c) EX-OR gate, NOT gate and AND gate d) Four NAND gates

12) When $\overline{A}$, $\overline{B}$ are inputs to NAND gates according to Demorgan theorem the output X could be

a) X = A + B b) $X = \overline{AB}$ c) X = (A) (B) d) $X = A\overline{B}$

13) On a master-slave flip-flop, when is the master enabled ?

a) When the gate is LOW b) When the gate is HIGH

c) Both of the above d) Neither of the above

14) Which of the following is correct for a gated D flip-flop ?

a) The output toggles if one of the inputs is held HIGH

b) Only one of the inputs can be HIGH at a time

c) The output complement follows the input when enabled

d) Q output follows the input D when the enable is HIGH

Seat No.	

S.E. (CSE) (Part – I) (New – CBCS) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any one** : **8**

1) Draw the K-map for SOP expression and realize it using NAND gate

$F(A, B, C) = \sum m(0, 1, 2, 3, 5)$.

2) Design and explain driver for 7 segment display using IC 7447.

3. Attempt **any two** : **10**

1) Represent the number $(396)_{10}$ in following codes form
   i) Binary code
   ii) BCD code
   iii) Excess-3 code
   iv) Gray code
   v) Octal code.

2) Minimize the following logic function using K-map and realize it using the basic gates,

$F(A, B, C, D) = \sum m(0, 1, 2, 3, 5, 7, 8, 9, 11, 14, 15)$.

3) Implement 8 : 1 MUX using 2 : 1 MUX.

4. Attempt **any two** : **10**

1) Perform addition using 2's complement of the following number :
   a) 28 + 23
   b) –28 + 23
   c) 23 – 48.

2) Write a short note on IC 74154.

3) Explain Full Adder using K-Map.

SECTION – II

5. Attempt **any one** : **(8×1=8)**
   1) What is counter ? Design 3 bit synchronous counter using JK flip-flop.
   2) Explain HDL implementation model with example.

6. Attempt **any two** : **(5×2=10)**
   1) Write a verilog HDL code for 8 : 1 multiplexer.
   2) Explain Master Slave JK flip-flop.
   3) Write a HDL code for RS flip-flop.

7. Attempt **any two** : **(5×2=10)**
   1) What are the different types of shift register ? Explain any one of it.
   2) What is flip flop ? Explain excitation table.
   3) Write a HDL code for 4-bit register.

SLR-TJ – 231

Seat No.	

Set P

S.E. (CSE) (Part – I) (New CBCS) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(14×1=14)**

1) A _____ consist of a small, vertical level mounted on a base that is used to steer the screen cursor around.
   a) Digitizer b) Mouse
   c) Joystick d) All above

2) In CRT, intensity of electron beam is controlled by setting voltage level on the control grid.
   a) True b) False
   c) Can't say d) None of the above

3) A line drawing algorithm DDA stands for Digital Dependant Algorithm.
   a) True b) False
   c) Can't say d) None of the above

4) The limit variable in Bresenham's circle algorithm is set to zero if only a single octant is desired.
   a) True b) False
   c) Can't say d) None of the above

5) In homogeneous co-ordinates, h is any _____ number.
   a) Negative b) Positive
   c) Real d) None of the above

6) _____ means changing the size of object. Change can be either positive or negative.
   a) Translation b) Scaling c) Reflection d) All above

7) The off diagonal terms in the upper left 3×3 sub matrix produces _____ in 3D.
   a) Shearing b) Scaling c) Reflection d) Rotation

8) Cohen Sutherland categorizes line end point into _____ region.
   a) 4 b) 6 c) 9 d) 10

9) _____ operation is used for adding segment in refresh cycle.
   a) Post b) Unpost c) Add d) Update

10) Frame buffer and _____ are used in Z-buffer.
   a) Zero buffer b) Depth buffer
   c) Both a) and b) d) None of the above

11) Warnock's algorithm is a basically _____
   a) Image space method b) Object space method
   c) Both a) and b) d) Depends on implementation

12) _____ technique is used in midpoint subdivision algorithm.
   a) Binary search b) Divide and conquer
   c) Greedy method d) None of the above

13) Cubic Bezier curve is obtained by using _____ control points.
   a) 2 b) 3 c) 4 d) 5

14) In Warnock algorithm subdivision process yields a tree structure for the subwindow is called as _____
   a) Quad tree data structure b) Binary tree
   c) AVL tree d) None of the above

_____

SLR-TJ – 231

Seat No.	

S.E. (CSE) (Part – I) (New CBCS) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1)* ***All*** *questions are* ***compulsory****.*

2) Figures to ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

A) Draw and explain Refresh CRT.

B) Explain Edge flag fill algorithm.

C) Describe 2D shearing with diagram.

D) List and explain the matrices used for 3D Rotation, 3D Reflection.

3. Define Computer Graphics. List and explain the applications of computer graphics. **8**

OR

Consider a triangle ABC having co-ordinates A(4, 2), B(7, 5) and C(7, 2). Perform the following 2D transformations on it : (Draw before and after diagrams)

i) Reflect the given triangle about x-axis.

ii) Scale the triangle with scaling factor Sx = 2, Sy = 3.

iii) Translate the triangle with Tx = 1 and Ty = 4. **8**

4. Explain General Bresenham's Line Drawing Algorithm in detail. Consider the line from (–2, –3) to (–5, –5). **8**

SECTION – II

5. Attempt **any 3** : **12**
   a) What is corruption in display file and how it can be handled ?
   b) State advantages and disadvantages of Z-Buffer.
   c) Write a note on Parametric curve.
   d) Write a note on Half toning.

6. Write a note on : **8**
   a) Convex hull property of Bspline curve.
   b) Curve representation.

   OR

   Explain cohen-Sutherland line clipping algorithm. **8**

7. Write a note on : **8**
   a) Back face removal algorithm
   b) Painter's algorithm.

SLR-TJ – 231

Seat No.	

Set Q

S.E. (CSE) (Part – I) (New CBCS) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(14×1=14)**

1) Cohen Sutherland categorizes line end point into _____ region.
a) 4 b) 6 c) 9 d) 10

2) _____ operation is used for adding segment in refresh cycle.
a) Post b) Unpost c) Add d) Update

3) Frame buffer and _____ are used in Z-buffer.
a) Zero buffer b) Depth buffer
c) Both a) and b) d) None of the above

4) Warnock's algorithm is a basically _____
a) Image space method b) Object space method
c) Both a) and b) d) Depends on implementation

5) _____ technique is used in midpoint subdivision algorithm.
a) Binary search b) Divide and conquer
c) Greedy method d) None of the above

6) Cubic Bezier curve is obtained by using _____ control points.
a) 2 b) 3 c) 4 d) 5

7) In Warnock algorithm subdivision process yields a tree structure for the subwindow is called as _____
   a) Quad tree data structure
   b) Binary tree
   c) AVL tree
   d) None of the above

8) A _____ consist of a small, vertical level mounted on a base that is used to steer the screen cursor around.
   a) Digitizer
   b) Mouse
   c) Joystick
   d) All above

9) In CRT, intensity of electron beam is controlled by setting voltage level on the control grid.
   a) True
   b) False
   c) Can't say
   d) None of the above

10) A line drawing algorithm DDA stands for Digital Dependant Algorithm.
   a) True
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11) The limit variable in Bresenham's circle algorithm is set to zero if only a single octant is desired.
   a) True
   b) False
   c) Can't say
   d) None of the above

12) In homogeneous co-ordinates, h is any _____ number.
   a) Negative
   b) Positive
   c) Real
   d) None of the above

13) _____ means changing the size of object. Change can be either positive or negative.
   a) Translation
   b) Scaling
   c) Reflection
   d) All above

14) The off diagonal terms in the upper left 3×3 sub matrix produces _____ in 3D.
   a) Shearing
   b) Scaling
   c) Reflection
   d) Rotation

_____

SLR-TJ – 231

Seat No.	

S.E. (CSE) (Part – I) (New CBCS) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1)* ***All*** *questions are* ***compulsory****.*

2) Figures to ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

A) Draw and explain Refresh CRT.

B) Explain Edge flag fill algorithm.

C) Describe 2D shearing with diagram.

D) List and explain the matrices used for 3D Rotation, 3D Reflection.

3. Define Computer Graphics. List and explain the applications of computer graphics. **8**

OR

Consider a triangle ABC having co-ordinates A(4, 2), B(7, 5) and C(7, 2). Perform the following 2D transformations on it : (Draw before and after diagrams)

i) Reflect the given triangle about x-axis.

ii) Scale the triangle with scaling factor Sx = 2, Sy = 3.

iii) Translate the triangle with Tx = 1 and Ty = 4. **8**

4. Explain General Bresenham's Line Drawing Algorithm in detail. Consider the line from (–2, –3) to (–5, –5). **8**

SECTION – II

5. Attempt **any 3** : **12**
   a) What is corruption in display file and how it can be handled ?
   b) State advantages and disadvantages of Z-Buffer.
   c) Write a note on Parametric curve.
   d) Write a note on Half toning.

6. Write a note on : **8**
   a) Convex hull property of Bspline curve.
   b) Curve representation.

   OR

   Explain cohen-Sutherland line clipping algorithm. **8**

7. Write a note on : **8**
   a) Back face removal algorithm
   b) Painter's algorithm.

SLR-TJ – 231

Seat No.	

Set R

S.E. (CSE) (Part – I) (New CBCS) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(14×1=14)**

1) In homogeneous co-ordinates, h is any _____ number.
   a) Negative b) Positive
   c) Real d) None of the above

2) _____ means changing the size of object. Change can be either positive or negative.
   a) Translation b) Scaling c) Reflection d) All above

3) The off diagonal terms in the upper left 3×3 sub matrix produces _____ in 3D.
   a) Shearing b) Scaling c) Reflection d) Rotation

4) Cohen Sutherland categorizes line end point into _____ region.
   a) 4 b) 6 c) 9 d) 10

5) _____ operation is used for adding segment in refresh cycle.
   a) Post b) Unpost c) Add d) Update

6) Frame buffer and _____ are used in Z-buffer.
   a) Zero buffer b) Depth buffer
   c) Both a) and b) d) None of the above

7) Warnock's algorithm is a basically _____
   a) Image space method b) Object space method
   c) Both a) and b) d) Depends on implementation

P.T.O.

8) _____ technique is used in midpoint subdivision algorithm.
   a) Binary search
   b) Divide and conquer
   c) Greedy method
   d) None of the above

9) Cubic Bezier curve is obtained by using _____ control points.
   a) 2
   b) 3
   c) 4
   d) 5

10) In Warnock algorithm subdivision process yields a tree structure for the subwindow is called as _____
   a) Quad tree data structure
   b) Binary tree
   c) AVL tree
   d) None of the above

11) A _____ consist of a small, vertical level mounted on a base that is used to steer the screen cursor around.
   a) Digitizer
   b) Mouse
   c) Joystick
   d) All above

12) In CRT, intensity of electron beam is controlled by setting voltage level on the control grid.
   a) True
   b) False
   c) Can't say
   d) None of the above

13) A line drawing algorithm DDA stands for Digital Dependant Algorithm.
   a) True
   b) False
   c) Can't say
   d) None of the above

14) The limit variable in Bresenham's circle algorithm is set to zero if only a single octant is desired.
   a) True
   b) False
   c) Can't say
   d) None of the above

_____

SLR-TJ – 231

Seat No.	

S.E. (CSE) (Part – I) (New CBCS) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1)* ***All*** *questions are* ***compulsory****.*

2) Figures to ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

A) Draw and explain Refresh CRT.

B) Explain Edge flag fill algorithm.

C) Describe 2D shearing with diagram.

D) List and explain the matrices used for 3D Rotation, 3D Reflection.

3. Define Computer Graphics. List and explain the applications of computer graphics. **8**

OR

Consider a triangle ABC having co-ordinates A(4, 2), B(7, 5) and C(7, 2). Perform the following 2D transformations on it : (Draw before and after diagrams)

i) Reflect the given triangle about x-axis.

ii) Scale the triangle with scaling factor Sx = 2, Sy = 3.

iii) Translate the triangle with Tx = 1 and Ty = 4. **8**

4. Explain General Bresenham's Line Drawing Algorithm in detail. Consider the line from (–2, –3) to (–5, –5). **8**

SECTION – II

5. Attempt **any 3** : **12**
   a) What is corruption in display file and how it can be handled ?
   b) State advantages and disadvantages of Z-Buffer.
   c) Write a note on Parametric curve.
   d) Write a note on Half toning.

6. Write a note on : **8**
   a) Convex hull property of Bspline curve.
   b) Curve representation.

   OR

   Explain cohen-Sutherland line clipping algorithm. **8**

7. Write a note on : **8**
   a) Back face removal algorithm
   b) Painter's algorithm.

SLR-TJ – 231

Seat No.	

Set S

S.E. (CSE) (Part – I) (New CBCS) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(14×1=14)**

1) Frame buffer and _____ are used in Z-buffer.
   a) Zero buffer b) Depth buffer
   c) Both a) and b) d) None of the above

2) Warnock's algorithm is a basically _____
   a) Image space method b) Object space method
   c) Both a) and b) d) Depends on implementation

3) _____ technique is used in midpoint subdivision algorithm.
   a) Binary search b) Divide and conquer
   c) Greedy method d) None of the above

4) Cubic Bezier curve is obtained by using _____ control points.
   a) 2 b) 3 c) 4 d) 5

5) In Warnock algorithm subdivision process yields a tree structure for the subwindow is called as _____
   a) Quad tree data structure b) Binary tree
   c) AVL tree d) None of the above

P.T.O.

6) A _____ consist of a small, vertical level mounted on a base that is used to steer the screen cursor around.
   a) Digitizer b) Mouse
   c) Joystick d) All above

7) In CRT, intensity of electron beam is controlled by setting voltage level on the control grid.
   a) True b) False
   c) Can't say d) None of the above

8) A line drawing algorithm DDA stands for Digital Dependant Algorithm.
   a) True b) False
   c) Can't say d) None of the above

9) The limit variable in Bresenham's circle algorithm is set to zero if only a single octant is desired.
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   c) Can't say d) None of the above

10) In homogeneous co-ordinates, h is any _____ number.
   a) Negative b) Positive
   c) Real d) None of the above

11) _____ means changing the size of object. Change can be either positive or negative.
   a) Translation b) Scaling c) Reflection d) All above

12) The off diagonal terms in the upper left 3×3 sub matrix produces _____ in 3D.
   a) Shearing b) Scaling c) Reflection d) Rotation

13) Cohen Sutherland categorizes line end point into _____ region.
   a) 4 b) 6 c) 9 d) 10

14) _____ operation is used for adding segment in refresh cycle.
   a) Post b) Unpost c) Add d) Update

_____

SLR-TJ – 231

Seat No.	

S.E. (CSE) (Part – I) (New CBCS) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1)* ***All*** *questions are* ***compulsory****.*

2) Figures to ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

A) Draw and explain Refresh CRT.

B) Explain Edge flag fill algorithm.

C) Describe 2D shearing with diagram.

D) List and explain the matrices used for 3D Rotation, 3D Reflection.

3. Define Computer Graphics. List and explain the applications of computer graphics. **8**

OR

Consider a triangle ABC having co-ordinates A(4, 2), B(7, 5) and C(7, 2). Perform the following 2D transformations on it : (Draw before and after diagrams)

i) Reflect the given triangle about x-axis.

ii) Scale the triangle with scaling factor Sx = 2, Sy = 3.

iii) Translate the triangle with Tx = 1 and Ty = 4. **8**

4. Explain General Bresenham's Line Drawing Algorithm in detail. Consider the line from (–2, –3) to (–5, –5). **8**

SECTION – II

5. Attempt **any 3** : **12**
   a) What is corruption in display file and how it can be handled ?
   b) State advantages and disadvantages of Z-Buffer.
   c) Write a note on Parametric curve.
   d) Write a note on Half toning.

6. Write a note on : **8**
   a) Convex hull property of Bspline curve.
   b) Curve representation.

   OR

   Explain cohen-Sutherland line clipping algorithm. **8**

7. Write a note on : **8**
   a) Back face removal algorithm
   b) Painter's algorithm.

SLR-TJ – 232

Seat No.	

Set P

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
APPLIED MATHEMATICS – I

Day and Date : Tuesday, 12-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1) Figures to the **right** indicate **full** marks.*
*2) **Use** of calculator is **allowed**.*
*3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
*4) **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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(14×1=14)**

1) The general solution of the diff. equation $(D^4 - 2D^3 + D^2)\, y = 0$ is
a) $(c_1 + c_2x)e^{-x} + (c_3 + c_4x)e^x$ b) $(c_1 + c_2x) + (c_3 + c_4x)e^{-x}$
c) $c_1 + (c_2 + c_3x)e^x$ d) $(c_1 + c_2x) + (c_3 + c_4x)e^x$

2) $\frac{1}{D^2+9}\cos 3x$ is equal to
a) $\frac{x}{6}\cos 3x$ b) $\frac{x}{6}\sin 3x$ c) $\frac{x}{18}\cos 3x$ d) $\frac{x}{18}\sin 3x$

3) $L\{te^{-t}\} =$
a) $\frac{1}{(s+1)^2}$ b) $\frac{s}{(s+1)^2}$ c) $\frac{-1}{(s+1)^2}$ d) $\frac{-s}{(s+1)^2}$

4) $L\{f'(t)\} =$
a) $f(0) + s\bar{f}(s)$ b) $-f(0) + \bar{f}(s)$ c) $-f(0) + s\bar{f}(s)$ d) $s\bar{f}(s)$

5) Since $z\{1\} = \frac{z}{z-1}$, $z\{a^k\}, (k \geq 0) =$
a) $\frac{z}{a(z-1)}$ b) $\frac{z}{z-a}$ c) $\frac{z}{az-1}$ d) $\frac{a}{z-a}$

P.T.O.

6) In the cosine series expansion of

$F(x) = 1,\ 0 < x < \frac{a}{2}$

$= -1,\ \frac{a}{2} < x < a$

the constant term is _____

a) $\frac{2}{\pi}$ b) π c) -1 d) 0

7) Fourier expansion of $f(x) = \begin{cases} -x, & -2 \le x \le 0 \\ x, & 0 \le x \le 2 \end{cases}$ in the interval [– 2, 2] has

a) No sine term b) No cosine term
c) Both sine and cosine terms d) None of these

8) A Poisson distribution is given by $p(x) = \frac{e^{-2.5}(2.5)^x}{x!}$. The mean and variance of the distribution are

a) 1.5, 2.5 b) 1.5, 3.5 c) 2.5, 2.5 d) 1.5, 1.5

9) A random variable has the following probability density function

x :	1	2	3	4	5	6	7
p(x) :	k	2k	3k	k^2	$k^2 + k$	$2k^2$	$4k^2$

then k =

a) $\frac{1}{5}$ b) $\frac{1}{6}$ c) $\frac{1}{7}$ d) $\frac{1}{8}$

10) From a box containing 100 transistors out of which 20 are defective, if 10 transistors are chosen at random then the probability that no transistor was defective is

a) 0.07 b) 0.11 c) 0.17 d) 0.99

11) If u = x + y + z and v = x + y then $\nabla u \cdot \nabla v =$

a) 1 b) 0 c) 2 d) – 1

12) If $\bar{r} = ae^{3t} + be^{2t}$, then at t = 0, $\frac{d\bar{r}}{dt} - 2\bar{r} =$

a) a b) b c) a – b d) a + b

13) The lines of regression are given by 10y = x + 17 and x = 5y – 7. Then $\bar{x}$ and $\bar{y}$ are

a) 1 and 10 b) 1 and 5 c) 2 and 3 d) 3 and 2

14) In a M/M/1 : ∞ IFCFS queue, the probability of the queue size being greater than N is given by λ = mean arrival rate and μ = mean service rate is

a) $\left(\frac{\lambda}{\mu}\right)^N$ b) $\left(\frac{\mu}{\lambda}\right)^N$ c) $(\lambda\mu)^N$ d) $\lambda\mu^N$

SLR-TJ – 232

Seat No.	

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
APPLIED MATHEMATICS – I

Day and Date : Tuesday, 12-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*

SECTION – I

2. a) Solve : $(D^2 + 3D + 2)y = x^3 + x^2$. **3**

b) Solve : $(D^2 + 5D - 6)y = \sin 4x . \sin x$. **3**

c) Solve : $(D^3 - 7D - 6)y = (1 + x)e^{2x}$. **4**

OR

c) $(D^3 + 8)y = x^4 + 2x + 1 + \cosh 2x$.

3. Solve the following **any three** : **9**

a) Find $L\left\{\frac{\sin^2 2t}{t}\right\}$.

b) Find $L^{-1}\left\{\frac{2s^2 - 4}{(s+1)(s-2)(s-3)}\right\}$.

c) Evaluate $\int_0^\infty e^{-3t} t^2 \sinh 2t\, dt$, by using Laplace transform.

d) Find $L^{-1}\left\{\cot^{-1}\left(\frac{a}{s+b}\right)\right\}$.

4. a) Find Z{f(k)}, where $f(k) = 3^k, \quad k < 0$
$= 2^k, \quad k \geq 0$ **3**

b) Find $Z\{e^{-3k}\cos 4k\}$, $k \geq 0$. **3**

c) Find $Z^{-1}\left\{\frac{1}{(z-5)^2}\right\}, |z| < 5$. **3**

5. a) Find the Fourier series of $f(x) = e^{-x}$, in the interval $(0, 2\pi)$. **5**

b) Find the half-range cosine series of

$f(x) = 1, \; 0 \leq x \leq 1$

$= x, \; 1 \leq x \leq 2.$ **4**

SECTION – II

6. Attempt the following :

a) Fit a Poisson distribution to the following data :

x :	0	1	2	3	4	Total
F :	192	100	24	3	1	320

3

b) In a room there are three lamp sockets. A bag contains '6' working and '4' non-working bulbs. Three bulbs are selected at random and fitted in the sockets. Find the probability that there will be some light in room. **3**

c) Fit a straight line to the following data : **4**

Year (x) :	1951	1961	1971	1981	1991
Production (y) :	10	12	8	10	13

Also estimate the production in 1987.

7. Attempt the following :

a) Find the tangential and normal component of acceleration of a particle moving on a curve x = a (t + sint), y = a(1 – cost). **3**

b) Prove that $\nabla \cdot (r^n \bar{r}) = (n+3)r^n$. **3**

c) Find the directional derivative of $\phi = e^{2x} \cdot \cos yz$ at (0, 0, 0) in the direction of the tangent to the curve x = a sint, y = a.cost, z = a.t at $t = \pi/4$. **3**

8. Attempt the following :

a) In normal distribution 31% items are under 45 and 8% are over 64. Find its mean and standard deviation.

(Given : For a normal distribution the area between z = 0 and z = 0.5 is 0.19 and that between z = 0 to z = 1.4 is 0.42). **3**

b) The equations of two lines of regression are $6y = 5x + 90$ and $15x = 8y + 130$. Find the mean of x and y and the coefficient of correlation. **3**

c) If the given data is **3**

Year :	1974	1975	1976	1977	1978	1979	1980	1981
Prod. :	12	14	26	42	40	50	52	53

Fit a second degree curve.

9. Attempt the following :

a) Customers arrive at a box office window, being manned by a single individuals according to Poisson input process with a mean rate of 20 per hr. Time required to serve a customer has an exponential distribution with mean of '90' seconds. Find average waiting time of customer. Also determine the average number of customers in the system and average queue length. **5**

b) In a bank there is only one window, a solitary employee performs all the service required and window remains open continuously open from 7.00 a.m. to 10.00 pm. It has been discovered that the average number of clients is 54 during the day and that the average service time is of five minutes per person. Calculate :

i) Average number of clients in the system (including the one being served)

ii) The average waiting time. **4**

Set P

SLR-TJ – 232

Seat No.	

Set Q

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
APPLIED MATHEMATICS – I

Day and Date : Tuesday, 12-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1) Figures to the **right** indicate **full** marks.*
*2) **Use** of calculator is **allowed**.*
*3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(14×1=14)**

1) A Poisson distribution is given by $p(x) = \frac{e^{-2.5}(2.5)^x}{x!}$. The mean and variance of the distribution are
a) 1.5, 2.5 b) 1.5, 3.5 c) 2.5, 2.5 d) 1.5, 1.5

2) A random variable has the following probability density function

x :	1	2	3	4	5	6	7
p(x) :	k	2k	3k	k^2	$k^2 + k$	$2k^2$	$4k^2$

then k =
a) $\frac{1}{5}$ b) $\frac{1}{6}$ c) $\frac{1}{7}$ d) $\frac{1}{8}$

3) From a box containing 100 transistors out of which 20 are defective, if 10 transistors are chosen at random then the probability that no transistor was defective is
a) 0.07 b) 0.11 c) 0.17 d) 0.99

4) If u = x + y + z and v = x + y then $\nabla u \cdot \nabla v =$
a) 1 b) 0 c) 2 d) – 1

5) If $\bar{r} = ae^{3t} + be^{2t}$, then at t = 0, $\frac{d\bar{r}}{dt} - 2\bar{r} =$
a) a b) b c) a – b d) a + b

P.T.O.

6) The lines of regression are given by $10y = x + 17$ and $x = 5y - 7$. Then $\bar{x}$ and $\bar{y}$ are
a) 1 and 10 b) 1 and 5 c) 2 and 3 d) 3 and 2

7) In a M/M/1 : ∞ IFCFS queue, the probability of the queue size being greater than N is given by λ = mean arrival rate and μ = mean service rate is
a) $\left(\frac{\lambda}{\mu}\right)^N$ b) $\left(\frac{\mu}{\lambda}\right)^N$ c) $(\lambda\mu)^N$ d) $\lambda\mu^N$

8) The general solution of the diff. equation $(D^4 - 2D^3 + D^2)\, y = 0$ is
a) $(c_1 + c_2x)e^{-x} + (c_3 + c_4x)e^x$ b) $(c_1 + c_2x) + (c_3 + c_4x)e^{-x}$
c) $c_1 + (c_2 + c_3x)e^x$ d) $(c_1 + c_2x) + (c_3 + c_4x)e^x$

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11) $L\{f'(t)\} =$
a) $f(0) + s\bar{f}(s)$ b) $-f(0) + \bar{f}(s)$ c) $-f(0) + s\bar{f}(s)$ d) $s\bar{f}(s)$

12) Since $z\{1\} = \frac{z}{z-1}$, $z\{a^k\}, (k \geq 0) =$
a) $\frac{z}{a(z-1)}$ b) $\frac{z}{z-a}$ c) $\frac{z}{az-1}$ d) $\frac{a}{z-a}$

13) In the cosine series expansion of

$F(x) = 1,\ 0 < x < \frac{a}{2}$

$= -1,\ \frac{a}{2} < x < a$

the constant term is _____
a) $\frac{2}{\pi}$ b) π c) -1 d) 0

14) Fourier expansion of $f(x) = \begin{cases} -x, & -2 \leq x \leq 0 \\ x, & 0 \leq x \leq 2 \end{cases}$ in the interval $[-2, 2]$ has
a) No sine term b) No cosine term
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_____

SLR-TJ – 232

Seat No.	

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
APPLIED MATHEMATICS – I

Day and Date : Tuesday, 12-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*

SECTION – I

2. a) Solve : $(D^2 + 3D + 2)y = x^3 + x^2$. **3**

b) Solve : $(D^2 + 5D - 6)y = \sin 4x . \sin x$. **3**

c) Solve : $(D^3 - 7D - 6)y = (1 + x)e^{2x}$. **4**

OR

c) $(D^3 + 8)y = x^4 + 2x + 1 + \cosh 2x$.

3. Solve the following **any three** : **9**

a) Find $L\left\{\frac{\sin^2 2t}{t}\right\}$.

b) Find $L^{-1}\left\{\frac{2s^2 - 4}{(s+1)(s-2)(s-3)}\right\}$.

c) Evaluate $\int_0^\infty e^{-3t} t^2 \sinh 2t\, dt$, by using Laplace transform.

d) Find $L^{-1}\left\{\cot^{-1}\left(\frac{a}{s+b}\right)\right\}$.

4. a) Find Z{f(k)}, where $f(k) = 3^k, \quad k < 0$
$= 2^k, \quad k \geq 0$ **3**

b) Find Z $\{e^{-3k}\cos 4k\}$, $k \geq 0$. **3**

c) Find $Z^{-1}\left\{\frac{1}{(z-5)^2}\right\}, |z| < 5$. **3**

5. a) Find the Fourier series of $f(x) = e^{-x}$, in the interval $(0, 2\pi)$. **5**

b) Find the half-range cosine series of

$f(x) = 1, \; 0 \leq x \leq 1$

$= x, \; 1 \leq x \leq 2.$ **4**

SECTION – II

6. Attempt the following :

a) Fit a Poisson distribution to the following data :

x :	0	1	2	3	4	Total
F :	192	100	24	3	1	320

3

b) In a room there are three lamp sockets. A bag contains '6' working and '4' non-working bulbs. Three bulbs are selected at random and fitted in the sockets. Find the probability that there will be some light in room. **3**

c) Fit a straight line to the following data : **4**

Year (x) :	1951	1961	1971	1981	1991
Production (y) :	10	12	8	10	13

Also estimate the production in 1987.

7. Attempt the following :

a) Find the tangential and normal component of acceleration of a particle moving on a curve x = a (t + sint), y = a(1 – cost). **3**

b) Prove that $\nabla \cdot (r^n \bar{r}) = (n+3)r^n$. **3**

c) Find the directional derivative of $\phi = e^{2x} \cdot \cos yz$ at (0, 0, 0) in the direction of the tangent to the curve x = a sint, y = a.cost, z = a.t at $t = \pi/4$. **3**

8. Attempt the following :

a) In normal distribution 31% items are under 45 and 8% are over 64. Find its mean and standard deviation.

(Given : For a normal distribution the area between z = 0 and z = 0.5 is 0.19 and that between z = 0 to z = 1.4 is 0.42). **3**

b) The equations of two lines of regression are $6y = 5x + 90$ and $15x = 8y + 130$. Find the mean of x and y and the coefficient of correlation. **3**

c) If the given data is **3**

Year :	1974	1975	1976	1977	1978	1979	1980	1981
Prod. :	12	14	26	42	40	50	52	53

Fit a second degree curve.

9. Attempt the following :

a) Customers arrive at a box office window, being manned by a single individuals according to Poisson input process with a mean rate of 20 per hr. Time required to serve a customer has an exponential distribution with mean of '90' seconds. Find average waiting time of customer. Also determine the average number of customers in the system and average queue length. **5**

b) In a bank there is only one window, a solitary employee performs all the service required and window remains open continuously open from 7.00 a.m. to 10.00 pm. It has been discovered that the average number of clients is 54 during the day and that the average service time is of five minutes per person. Calculate :

i) Average number of clients in the system (including the one being served)

ii) The average waiting time. **4**

Set Q

SLR-TJ – 232

Seat No.	

Set R

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
APPLIED MATHEMATICS – I

Day and Date : Tuesday, 12-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1) Figures to the **right** indicate **full** marks.*
*2) **Use** of calculator is **allowed**.*
*3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
*4) **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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(14×1=14)**

1) Since $z\{1\} = \frac{z}{z-1}$, $z\{a^k\}, (k \geq 0) =$

a) $\frac{z}{a(z-1)}$ b) $\frac{z}{z-a}$ c) $\frac{z}{az-1}$ d) $\frac{a}{z-a}$

2) In the cosine series expansion of

$F(x) = 1, 0 < x < \frac{a}{2}$

$= -1, \frac{a}{2} < x < a$

the constant term is _____

a) $\frac{2}{\pi}$ b) π c) -1 d) 0

3) Fourier expansion of $f(x) = \begin{cases} -x, & -2 \leq x \leq 0 \\ x, & 0 \leq x \leq 2 \end{cases}$ in the interval [– 2, 2] has

a) No sine term b) No cosine term
c) Both sine and cosine terms d) None of these

4) A Poisson distribution is given by $p(x) = \frac{e^{-2.5}(2.5)^x}{x!}$. The mean and variance of the distribution are

a) 1.5, 2.5 b) 1.5, 3.5 c) 2.5, 2.5 d) 1.5, 1.5

P.T.O.

5) A random variable has the following probability density function

x :	1	2	3	4	5	6	7
p(x) :	k	2k	3k	k^2	$k^2 + k$	$2k^2$	$4k^2$

then k =

a) $\frac{1}{5}$ b) $\frac{1}{6}$ c) $\frac{1}{7}$ d) $\frac{1}{8}$

6) From a box containing 100 transistors out of which 20 are defective, if 10 transistors are chosen at random then the probability that no transistor was defective is

a) 0.07 b) 0.11 c) 0.17 d) 0.99

7) If u = x + y + z and v = x + y then $\nabla u \cdot \nabla v =$

a) 1 b) 0 c) 2 d) – 1

8) If $\bar{r} = ae^{3t} + be^{2t}$, then at t = 0, $\frac{d\bar{r}}{dt} - 2\bar{r} =$

a) a b) b c) a – b d) a + b

9) The lines of regression are given by 10y = x + 17 and x = 5y – 7. Then $\bar{x}$ and $\bar{y}$ are

a) 1 and 10 b) 1 and 5 c) 2 and 3 d) 3 and 2

10) In a M/M/1 : ∞ IFCFS queue, the probability of the queue size being greater than N is given by λ = mean arrival rate and μ = mean service rate is

a) $\left(\frac{\lambda}{\mu}\right)^N$ b) $\left(\frac{\mu}{\lambda}\right)^N$ c) $(\lambda\mu)^N$ d) $\lambda\mu^N$

11) The general solution of the diff. equation $(D^4 - 2D^3 + D^2)\, y = 0$ is

a) $(c_1 + c_2x)e^{-x} + (c_3 + c_4x)e^x$ b) $(c_1 + c_2x) + (c_3 + c_4x)e^{-x}$

c) $c_1 + (c_2 + c_3x)e^x$ d) $(c_1 + c_2x) + (c_3 + c_4x)e^x$

12) $\frac{1}{D^2 + 9}\cos 3x$ is equal to

a) $\frac{x}{6}\cos 3x$ b) $\frac{x}{6}\sin 3x$ c) $\frac{x}{18}\cos 3x$ d) $\frac{x}{18}\sin 3x$

13) $L\{te^{-t}\} =$

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

14) $L\{f'(t)\} =$

a) $f(0) + s\bar{f}(s)$ b) $-f(0) + \bar{f}(s)$ c) $-f(0) + s\bar{f}(s)$ d) $s\bar{f}(s)$

SLR-TJ – 232

Seat No.	

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
APPLIED MATHEMATICS – I

Day and Date : Tuesday, 12-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*

SECTION – I

2. a) Solve : $(D^2 + 3D + 2)y = x^3 + x^2$. **3**

b) Solve : $(D^2 + 5D - 6)y = \sin 4x . \sin x$. **3**

c) Solve : $(D^3 - 7D - 6)y = (1 + x)e^{2x}$. **4**

OR

c) $(D^3 + 8)y = x^4 + 2x + 1 + \cosh 2x$.

3. Solve the following **any three** : **9**

a) Find $L\left\{\frac{\sin^2 2t}{t}\right\}$.

b) Find $L^{-1}\left\{\frac{2s^2 - 4}{(s+1)(s-2)(s-3)}\right\}$.

c) Evaluate $\int_0^\infty e^{-3t} t^2 \sinh 2t\, dt$, by using Laplace transform.

d) Find $L^{-1}\left\{\cot^{-1}\left(\frac{a}{s+b}\right)\right\}$.

4. a) Find Z{f(k)}, where $f(k) = 3^k, \quad k < 0$
$= 2^k, \quad k \geq 0$ **3**

b) Find Z $\{e^{-3k}\cos 4k\}$, $k \geq 0$. **3**

c) Find $Z^{-1}\left\{\frac{1}{(z-5)^2}\right\}, |z| < 5$. **3**

5. a) Find the Fourier series of $f(x) = e^{-x}$, in the interval $(0, 2\pi)$. **5**

b) Find the half-range cosine series of

$f(x) = 1, 0 \leq x \leq 1$

$= x, 1 \leq x \leq 2.$ **4**

SECTION – II

6. Attempt the following :

a) Fit a Poisson distribution to the following data :

x :	0	1	2	3	4	Total
F :	192	100	24	3	1	320

3

b) In a room there are three lamp sockets. A bag contains '6' working and '4' non-working bulbs. Three bulbs are selected at random and fitted in the sockets. Find the probability that there will be some light in room. **3**

c) Fit a straight line to the following data : **4**

Year (x) :	1951	1961	1971	1981	1991
Production (y) :	10	12	8	10	13

Also estimate the production in 1987.

7. Attempt the following :

a) Find the tangential and normal component of acceleration of a particle moving on a curve x = a (t + sint), y = a(1 – cost). **3**

b) Prove that $\nabla \cdot (r^n \bar{r}) = (n+3)r^n$. **3**

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8. Attempt the following :

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(Given : For a normal distribution the area between z = 0 and z = 0.5 is 0.19 and that between z = 0 to z = 1.4 is 0.42). **3**

b) The equations of two lines of regression are $6y = 5x + 90$ and $15x = 8y + 130$. Find the mean of x and y and the coefficient of correlation. **3**

c) If the given data is **3**

Year :	1974	1975	1976	1977	1978	1979	1980	1981
Prod. :	12	14	26	42	40	50	52	53

Fit a second degree curve.

9. Attempt the following :

a) Customers arrive at a box office window, being manned by a single individuals according to Poisson input process with a mean rate of 20 per hr. Time required to serve a customer has an exponential distribution with mean of '90' seconds. Find average waiting time of customer. Also determine the average number of customers in the system and average queue length. **5**

b) In a bank there is only one window, a solitary employee performs all the service required and window remains open continuously open from 7.00 a.m. to 10.00 pm. It has been discovered that the average number of clients is 54 during the day and that the average service time is of five minutes per person. Calculate :

i) Average number of clients in the system (including the one being served)

ii) The average waiting time. **4**

Set R

SLR-TJ – 232

Seat No.	

Set S

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
APPLIED MATHEMATICS – I

Day and Date : Tuesday, 12-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1) Figures to the **right** indicate **full** marks.*
*2) **Use** of calculator is **allowed**.*
*3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
4) 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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(14×1=14)**

1) From a box containing 100 transistors out of which 20 are defective, if 10 transistors are chosen at random then the probability that no transistor was defective is
a) 0.07 b) 0.11 c) 0.17 d) 0.99

2) If u = x + y + z and v = x + y then $\nabla u \cdot \nabla v =$
a) 1 b) 0 c) 2 d) – 1

3) If $\bar{r} = ae^{3t} + be^{2t}$, then at t = 0, $\frac{d\bar{r}}{dt} - 2\bar{r} =$
a) a b) b c) a – b d) a + b

4) The lines of regression are given by 10y = x + 17 and x = 5y – 7. Then $\bar{x}$ and $\bar{y}$ are
a) 1 and 10 b) 1 and 5 c) 2 and 3 d) 3 and 2

5) In a M/M/1 : ∞ IFCFS queue, the probability of the queue size being greater than N is given by λ = mean arrival rate and μ = mean service rate is
a) $\left(\frac{\lambda}{\mu}\right)^N$ b) $\left(\frac{\mu}{\lambda}\right)^N$ c) $(\lambda\mu)^N$ d) $\lambda\mu^N$

6) The general solution of the diff. equation $(D^4 - 2D^3 + D^2)\, y = 0$ is
a) $(c_1 + c_2x)e^{-x} + (c_3 + c_4x)e^x$ b) $(c_1 + c_2x) + (c_3 + c_4x)e^{-x}$
c) $c_1 + (c_2 + c_3x)e^x$ d) $(c_1 + c_2x) + (c_3 + c_4x)e^x$

P.T.O.

7) $\frac{1}{D^2+9}\cos 3x$ is equal to

a) $\frac{x}{6}\cos 3x$ b) $\frac{x}{6}\sin 3x$ c) $\frac{x}{18}\cos 3x$ d) $\frac{x}{18}\sin 3x$

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9) $L\{f'(t)\} =$

a) $f(0) + s\bar{f}(s)$ b) $-f(0) + \bar{f}(s)$ c) $-f(0) + s\bar{f}(s)$ d) $s\bar{f}(s)$

10) Since $z\{1\} = \frac{z}{z-1}$, $z\{a^k\}, (k \geq 0) =$

a) $\frac{z}{a(z-1)}$ b) $\frac{z}{z-a}$ c) $\frac{z}{az-1}$ d) $\frac{a}{z-a}$

11) In the cosine series expansion of

$F(x) = 1,\ 0 < x < \frac{a}{2}$

$= -1,\ \frac{a}{2} < x < a$

the constant term is _____

a) $\frac{2}{\pi}$ b) π c) -1 d) 0

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13) A Poisson distribution is given by $p(x) = \frac{e^{-2.5}(2.5)^x}{x!}$. The mean and variance of the distribution are

a) 1.5, 2.5 b) 1.5, 3.5 c) 2.5, 2.5 d) 1.5, 1.5

14) A random variable has the following probability density function

x :	1	2	3	4	5	6	7
p(x) :	k	2k	3k	k^2	$k^2 + k$	$2k^2$	$4k^2$

then k =

a) $\frac{1}{5}$ b) $\frac{1}{6}$ c) $\frac{1}{7}$ d) $\frac{1}{8}$

_____

SLR-TJ – 232

Seat No.	

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
APPLIED MATHEMATICS – I

Day and Date : Tuesday, 12-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

N. B. : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*

SECTION – I

2. a) Solve : $(D^2 + 3D + 2)y = x^3 + x^2$. **3**

b) Solve : $(D^2 + 5D - 6)y = \sin 4x . \sin x$. **3**

c) Solve : $(D^3 - 7D - 6)y = (1 + x)e^{2x}$. **4**

OR

c) $(D^3 + 8)y = x^4 + 2x + 1 + \cosh 2x$.

3. Solve the following **any three** : **9**

a) Find $L\left\{\frac{\sin^2 2t}{t}\right\}$.

b) Find $L^{-1}\left\{\frac{2s^2 - 4}{(s+1)(s-2)(s-3)}\right\}$.

c) Evaluate $\int_0^\infty e^{-3t} t^2 \sinh 2t\, dt$, by using Laplace transform.

d) Find $L^{-1}\left\{\cot^{-1}\left(\frac{a}{s+b}\right)\right\}$.

4. a) Find Z{f(k)}, where $f(k) = 3^k, \quad k < 0$
$= 2^k, \quad k \geq 0$ **3**

b) Find $Z\{e^{-3k}\cos 4k\}$, $k \geq 0$. **3**

c) Find $Z^{-1}\left\{\frac{1}{(z-5)^2}\right\}, |z| < 5$. **3**

5. a) Find the Fourier series of $f(x) = e^{-x}$, in the interval $(0, 2\pi)$. **5**

b) Find the half-range cosine series of

$f(x) = 1, \; 0 \leq x \leq 1$

$= x, \; 1 \leq x \leq 2.$ **4**

SECTION – II

6. Attempt the following :

a) Fit a Poisson distribution to the following data :

x :	0	1	2	3	4	Total
F :	192	100	24	3	1	320

3

b) In a room there are three lamp sockets. A bag contains '6' working and '4' non-working bulbs. Three bulbs are selected at random and fitted in the sockets. Find the probability that there will be some light in room. **3**

c) Fit a straight line to the following data : **4**

Year (x) :	1951	1961	1971	1981	1991
Production (y) :	10	12	8	10	13

Also estimate the production in 1987.

7. Attempt the following :

a) Find the tangential and normal component of acceleration of a particle moving on a curve x = a (t + sint), y = a(1 – cost). **3**

b) Prove that $\nabla \cdot (r^n \bar{r}) = (n+3)r^n$. **3**

c) Find the directional derivative of $\phi = e^{2x} \cdot \cos yz$ at (0, 0, 0) in the direction of the tangent to the curve x = a sint, y = a.cost, z = a.t at $t = \pi/4$. **3**

8. Attempt the following :

a) In normal distribution 31% items are under 45 and 8% are over 64. Find its mean and standard deviation.

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b) The equations of two lines of regression are $6y = 5x + 90$ and $15x = 8y + 130$. Find the mean of x and y and the coefficient of correlation. **3**

c) If the given data is **3**

Year :	1974	1975	1976	1977	1978	1979	1980	1981
Prod. :	12	14	26	42	40	50	52	53

Fit a second degree curve.

9. Attempt the following :

a) Customers arrive at a box office window, being manned by a single individuals according to Poisson input process with a mean rate of 20 per hr. Time required to serve a customer has an exponential distribution with mean of '90' seconds. Find average waiting time of customer. Also determine the average number of customers in the system and average queue length. **5**

b) In a bank there is only one window, a solitary employee performs all the service required and window remains open continuously open from 7.00 a.m. to 10.00 pm. It has been discovered that the average number of clients is 54 during the day and that the average service time is of five minutes per person. Calculate :

i) Average number of clients in the system (including the one being served)

ii) The average waiting time. **4**

Set S

SLR-TJ – 233

Seat No.	

Set P

S.E. (Computer Science and Engineering) (Part – I) (CGPA Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (Old)

Day and Date : Thursday, 14-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if necessary****.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(14×1=14)**

1) Which of the following sets is not functionally complete ?
a) $\{\vee, \neg\}$ b) $\{\wedge, \neg\}$ c) $\{\vee, \wedge\}$ d) $\{\rightarrow, \neg\}$

2) Which of the following is not valid ?
a) $\{P \rightarrow (R \rightarrow S), (\neg R \rightarrow \neg P), P\} \Rightarrow S$
b) $\{(\neg P \rightarrow \neg R), \neg S, P \rightarrow W, R \vee S\} \Rightarrow W$
c) $\{P \rightarrow R, Q \rightarrow S, P \vee Q\} \Rightarrow S \vee R$
d) $\{(a \rightarrow b), (b \rightarrow \neg a)\} \Rightarrow a$

3) Let ϕ is an empty set and $P(\phi)$ is its power set. Find number of elements in $|P(\phi)|$.
a) 0 b) 1 c) 2 d) 4

4) Let R be a relation on the set A = {a, b, c, d} given by, R = {(a, b), (b, c), (d, c), (d, a)}, then transitive reflexive closure of R is given by
a) {(a, a), (a, b), (a, c), (b, c), (b, d), (c, d), (d, a), (d, b), (d, c), (d, d)}
b) $A \times A$
c) $R \cup$ {(a, a,), (a, c), (b, d), (c, d), (d, d)}
d) none of the above

P.T.O.

5) Which of the following is not a poset ?
   a) the set of all integers with relation <
   b) the set of all positive integers with relation /(divides)
   c) $[D_6, I]$
   d) $[P, \subseteq]$,where P is any collection of sets

6) Which of the following is correct ?
   a) $(P \to Q), \to \neg(R \vee S), ((Q \to P) \vee \neg R), R \Rightarrow (P \rightleftarrows Q)$
   b) $(\neg P \wedge (\neg Q \wedge R)) \vee (Q \wedge R) \vee (P \wedge R) \Rightarrow R$
   c) Both (a) and (b) above
   d) None of the above

7) Consider the following statements :

   S_1: $R \vee (P \vee Q)$ is a valid conclusion from the premises

   $P \vee Q$, $Q \to R$, $P \to M$ and $\neg M$

   S_2 : $a \to b$, $\neg(b \vee c) \Rightarrow \neg b$, then
   a) S_1 is true and S_2 is invalid
   b) S_1 is false and S_2 is valid
   c) Both are true
   d) Both are false

8) Let X and Y be any two sets. A relation f from X to Y is called ___ if for every $x \in X$ there is a unique $y \in Y$ such that $<x, y> \in f$.
   a) relation
   b) function
   c) both a) and b)
   d) none of the above

9) Let $f : X \to Y$ and $g : Y \to X$. The function g is equal to f^{-1} only if
   a) $g \circ f = I_x$
   b) $f \circ g = I_y$
   c) Both a) and b)
   d) None of the above

10) An algebraic system having closure, associative and identity element properties is called
   a) monoid
   b) semigroup
   c) group
   d) sub monoid

11) Let <X, 0> and <Y, $*$> be two algebraic system such that $Y \subseteq X$. A homomorphism g from <X, 0> to <Y, $*$> is called as
   a) epimorphism
   b) endomorphism
   c) automorphism
   d) all

12) A group <G, $*$> is said to ____ if there exist an element $a \in G$ such that every element of G can be written as some power of a.
   a) Acyclic
   b) Cyclic
   c) Abalian
   d) Angular

13) In lattice, the Greatest Lower Bound (GLB) of element a and b is denoted by
   a) $a \oplus b$
   b) $a * b$
   c) $a \times b$
   d) none of the above

14) A lattice having least element (0) and greatest element (1), then lattice is called _____ lattice.
   a) complete
   b) bounded
   c) complex
   d) zero

SLR-TJ – 233

Seat No.	

S.E. (Computer Science and Engineering) (Part – I) (CGPA Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (Old)

Day and Date : Thursday, 14-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if necessary****.*

SECTION – I

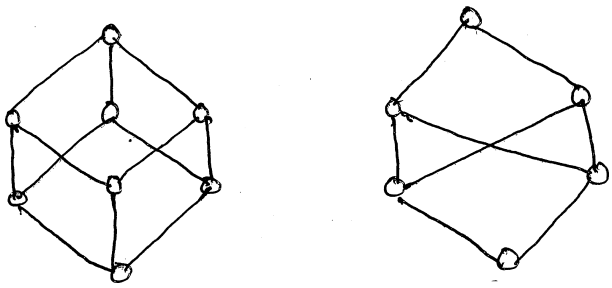
2. Answer the following (**any 3**) : **(3×4=12)**
   a) Convert the given formula into prefix form
      a) $\neg\neg P \vee Q \vee R \wedge \neg Q \vee \neg R$
      b) $P \wedge \neg R \rightarrow Q \rightleftarrows P \wedge Q$
   b) Let A is the set of + ve integers and let $\leq$ be the relation "divides" i.e.
      $\leq = \{(x, y) | x \in A \wedge y \in A$ and "x divides y"$\}$
      Draw the Hesse diagram for (Dn, 1) (any 2) where,
      a) n = 12
      b) n = 45
      c) n = 30
   c) Show that the following premises are inconsistent
      $E \rightarrow S$, $S \rightarrow H$, $A \rightarrow \neg H$ and $E \wedge A$.
   d) Show the following equivalence with or without constructing truth table
      $(P \rightarrow Q) \wedge (R \rightarrow Q) \Leftrightarrow (P \vee R) \rightarrow Q$.

3. Answer the following (**any 2**) : **(2×8=16)**
   a) Define relation and explain the properties of relation with example.
   b) Obtain the PDNF and PCNF of the following formula without constructing truth table
      $P \rightarrow (\neg P \rightarrow (Q \vee (\neg Q \rightarrow R)))$
   c) Define and explain the following with suitable example.
      a) Equivalence Relation
      b) Partial Order Relation

SECTION – II

4. Attempt **any three (each** carries **4** marks) : **12**
   A) Define composition operation on functions with an example.
   B) Define and explain direct product of monoid and direct product of semigroup.
   C) Explain subgroup with an example.
   D) Write a note on – Boolean functions.

5. Attempt **any two (each** carries **8** marks) : **16**
   A) Define and explain the following terms related to functions.
      i) Converse of a function.
      ii) Inverse function
      iii) Identity map
      iv) Bijective function.
   B) Consider following Hesse diagram a and b. Whether diagram a and diagram b are lattices. If yes, mention which type of special lattice it is ? Justify your answers.



a) b)

   C) Derive the reverse polish (suffix) expression for $((a*b)\uparrow(c-d))\uparrow(e+f)$.

SLR-TJ – 233

Seat No.	

Set Q

S.E. (Computer Science and Engineering) (Part – I) (CGPA Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (Old)

Day and Date : Thursday, 14-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if necessary****.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(14×1=14)**

1) Let X and Y be any two sets. A relation f from X to Y is called ___ if for every $x \in X$ there is a unique $y \in Y$ such that $<x, y> \in f$.
a) relation b) function c) both a) and b) d) none of the above

2) Let $f : X \to Y$ and $g : Y \to X$. The function g is equal to f^{-1} only if
a) $g \circ f = I_x$ b) $f \circ g = I_y$ c) Both a) and b) d) None of the above

3) An algebraic system having closure, associative and identity element properties is called
a) monoid b) semigroup c) group d) sub monoid

4) Let <X, 0> and <Y, $*$> be two algebraic system such that $Y \subseteq X$. A homomorphism g from <X, 0> to <Y, $*$> is called as
a) epimorphism b) endomorphism
c) automorphism d) all

5) A group <G, $*$> is said to ____ if there exist an element $a \in G$ such that every element of G can be written as some power of a.
a) Acyclic b) Cyclic c) Abalian d) Angular

6) In lattice, the Greatest Lower Bound (GLB) of element a and b is denoted by
a) $a \oplus b$ b) $a * b$ c) $a \times b$ d) none of the above

P.T.O.

7) A lattice having least element (0) and greatest element (1), then lattice is called _____ lattice.
   a) complete b) bounded c) complex d) zero

8 Which of the following sets is not functionally complete ?
   a) $\{\vee, \neg\}$ b) $\{\wedge, \neg\}$ c) $\{\vee, \wedge\}$ d) $\{\rightarrow, \neg\}$

9) Which of the following is not valid ?
   a) $\{P \rightarrow (R \rightarrow S), (\neg R \rightarrow \neg P), P\} \Rightarrow S$
   b) $\{(\neg P \rightarrow \neg R), \neg S, P \rightarrow W, R \vee S\} \Rightarrow W$
   c) $\{P \rightarrow R, Q \rightarrow S, P \vee Q\} \Rightarrow S \vee R$
   d) $\{(a \rightarrow b), (b \rightarrow \neg a)\} \Rightarrow a$

10) Let ϕ is an empty set and $P(\phi)$ is its power set. Find number of elements in $|P(\phi)|$.
   a) 0 b) 1 c) 2 d) 4

11) Let R be a relation on the set A = {a, b, c, d} given by, R = {(a, b), (b, c), (d, c), (d, a)}, then transitive reflexive closure of R is given by
   a) {(a, a), (a, b), (a, c), (b, c), (b, d), (c, d), (d, a), (d, b), (d, c), (d, d)}
   b) $A \times A$
   c) $R \cup$ {(a, a,), (a, c), (b, d), (c, d), (d, d)}
   d) none of the above

12) Which of the following is not a poset ?
   a) the set of all integers with relation <
   b) the set of all positive integers with relation /(divides)
   c) $[D_6, I]$
   d) $[P, \subseteq]$,where P is any collection of sets

13) Which of the following is correct ?
   a) $(P \rightarrow Q), \rightarrow \neg(R \vee S), ((Q \rightarrow P) \vee \neg R), R \Rightarrow (P \rightleftarrows Q)$
   b) $(\neg P \wedge (\neg Q \wedge R)) \vee (Q \wedge R) \vee (P \wedge R) \Rightarrow R$
   c) Both (a) and (b) above
   d) None of the above

14) Consider the following statements :

   S_1: $R \vee (P \vee Q)$ is a valid conclusion from the premises

   $P \vee Q$, $Q \rightarrow R$, $P \rightarrow M$ and $\neg M$

   S_2 : $a \rightarrow b$, $\neg(b \vee c) \Rightarrow \neg b$, then
   a) S_1 is true and S_2 is invalid b) S_1 is false and S_2 is valid
   c) Both are true d) Both are false

SLR-TJ – 233

Seat No.	

S.E. (Computer Science and Engineering) (Part – I) (CGPA Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (Old)

Day and Date : Thursday, 14-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if necessary****.*

SECTION – I

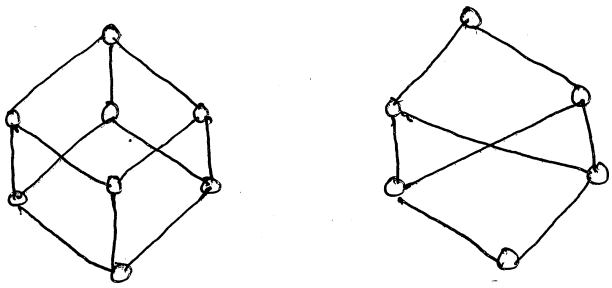
2. Answer the following (**any 3**) : **(3×4=12)**
   a) Convert the given formula into prefix form
      a) $\neg\neg P \vee Q \vee R \wedge \neg Q \vee \neg R$
      b) $P \wedge \neg R \rightarrow Q \rightleftarrows P \wedge Q$
   b) Let A is the set of + ve integers and let $\leq$ be the relation "divides" i.e.
      $\leq = \{(x, y) | x \in A \wedge y \in A$ and "x divides y"$\}$
      Draw the Hesse diagram for (Dn, 1) (any 2) where,
      a) n = 12
      b) n = 45
      c) n = 30
   c) Show that the following premises are inconsistent
      $E \rightarrow S$, $S \rightarrow H$, $A \rightarrow \neg H$ and $E \wedge A$.
   d) Show the following equivalence with or without constructing truth table
      $(P \rightarrow Q) \wedge (R \rightarrow Q) \Leftrightarrow (P \vee R) \rightarrow Q$.

3. Answer the following (**any 2**) : **(2×8=16)**
   a) Define relation and explain the properties of relation with example.
   b) Obtain the PDNF and PCNF of the following formula without constructing truth table
      $P \rightarrow (\neg P \rightarrow (Q \vee (\neg Q \rightarrow R)))$
   c) Define and explain the following with suitable example.
      a) Equivalence Relation
      b) Partial Order Relation

SECTION – II

4. Attempt **any three (each** carries **4** marks) : **12**
   A) Define composition operation on functions with an example.
   B) Define and explain direct product of monoid and direct product of semigroup.
   C) Explain subgroup with an example.
   D) Write a note on – Boolean functions.

5. Attempt **any two (each** carries **8** marks) : **16**
   A) Define and explain the following terms related to functions.
      i) Converse of a function.
      ii) Inverse function
      iii) Identity map
      iv) Bijective function.
   B) Consider following Hesse diagram a and b. Whether diagram a and diagram b are lattices. If yes, mention which type of special lattice it is ? Justify your answers.



a) b)

   C) Derive the reverse polish (suffix) expression for $((a*b)\uparrow(c-d))\uparrow(e+f)$.

SLR-TJ – 233

Seat No.	

Set R

S.E. (Computer Science and Engineering) (Part – I) (CGPA Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (Old)

Day and Date : Thursday, 14-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if necessary****.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(14×1=14)**

1) Which of the following is not a poset ?
   a) the set of all integers with relation <
   b) the set of all positive integers with relation /(divides)
   c) $[D_6, I]$
   d) $[P, \subseteq]$,where P is any collection of sets

2) Which of the following is correct ?
   a) $(P \to Q), \to \neg(R \vee S), ((Q \to P) \vee \neg R), R \Rightarrow (P \rightleftarrows Q)$
   b) $(\neg P \wedge (\neg Q \wedge R)) \vee (Q \wedge R) \vee (P \wedge R) \Rightarrow R$
   c) Both (a) and (b) above
   d) None of the above

3) Consider the following statements :
   S_1: $R \vee (P \vee Q)$ is a valid conclusion from the premises
   $P \vee Q, Q \to R, P \to M$ and $\neg M$
   S_2 : $a \to b, \neg(b \vee c) \Rightarrow \neg b$, then
   a) S_1 is true and S_2 is invalid
   b) S_1 is false and S_2 is valid
   c) Both are true
   d) Both are false

P.T.O.

4) Let X and Y be any two sets. A relation f from X to Y is called ___ if for every $x \in X$ there is a unique $y \in Y$ such that $<x, y> \in f$.
   a) relation b) function c) both a) and b) d) none of the above

5) Let $f : X \to Y$ and $g : Y \to X$. The function g is equal to f^{-1} only if
   a) $g \circ f = I_x$ b) $f \circ g = I_y$ c) Both a) and b) d) None of the above

6) An algebraic system having closure, associative and identity element properties is called
   a) monoid b) semigroup c) group d) sub monoid

7) Let <X, 0> and <Y, $*$> be two algebraic system such that $Y \subseteq X$. A homomorphism g from <X, 0> to <Y, $*$> is called as
   a) epimorphism b) endomorphism
   c) automorphism d) all

8) A group <G, $*$> is said to ____ if there exist an element $a \in G$ such that every element of G can be written as some power of a.
   a) Acyclic b) Cyclic c) Abalian d) Angular

9) In lattice, the Greatest Lower Bound (GLB) of element a and b is denoted by
   a) $a \oplus b$ b) $a * b$ c) $a \times b$ d) none of the above

10) A lattice having least element (0) and greatest element (1), then lattice is called _____ lattice.
    a) complete b) bounded c) complex d) zero

11) Which of the following sets is not functionally complete ?
    a) $\{\vee, \neg\}$ b) $\{\wedge, \neg\}$ c) $\{\vee, \wedge\}$ d) $\{\rightarrow, \neg\}$

12) Which of the following is not valid ?
    a) $\{P \rightarrow (R \rightarrow S), (\neg R \rightarrow \neg P), P\} \Rightarrow S$
    b) $\{(\neg P \rightarrow \neg R), \neg S, P \rightarrow W, R \vee S\} \Rightarrow W$
    c) $\{P \rightarrow R, Q \rightarrow S, P \vee Q\} \Rightarrow S \vee R$
    d) $\{(a \rightarrow b), (b \rightarrow \neg a)\} \Rightarrow a$

13) Let ϕ is an empty set and $P(\phi)$ is its power set. Find number of elements in $|P(\phi)|$.
    a) 0 b) 1 c) 2 d) 4

14) Let R be a relation on the set A = {a, b, c, d} given by, R = {(a, b), (b, c), (d, c), (d, a)}, then transitive reflexive closure of R is given by
    a) {(a, a), (a, b), (a, c), (b, c), (b, d), (c, d), (d, a), (d, b), (d, c), (d, d)}
    b) $A \times A$
    c) $R \cup$ {(a, a,), (a, c), (b, d), (c, d), (d, d)}
    d) none of the above

SLR-TJ – 233

Seat No.	

S.E. (Computer Science and Engineering) (Part – I) (CGPA Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (Old)

Day and Date : Thursday, 14-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if necessary****.*

SECTION – I

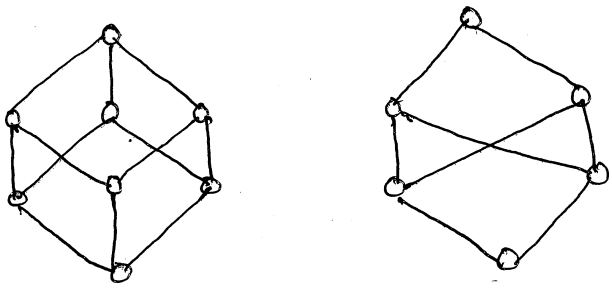
2. Answer the following (**any 3**) : **(3×4=12)**
   a) Convert the given formula into prefix form
      a) $\neg\neg P \vee Q \vee R \wedge \neg Q \vee \neg R$
      b) $P \wedge \neg R \rightarrow Q \rightleftarrows P \wedge Q$
   b) Let A is the set of + ve integers and let $\leq$ be the relation "divides" i.e.
      $\leq = \{(x, y) | x \in A \wedge y \in A$ and "x divides y"$\}$
      Draw the Hesse diagram for (Dn, 1) (any 2) where,
      a) n = 12
      b) n = 45
      c) n = 30
   c) Show that the following premises are inconsistent
      $E \rightarrow S$, $S \rightarrow H$, $A \rightarrow \neg H$ and $E \wedge A$.
   d) Show the following equivalence with or without constructing truth table
      $(P \rightarrow Q) \wedge (R \rightarrow Q) \Leftrightarrow (P \vee R) \rightarrow Q$.

3. Answer the following (**any 2**) : **(2×8=16)**
   a) Define relation and explain the properties of relation with example.
   b) Obtain the PDNF and PCNF of the following formula without constructing truth table
      $P \rightarrow (\neg P \rightarrow (Q \vee (\neg Q \rightarrow R)))$
   c) Define and explain the following with suitable example.
      a) Equivalence Relation
      b) Partial Order Relation

SECTION – II

4. Attempt **any three (each** carries **4** marks) : **12**
   A) Define composition operation on functions with an example.
   B) Define and explain direct product of monoid and direct product of semigroup.
   C) Explain subgroup with an example.
   D) Write a note on – Boolean functions.

5. Attempt **any two (each** carries **8** marks) : **16**
   A) Define and explain the following terms related to functions.
      i) Converse of a function.
      ii) Inverse function
      iii) Identity map
      iv) Bijective function.
   B) Consider following Hesse diagram a and b. Whether diagram a and diagram b are lattices. If yes, mention which type of special lattice it is ? Justify your answers.



a) b)

   C) Derive the reverse polish (suffix) expression for $((a*b)\uparrow(c-d))\uparrow(e+f)$.

SLR-TJ – 233

Seat No.	

Set S

S.E. (Computer Science and Engineering) (Part – I) (CGPA Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (Old)

Day and Date : Thursday, 14-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if necessary****.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(14×1=14)**

1) An algebraic system having closure, associative and identity element properties is called
a) monoid b) semigroup c) group d) sub monoid

2) Let <X, 0> and <Y, $*$> be two algebraic system such that $Y \subseteq X$. A homomorphism g from <X, 0> to <Y, $*$> is called as
a) epimorphism b) endomorphism
c) automorphism d) all

3) A group <G, $*$> is said to ____ if there exist an element $a \in G$ such that every element of G can be written as some power of a.
a) Acyclic b) Cyclic c) Abalian d) Angular

4) In lattice, the Greatest Lower Bound (GLB) of element a and b is denoted by
a) $a \oplus b$ b) $a * b$ c) $a \times b$ d) none of the above

5) A lattice having least element (0) and greatest element (1), then lattice is called _____ lattice.
a) complete b) bounded c) complex d) zero

6) Which of the following sets is not functionally complete ?
a) $\{\vee, \neg\}$ b) $\{\wedge, \neg\}$ c) $\{\vee, \wedge\}$ d) $\{\rightarrow, \neg\}$

P.T.O.

7) Which of the following is not valid ?
   a) $\{P \to (R \to S), (\neg R \to \neg P), P\} \Rightarrow S$
   b) $\{(\neg P \to \neg R), \neg S, P \to W, R \vee S\} \Rightarrow W$
   c) $\{P \to R, Q \to S, P \vee Q\} \Rightarrow S \vee R$
   d) $\{(a \to b), (b \to \neg a)\} \Rightarrow a$

8) Let ϕ is an empty set and $P(\phi)$ is its power set. Find number of elements in $|P(\phi)|$.
   a) 0 b) 1 c) 2 d) 4

9) Let R be a relation on the set A = {a, b, c, d} given by, R = {(a, b), (b, c), (d, c), (d, a)}, then transitive reflexive closure of R is given by
   a) {(a, a), (a, b), (a, c), (b, c), (b, d), (c, d), (d, a), (d, b), (d, c), (d, d)}
   b) $A \times A$
   c) $R \cup$ {(a, a,), (a, c), (b, d), (c, d), (d, d)}
   d) none of the above

10) Which of the following is not a poset ?
   a) the set of all integers with relation <
   b) the set of all positive integers with relation /(divides)
   c) $[D_6, I]$
   d) $[P, \subseteq]$,where P is any collection of sets

11) Which of the following is correct ?
   a) $(P \to Q), \to \neg(R \vee S), ((Q \to P) \vee \neg R), R \Rightarrow (P \rightleftarrows Q)$
   b) $(\neg P \wedge (\neg Q \wedge R)) \vee (Q \wedge R) \vee (P \wedge R) \Rightarrow R$
   c) Both (a) and (b) above
   d) None of the above

12) Consider the following statements :

   S_1: $R \vee (P \vee Q)$ is a valid conclusion from the premises

   $P \vee Q, Q \to R, P \to M$ and $\neg M$

   S_2 : $a \to b, \neg(b \vee c) \Rightarrow \neg b$, then
   a) S_1 is true and S_2 is invalid b) S_1 is false and S_2 is valid
   c) Both are true d) Both are false

13) Let X and Y be any two sets. A relation f from X to Y is called ___ if for every $x \in X$ there is a unique $y \in Y$ such that $<x, y> \in f$.
   a) relation b) function c) both a) and b) d) none of the above

14) Let $f : X \to Y$ and $g : Y \to X$. The function g is equal to f^{-1} only if
   a) $g \circ f = I_x$ b) $f \circ g = I_y$ c) Both a) and b) d) None of the above

SLR-TJ – 233

Seat No.	

S.E. (Computer Science and Engineering) (Part – I) (CGPA Pattern) Examination, 2017
DISCRETE MATHEMATICAL STRUCTURES (Old)

Day and Date : Thursday, 14-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if necessary****.*

SECTION – I

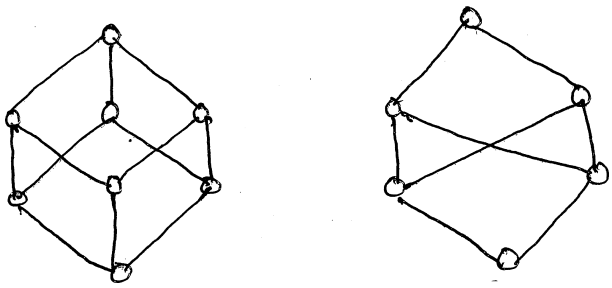
2. Answer the following (**any 3**) : **(3×4=12)**
   a) Convert the given formula into prefix form
      a) $\neg\neg P \vee Q \vee R \wedge \neg Q \vee \neg R$
      b) $P \wedge \neg R \rightarrow Q \rightleftarrows P \wedge Q$
   b) Let A is the set of + ve integers and let $\leq$ be the relation "divides" i.e.
      $\leq = \{(x, y) | x \in A \wedge y \in A$ and "x divides y"$\}$
      Draw the Hesse diagram for (Dn, 1) (any 2) where,
      a) n = 12
      b) n = 45
      c) n = 30
   c) Show that the following premises are inconsistent
      $E \rightarrow S$, $S \rightarrow H$, $A \rightarrow \neg H$ and $E \wedge A$.
   d) Show the following equivalence with or without constructing truth table
      $(P \rightarrow Q) \wedge (R \rightarrow Q) \Leftrightarrow (P \vee R) \rightarrow Q$.

3. Answer the following (**any 2**) : **(2×8=16)**
   a) Define relation and explain the properties of relation with example.
   b) Obtain the PDNF and PCNF of the following formula without constructing truth table
      $P \rightarrow (\neg P \rightarrow (Q \vee (\neg Q \rightarrow R)))$
   c) Define and explain the following with suitable example.
      a) Equivalence Relation
      b) Partial Order Relation

SECTION – II

4. Attempt **any three (each** carries **4** marks) : **12**
   A) Define composition operation on functions with an example.
   B) Define and explain direct product of monoid and direct product of semigroup.
   C) Explain subgroup with an example.
   D) Write a note on – Boolean functions.

5. Attempt **any two (each** carries **8** marks) : **16**
   A) Define and explain the following terms related to functions.
      i) Converse of a function.
      ii) Inverse function
      iii) Identity map
      iv) Bijective function.
   B) Consider following Hesse diagram a and b. Whether diagram a and diagram b are lattices. If yes, mention which type of special lattice it is ? Justify your answers.



a) b)

   C) Derive the reverse polish (suffix) expression for $((a*b)\uparrow(c-d))\uparrow(e+f)$.

SLR-TJ – 234

Seat No.	

Set P

S.E. (CSE) (Part – I) (CGPA) Examination, 2017
ADVANCED C CONCEPTS (Old)

Day and Date : Saturday, 16-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Assume suitable data ***if necessary****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) For which of the following situation should the register storage class be used ?
   a) For local variable in a function
   b) For loop counter
   c) For collecting values returned from a function
   d) For variables used in a recursive function

2) What do the following declaration signify ?
   int (*pf)() ;
   a) pf is a pointer to function
   b) pf is a function pointer
   c) pf is a pointer to a function which return int
   d) pf is a function of pointer variable

3) If a file is opened in "rt" mode using fopen (), the operations possible on this file are
   a) Reading existing contents
   b) Writing new contents
   c) Modifying existing contents
   d) All the above

4) Which of the following is not a hashing function ?
   a) Folding method
   b) Division method
   c) Mid square method
   d) Quadratic probing

5) The worst case running time for quick sort is
   a) $O(n^2)$
   b) $O(\log_2 n)$
   c) $O(n\log_2 n)$
   d) O(log n)

6) What will be the output of following code ?

```
# include <stdio.h>
int main ()
{
        int arr [ ] = {1, 2, 3, 4, 5};
        int *p = arr;
            ++*p;
        p + = 2 ;
        print f ("%d", *p);
        return 0 ;
}
```

   a) 2
   b) 3
   c) 4
   d) Compiler Error

P.T.O.

7) On opening a file for reading which of the following activities are performed
   a) The disk is searched for existence of a file
   b) The file brought into memory
   c) A pointer is setup which points to the first character in the file
   d) All the above

8) Which of the following sorting algorithm is of divide and conquer type ?
   a) Bubble sort b) Insertion sort c) Quick sort d) None of above

9) The fwrite() function have
   a) 1 argument b) 2 argument c) 3 argument d) 4 argument

10) What will be the output of following code ?

```
# include < stdio.h>
int fun ()
    {
        static int num = 16 ;
        return num--;
    }
int main ()
    {
        for (fun( ); fun ( ) ; fun ( ))
        printf ("%d ", fun ( ) ) ;
        return 0 ;
    }
```

   a) Infinite loop b) 13 10 7 4 1 c) 14 11 8 5 2 d) 15 12 8 5 6

11) Which of the following is not the required condition for binary search algorithm ?
   a) The list must be sorted
   b) There should be direct access to the middle element in any sublist
   c) There must be mechanism to delete and /or insert elements in the list
   d) All the above

12) What is the output of the code given below ?

```
#include<stdio.h>
 int main ( )
 {
     int ary [ 4 ] = { 1, 2, 3, 4 };
     int *p = ary + 3;
     print f ("%d\n", p[ –2 ] ) ;
 }
```

   a) 1 b) 2 c) Compile time error d) Some garbage value

13) The return type of malloc is
   a) int b) char c) void d) none of these

14) In the Tower of Hanoi if the number of disks are 5, the total number of moves is equal to
   a) 5 b) 30 c) 32 d) 31

SLR-TJ – 234

Seat No.	

S.E. (CSE) (Part – I) (CGPA) Examination, 2017
ADVANCED C CONCEPTS (Old)

Day and Date : Saturday, 16-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) **All** questions are **compulsory**.*
*2) Assume suitable data **if necessary**.*
*3) **Each** section carries **28** marks.*
*4) Attempt **all** questions in **each** Section.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Discuss the concept of 'pointer to structure' with a C program.
   b) Explain pointer to an array with example.
   c) How many storage classes in C ? Explain any two storage classes mentioning their storage, default initial value, scope and life.
   d) Give advantages and disadvantages of recursion.

3. Attempt **any two** : **(2×8=16)**
   a) Solve Tower of Hanoi problem taking 03 number of disks. Also write recursive program for Tower of Hanoi problem.
   b) Explain at least 4 string library functions with example.
   c) What is dynamics memory allocation ? Explain the following :
      i) malloc() ii) realloc()
      iii) calloc() iv) free() each with example

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
   a) Explain command line argument with file copy program.
   b) Write short note on quick sort with example.
   c) Compare linear search and binary search.
   d) Explain following file functions :
      rewind(), fseek() and fwrite() with example.

5. Attempt **any two** questions : **(2×8=16)**
   a) Explain collision resolution by open addressing method.
   b) Write a c program to insert, delete and modify records in file. Give sample output.
   c) Explain heap sort briefly. Sort the following numbers using heap sort and show the steps :
      40, 56, 28, 79, 20, 18, 67, 3.

Set P

SLR-TJ – 234

Seat No.	

Set Q

S.E. (CSE) (Part – I) (CGPA) Examination, 2017
ADVANCED C CONCEPTS (Old)

Day and Date : Saturday, 16-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Assume suitable data ***if necessary****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) Which of the following sorting algorithm is of divide and conquer type ?
a) Bubble sort b) Insertion sort
c) Quick sort d) None of above

2) The fwrite() function have
a) 1 argument b) 2 argument
c) 3 argument d) 4 argument

3) What will be the output of following code ?

```
# include < stdio.h>
int fun ()
    {
        static int num = 16 ;
        return num--;
    }
int main ()
    {
        for (fun( ); fun ( ) ; fun ( ))
        printf ("%d ", fun ( ) ) ;
        return 0 ;
    }
```

a) Infinite loop b) 13 10 7 4 1 c) 14 11 8 5 2 d) 15 12 8 5 6

4) Which of the following is not the required condition for binary search algorithm ?
a) The list must be sorted
b) There should be direct access to the middle element in any sublist
c) There must be mechanism to delete and /or insert elements in the list
d) All the above

P.T.O.

5) What is the output of the code given below ?

```
#include<stdio.h>
 int main ( )
 {
      int ary [ 4 ] = { 1, 2, 3, 4 };
      int *p = ary + 3;
      print f ("%d\n", p[ –2 ] ) ;
 }
```

a) 1 b) 2 c) Compile time error d) Some garbage value

6) The return type of malloc is
a) int b) char c) void d) none of these

7) In the Tower of Hanoi if the number of disks are 5, the total number of moves is equal to
a) 5 b) 30 c) 32 d) 31

8) For which of the following situation should the register storage class be used ?
a) For local variable in a function
b) For loop counter
c) For collecting values returned from a function
d) For variables used in a recursive function

9) What do the following declaration signify ?
int (*pf)() ;
a) pf is a pointer to function b) pf is a function pointer
c) pf is a pointer to a function which return int d) pf is a function of pointer variable

10) If a file is opened in “rt” mode using fopen (), the operations possible on this file are
a) Reading existing contents b) Writing new contents
c) Modifying existing contents d) All the above

11) Which of the following is not a hashing function ?
a) Folding method b) Division method
c) Mid square method d) Quadratic probing

12) The worst case running time for quick sort is
a) $O(n^2)$ b) $O(\log_2 n)$ c) $O(n\log_2 n)$ d) O(log n)

13) What will be the output of following code ?

```
# include <stdio.h>
int main ()
{
        int arr [ ] = {1, 2, 3, 4, 5};
        int *p = arr;
            ++*p;
        p + = 2 ;
        print f ("%d", *p);
        return 0 ;
}
```

a) 2 b) 3 c) 4 d) Compiler Error

14) On opening a file for reading which of the following activities are performed
a) The disk is searched for existence of a file
b) The file brought into memory
c) A pointer is setup which points to the first character in the file
d) All the above

SLR-TJ – 234

Seat No.	

S.E. (CSE) (Part – I) (CGPA) Examination, 2017
ADVANCED C CONCEPTS (Old)

Day and Date : Saturday, 16-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) **All** questions are **compulsory**.*
*2) Assume suitable data **if necessary**.*
*3) **Each** section carries **28** marks.*
*4) Attempt **all** questions in **each** Section.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Discuss the concept of 'pointer to structure' with a C program.
   b) Explain pointer to an array with example.
   c) How many storage classes in C ? Explain any two storage classes mentioning their storage, default initial value, scope and life.
   d) Give advantages and disadvantages of recursion.

3. Attempt **any two** : **(2×8=16)**
   a) Solve Tower of Hanoi problem taking 03 number of disks. Also write recursive program for Tower of Hanoi problem.
   b) Explain at least 4 string library functions with example.
   c) What is dynamics memory allocation ? Explain the following :
      i) malloc() ii) realloc()
      iii) calloc() iv) free() each with example

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
   a) Explain command line argument with file copy program.
   b) Write short note on quick sort with example.
   c) Compare linear search and binary search.
   d) Explain following file functions :
      rewind(), fseek() and fwrite() with example.

5. Attempt **any two** questions : **(2×8=16)**
   a) Explain collision resolution by open addressing method.
   b) Write a c program to insert, delete and modify records in file. Give sample output.
   c) Explain heap sort briefly. Sort the following numbers using heap sort and show the steps :
      40, 56, 28, 79, 20, 18, 67, 3.

Set Q

SLR-TJ – 234

Seat No.	

Set R

S.E. (CSE) (Part – I) (CGPA) Examination, 2017
ADVANCED C CONCEPTS (Old)

Day and Date : Saturday, 16-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Assume suitable data ***if necessary****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) The worst case running time for quick sort is
a) $O(n^2)$ b) $O(\log_2 n)$
c) $O(n\log_2 n)$ d) O(log n)

2) What will be the output of following code ?

```
# include <stdio.h>
int main ()
{
        int arr [ ] = {1, 2, 3, 4, 5};
        int *p = arr;
            ++*p;
        p + = 2 ;
        print f ("%d", *p);
        return 0 ;
}
```

a) 2 b) 3
c) 4 d) Compiler Error

3) On opening a file for reading which of the following activities are performed
a) The disk is searched for existence of a file
b) The file brought into memory
c) A pointer is setup which points to the first character in the file
d) All the above

4) Which of the following sorting algorithm is of divide and conquer type ?
a) Bubble sort b) Insertion sort
c) Quick sort d) None of above

5) The fwrite() function have
a) 1 argument b) 2 argument
c) 3 argument d) 4 argument

P.T.O.

6) What will be the output of following code ?

```
# include < stdio.h>
int fun ()
    {
        static int num = 16 ;
        return num--;
    }
int main ()
    {
        for (fun( ); fun ( ) ; fun ( ))
        printf ("%d ", fun ( ) ) ;
        return 0 ;
    }
```

a) Infinite loop b) 13 10 7 4 1 c) 14 11 8 5 2 d) 15 12 8 5 6

7) Which of the following is not the required condition for binary search algorithm ?
   a) The list must be sorted
   b) There should be direct access to the middle element in any sublist
   c) There must be mechanism to delete and /or insert elements in the list
   d) All the above

8) What is the output of the code given below ?

```
#include<stdio.h>
 int main ( )
 {
     int ary [ 4 ] = { 1, 2, 3, 4 };
     int *p = ary + 3;
     print f ("%d\n", p[ –2 ] ) ;
 }
```

a) 1 b) 2 c) Compile time error d) Some garbage value

9) The return type of malloc is
   a) int b) char c) void d) none of these

10) In the Tower of Hanoi if the number of disks are 5, the total number of moves is equal to
   a) 5 b) 30 c) 32 d) 31

11) For which of the following situation should the register storage class be used ?
   a) For local variable in a function
   b) For loop counter
   c) For collecting values returned from a function
   d) For variables used in a recursive function

12) What do the following declaration signify ?
   int (*pf)() ;
   a) pf is a pointer to function b) pf is a function pointer
   c) pf is a pointer to a function which return int d) pf is a function of pointer variable

13) If a file is opened in “rt” mode using fopen (), the operations possible on this file are
   a) Reading existing contents b) Writing new contents
   c) Modifying existing contents d) All the above

14) Which of the following is not a hashing function ?
   a) Folding method b) Division method
   c) Mid square method d) Quadratic probing

SLR-TJ – 234

Seat No.	

S.E. (CSE) (Part – I) (CGPA) Examination, 2017
ADVANCED C CONCEPTS (Old)

Day and Date : Saturday, 16-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) **All** questions are **compulsory**.*
*2) Assume suitable data **if necessary**.*
*3) **Each** section carries **28** marks.*
*4) Attempt **all** questions in **each** Section.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Discuss the concept of 'pointer to structure' with a C program.
   b) Explain pointer to an array with example.
   c) How many storage classes in C ? Explain any two storage classes mentioning their storage, default initial value, scope and life.
   d) Give advantages and disadvantages of recursion.

3. Attempt **any two** : **(2×8=16)**
   a) Solve Tower of Hanoi problem taking 03 number of disks. Also write recursive program for Tower of Hanoi problem.
   b) Explain at least 4 string library functions with example.
   c) What is dynamics memory allocation ? Explain the following :
      i) malloc() ii) realloc()
      iii) calloc() iv) free() each with example

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
   a) Explain command line argument with file copy program.
   b) Write short note on quick sort with example.
   c) Compare linear search and binary search.
   d) Explain following file functions :
      rewind(), fseek() and fwrite() with example.

5. Attempt **any two** questions : **(2×8=16)**
   a) Explain collision resolution by open addressing method.
   b) Write a c program to insert, delete and modify records in file. Give sample output.
   c) Explain heap sort briefly. Sort the following numbers using heap sort and show the steps :
      40, 56, 28, 79, 20, 18, 67, 3.

Set R

SLR-TJ – 234

Seat No.	

Set **S**

S.E. (CSE) (Part – I) (CGPA) Examination, 2017
ADVANCED C CONCEPTS (Old)

Day and Date : Saturday, 16-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Assume suitable data ***if necessary****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) What will be the output of following code ?

```
# include < stdio.h>
int fun ()
      {
            static int num = 16 ;
            return num--;
      }
int main ()
      {
            for (fun( ); fun ( ) ; fun ( ))
            printf ("%d ", fun ( ) ) ;
             return 0 ;
      }
```

a) Infinite loop b) 13 10 7 4 1 c) 14 11 8 5 2 d) 15 12 8 5 6

2) Which of the following is not the required condition for binary search algorithm ?
a) The list must be sorted
b) There should be direct access to the middle element in any sublist
c) There must be mechanism to delete and /or insert elements in the list
d) All the above

3) What is the output of the code given below ?

```
#include<stdio.h>
 int main ( )
 {
      int ary [ 4 ] = { 1, 2, 3, 4 };
      int *p = ary + 3;
      print f ("%d\n", p[ –2 ] ) ;
 }
```

a) 1 b) 2 c) Compile time error d) Some garbage value

P.T.O.

4) The return type of malloc is
   a) int b) char c) void d) none of these

5) In the Tower of Hanoi if the number of disks are 5, the total number of moves is equal to
   a) 5 b) 30 c) 32 d) 31

6) For which of the following situation should the register storage class be used ?
   a) For local variable in a function
   b) For loop counter
   c) For collecting values returned from a function
   d) For variables used in a recursive function

7) What do the following declaration signify ?
   int (*pf)() ;
   a) pf is a pointer to function b) pf is a function pointer
   c) pf is a pointer to a function which return int d) pf is a function of pointer variable

8) If a file is opened in "rt" mode using fopen (), the operations possible on this file are
   a) Reading existing contents b) Writing new contents
   c) Modifying existing contents d) All the above

9) Which of the following is not a hashing function ?
   a) Folding method b) Division method
   c) Mid square method d) Quadratic probing

10) The worst case running time for quick sort is
    a) $O(n^2)$ b) $O(\log_2 n)$ c) $O(n\log_2 n)$ d) O(log n)

11) What will be the output of following code ?

```
# include <stdio.h>
int main ()
{
        int arr [ ] = {1, 2, 3, 4, 5};
        int *p = arr;
            ++*p;
        p + = 2 ;
        print f ("%d", *p);
        return 0 ;
}
```

    a) 2 b) 3 c) 4 d) Compiler Error

12) On opening a file for reading which of the following activities are performed
    a) The disk is searched for existence of a file
    b) The file brought into memory
    c) A pointer is setup which points to the first character in the file
    d) All the above

13) Which of the following sorting algorithm is of divide and conquer type ?
    a) Bubble sort b) Insertion sort c) Quick sort d) None of above

14) The fwrite() function have
    a) 1 argument b) 2 argument c) 3 argument d) 4 argument

SLR-TJ – 234

Seat No.	

S.E. (CSE) (Part – I) (CGPA) Examination, 2017
ADVANCED C CONCEPTS (Old)

Day and Date : Saturday, 16-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) **All** questions are **compulsory**.*
*2) Assume suitable data **if necessary**.*
*3) **Each** section carries **28** marks.*
*4) Attempt **all** questions in **each** Section.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Discuss the concept of 'pointer to structure' with a C program.
   b) Explain pointer to an array with example.
   c) How many storage classes in C ? Explain any two storage classes mentioning their storage, default initial value, scope and life.
   d) Give advantages and disadvantages of recursion.

3. Attempt **any two** : **(2×8=16)**
   a) Solve Tower of Hanoi problem taking 03 number of disks. Also write recursive program for Tower of Hanoi problem.
   b) Explain at least 4 string library functions with example.
   c) What is dynamics memory allocation ? Explain the following :
      i) malloc() ii) realloc()
      iii) calloc() iv) free() each with example

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
   a) Explain command line argument with file copy program.
   b) Write short note on quick sort with example.
   c) Compare linear search and binary search.
   d) Explain following file functions :
      rewind(), fseek() and fwrite() with example.

5. Attempt **any two** questions : **(2×8=16)**
   a) Explain collision resolution by open addressing method.
   b) Write a c program to insert, delete and modify records in file. Give sample output.
   c) Explain heap sort briefly. Sort the following numbers using heap sort and show the steps :
      40, 56, 28, 79, 20, 18, 67, 3.

Set S

SLR-TJ – 235

Seat No.	

Set P

S.E. – C.S.E. (Part – I) (Old-CGPA) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*
*2) **First** question is **objective** type.*
*3) **All** questions are **compulsory**.*
*4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
*5) **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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) The OR operation can be produced with _____
   a) One NAND gate b) Two NAND gates
   c) Three NAND gates d) Two NOR gates

2) A four variable K-map has _____ cells.
   a) 4 b) 16
   c) 8 d) 32

3) How many gates required to realize Y = AB + BC + AC ?
   a) 3 AND gates and 1 OR gate b) 3 OR gates and 1 AND gate
   c) 2 AND gates and 1 OR gate d) None of the above

4) 2's complement of 2's complement is _____
   a) Number itself b) Positive number
   c) Negative number d) None of the above

5) Which logic gate is basic comparator ?
   a) NOR gate b) NAND gate
   c) Ex-OR gate d) Ex-NOR gate

6) Ripple counter is _____ sequential circuit.
   a) Synchronous b) Asynchronous
   c) Bidirectional d) None of these

7) JK flip-flop is in the toggle condition when
   a) J=1, K=0 b) J=1, K=1
   c) J=0, K=0 d) J=0, K=1

8) IC 74151 is used as _____
   a) Decoder b) Encoder c) Multiplexer d) Demultiplexer

9) MSI stands for
   a) Mini Scale Integrated Circuit b) Medium Scale Integrated Circuit
   c) Max Scale Integrated Circuit d) None of these

10) While specifying the memory size the letter K stands for
   a) 1024 b) 2048 c) 1000 d) 100

11) In 16 × 8 memory the word size is
   a) 16 b) 8 c) 4 d) 12

12) For BCD to 7-segment display decoder or driver _____ IC is used.
   a) IC74138 b) IC74151 c) IC7447 d) IC74148

13) Which of the following is not a VHDL data object ?
   a) Variable b) Wire c) Signal d) Constant

14) What is the symbol used for signal assignment ?
   a) == b) =
   c) := d) <=

_____

SLR-TJ – 235

Seat No.	

S.E. – C.S.E. (Part – I) (Old-CGPA) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*

*2) **All** questions are **compulsory**.*

SECTION – I

2. Attempt **any one** : **(1×8=8)**

   a) Design a mod5 synchronous counter using JK flip-flop.

   b) Explain carry look ahead in details.

3. Attempt **any two** : **(2×5=10)**

   a) Explain don't care condition with following example.

   $F = \sum m(1, 3, 7, 11, 15) + D(0, 2, 4)$

   b) Explain how Master Slave JK flip flop eliminates the race around condition.

   c) Draw full subtractor using half subtractor.

4. Atempt **any two** : **(2×5=10)**

   a) With neat diagram and waveform explain 3bit ripple counter.

   b) Write short note on parity checker.

   c) What is universal gate concept ? Implement basic gates using NAND gate.

SECTION – II

5. Attempt **any one** : **(1×8=8)**

   a) What is multiplexer ? Design full adder using 8 : 1 MUX.

   b) Design 2048*8 memory using 256*8 memory chip.

6. Attempt **any two** : **(2×5=10)**

   a) Write short note on IC74154.

   b) Explain expansion of word capacity with example.

   c) Describe ENTITY and ARCHITECTURE in VHDL.

7. Attempt **any two** : **(2×5=10)**

   a) Write a VHDL code for 4 : 1 MUX.

   b) Write short note on TTL RAM cell.

   c) Explain DMUX tree with example.

SLR-TJ – 235

Seat No.	

Set Q

S.E. – C.S.E. (Part – I) (Old-CGPA) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*
*2) **First** question is **objective** type.*
*3) **All** questions are **compulsory**.*
*4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
*5) **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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) IC 74151 is used as _____
   a) Decoder b) Encoder c) Multiplexer d) Demultiplexer

2) MSI stands for
   a) Mini Scale Integrated Circuit b) Medium Scale Integrated Circuit
   c) Max Scale Integrated Circuit d) None of these

3) While specifying the memory size the letter K stands for
   a) 1024 b) 2048 c) 1000 d) 100

4) In 16 × 8 memory the word size is
   a) 16 b) 8 c) 4 d) 12

5) For BCD to 7-segment display decoder or driver _____ IC is used.
   a) IC74138 b) IC74151 c) IC7447 d) IC74148

6) Which of the following is not a VHDL data object ?
   a) Variable b) Wire c) Signal d) Constant

P.T.O.

7) What is the symbol used for signal assignment ?
   a) ==
   b) =
   c) :=
   d) <=

8) The OR operation can be produced with _____
   a) One NAND gate
   b) Two NAND gates
   c) Three NAND gates
   d) Two NOR gates

9) A four variable K-map has _____ cells.
   a) 4
   b) 16
   c) 8
   d) 32

10) How many gates required to realize Y = AB + BC + AC ?
   a) 3 AND gates and 1 OR gate
   b) 3 OR gates and 1 AND gate
   c) 2 AND gates and 1 OR gate
   d) None of the above

11) 2's complement of 2's complement is _____
   a) Number itself
   b) Positive number
   c) Negative number
   d) None of the above

12) Which logic gate is basic comparator ?
   a) NOR gate
   b) NAND gate
   c) Ex-OR gate
   d) Ex-NOR gate

13) Ripple counter is _____ sequential circuit.
   a) Synchronous
   b) Asynchronous
   c) Bidirectional
   d) None of these

14) JK flip-flop is in the toggle condition when
   a) J=1, K=0
   b) J=1, K=1
   c) J=0, K=0
   d) J=0, K=1

_____

SLR-TJ – 235

Seat No.	

S.E. – C.S.E. (Part – I) (Old-CGPA) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*

*2) **All** questions are **compulsory**.*

SECTION – I

2. Attempt **any one** : **(1×8=8)**

   a) Design a mod5 synchronous counter using JK flip-flop.

   b) Explain carry look ahead in details.

3. Attempt **any two** : **(2×5=10)**

   a) Explain don't care condition with following example.

   $F = \sum m(1, 3, 7, 11, 15) + D(0, 2, 4)$

   b) Explain how Master Slave JK flip flop eliminates the race around condition.

   c) Draw full subtractor using half subtractor.

4. Atempt **any two** : **(2×5=10)**

   a) With neat diagram and waveform explain 3bit ripple counter.

   b) Write short note on parity checker.

   c) What is universal gate concept ? Implement basic gates using NAND gate.

SECTION – II

5. Attempt **any one** : **(1×8=8)**

   a) What is multiplexer ? Design full adder using 8 : 1 MUX.

   b) Design 2048*8 memory using 256*8 memory chip.

6. Attempt **any two** : **(2×5=10)**

   a) Write short note on IC74154.

   b) Explain expansion of word capacity with example.

   c) Describe ENTITY and ARCHITECTURE in VHDL.

7. Attempt **any two** : **(2×5=10)**

   a) Write a VHDL code for 4 : 1 MUX.

   b) Write short note on TTL RAM cell.

   c) Explain DMUX tree with example.

SLR-TJ – 235

Seat No.	

Set R

S.E. – C.S.E. (Part – I) (Old-CGPA) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*
*2) **First** question is **objective** type.*
*3) **All** questions are **compulsory**.*
*4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
5) 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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) Which logic gate is basic comparator ?
   a) NOR gate b) NAND gate
   c) Ex-OR gate d) Ex-NOR gate

2) Ripple counter is _____ sequential circuit.
   a) Synchronous b) Asynchronous
   c) Bidirectional d) None of these

3) JK flip-flop is in the toggle condition when
   a) J=1, K=0 b) J=1, K=1
   c) J=0, K=0 d) J=0, K=1

4) IC 74151 is used as _____
   a) Decoder b) Encoder c) Multiplexer d) Demultiplexer

5) MSI stands for
   a) Mini Scale Integrated Circuit b) Medium Scale Integrated Circuit
   c) Max Scale Integrated Circuit d) None of these

P.T.O.

6) While specifying the memory size the letter K stands for
   a) 1024 b) 2048 c) 1000 d) 100

7) In 16 × 8 memory the word size is
   a) 16 b) 8 c) 4 d) 12

8) For BCD to 7-segment display decoder or driver _____ IC is used.
   a) IC74138 b) IC74151 c) IC7447 d) IC74148

9) Which of the following is not a VHDL data object ?
   a) Variable b) Wire c) Signal d) Constant

10) What is the symbol used for signal assignment ?
   a) == b) =
   c) := d) <=

11) The OR operation can be produced with _____
   a) One NAND gate b) Two NAND gates
   c) Three NAND gates d) Two NOR gates

12) A four variable K-map has _____ cells.
   a) 4 b) 16
   c) 8 d) 32

13) How many gates required to realize Y = AB + BC + AC ?
   a) 3 AND gates and 1 OR gate b) 3 OR gates and 1 AND gate
   c) 2 AND gates and 1 OR gate d) None of the above

14) 2's complement of 2's complement is _____
   a) Number itself b) Positive number
   c) Negative number d) None of the above

_____

SLR-TJ – 235

Seat No.	

S.E. – C.S.E. (Part – I) (Old-CGPA) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*

*2) **All** questions are **compulsory**.*

SECTION – I

2. Attempt **any one** : **(1×8=8)**

   a) Design a mod5 synchronous counter using JK flip-flop.

   b) Explain carry look ahead in details.

3. Attempt **any two** : **(2×5=10)**

   a) Explain don't care condition with following example.

   $F = \sum m(1, 3, 7, 11, 15) + D(0, 2, 4)$

   b) Explain how Master Slave JK flip flop eliminates the race around condition.

   c) Draw full subtractor using half subtractor.

4. Atempt **any two** : **(2×5=10)**

   a) With neat diagram and waveform explain 3bit ripple counter.

   b) Write short note on parity checker.

   c) What is universal gate concept ? Implement basic gates using NAND gate.

SECTION – II

5. Attempt **any one** : **(1×8=8)**

   a) What is multiplexer ? Design full adder using 8 : 1 MUX.

   b) Design 2048*8 memory using 256*8 memory chip.

6. Attempt **any two** : **(2×5=10)**

   a) Write short note on IC74154.

   b) Explain expansion of word capacity with example.

   c) Describe ENTITY and ARCHITECTURE in VHDL.

7. Attempt **any two** : **(2×5=10)**

   a) Write a VHDL code for 4 : 1 MUX.

   b) Write short note on TTL RAM cell.

   c) Explain DMUX tree with example.

SLR-TJ – 235

Seat No.	

Set S

S.E. – C.S.E. (Part – I) (Old-CGPA) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*
*2) **First** question is **objective** type.*
*3) **All** questions are **compulsory**.*
*4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
*5) **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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) While specifying the memory size the letter K stands for
   a) 1024 b) 2048 c) 1000 d) 100

2) In 16 × 8 memory the word size is
   a) 16 b) 8 c) 4 d) 12

3) For BCD to 7-segment display decoder or driver _____ IC is used.
   a) IC74138 b) IC74151 c) IC7447 d) IC74148

4) Which of the following is not a VHDL data object ?
   a) Variable b) Wire c) Signal d) Constant

5) What is the symbol used for signal assignment ?
   a) == b) =
   c) := d) <=

6) The OR operation can be produced with _____
   a) One NAND gate b) Two NAND gates
   c) Three NAND gates d) Two NOR gates

P.T.O.

7) A four variable K-map has _____ cells.
   a) 4 b) 16
   c) 8 d) 32

8) How many gates required to realize Y = AB + BC + AC ?
   a) 3 AND gates and 1 OR gate b) 3 OR gates and 1 AND gate
   c) 2 AND gates and 1 OR gate d) None of the above

9) 2's complement of 2's complement is _____
   a) Number itself b) Positive number
   c) Negative number d) None of the above

10) Which logic gate is basic comparator ?
   a) NOR gate b) NAND gate
   c) Ex-OR gate d) Ex-NOR gate

11) Ripple counter is _____ sequential circuit.
   a) Synchronous b) Asynchronous
   c) Bidirectional d) None of these

12) JK flip-flop is in the toggle condition when
   a) J=1, K=0 b) J=1, K=1
   c) J=0, K=0 d) J=0, K=1

13) IC 74151 is used as _____
   a) Decoder b) Encoder c) Multiplexer d) Demultiplexer

14) MSI stands for
   a) Mini Scale Integrated Circuit b) Medium Scale Integrated Circuit
   c) Max Scale Integrated Circuit d) None of these

_____

SLR-TJ – 235

Seat No.	

S.E. – C.S.E. (Part – I) (Old-CGPA) Examination, 2017
DIGITAL TECHNIQUES

Day and Date : Tuesday, 19-12-2017 Max. Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*

*2) **All** questions are **compulsory**.*

SECTION – I

2. Attempt **any one** : **(1×8=8)**

   a) Design a mod5 synchronous counter using JK flip-flop.

   b) Explain carry look ahead in details.

3. Attempt **any two** : **(2×5=10)**

   a) Explain don't care condition with following example.

   $F = \sum m(1, 3, 7, 11, 15) + D(0, 2, 4)$

   b) Explain how Master Slave JK flip flop eliminates the race around condition.

   c) Draw full subtractor using half subtractor.

4. Atempt **any two** : **(2×5=10)**

   a) With neat diagram and waveform explain 3bit ripple counter.

   b) Write short note on parity checker.

   c) What is universal gate concept ? Implement basic gates using NAND gate.

SECTION – II

5. Attempt **any one** : **(1×8=8)**

   a) What is multiplexer ? Design full adder using 8 : 1 MUX.

   b) Design 2048*8 memory using 256*8 memory chip.

6. Attempt **any two** : **(2×5=10)**

   a) Write short note on IC74154.

   b) Explain expansion of word capacity with example.

   c) Describe ENTITY and ARCHITECTURE in VHDL.

7. Attempt **any two** : **(2×5=10)**

   a) Write a VHDL code for 4 : 1 MUX.

   b) Write short note on TTL RAM cell.

   c) Explain DMUX tree with example.

SLR-TJ – 236

Seat No.	

Set **P**

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose correct alternative : **(14×1=14)**

1) Refreshing is not needed in DVST because of the presence of
   a) Primary Gun b) Flood Gun
   c) Focusing Node d) Control Grid

2) The maximum number of points that can be displayed without overlap on a CRT is referred to as
   a) Resolution b) Persistence
   c) Attenuation d) None of these

3) Mid-point line and circle drawing algorithm use the design of
   a) Distance parameter b) Decision parameter
   c) Describe points d) Both a) and b)

4) Digitizing a picture definition into a set of intensity values is known as
   a) Scanning b) Refreshing
   c) Scan conversion d) All

5) The transformation that produce a parallel mirror of object are called
   a) Reflection b) Rotation
   c) Shear d) Scaling

6) Coordinates of window are known as
   a) Screen coordinates
   b) World coordinates
   c) Device coordinates
   d) Cartesian coordinates

7) _____ used to regulate the flow of electron in CRT ?
   a) Control grid
   b) Focusing anode
   c) Electron gun
   d) All

8) The region code of a point within window is
   a) 1111
   b) 0000
   c) 1000
   d) 0001

9) Which of the following is not a hidden surface removal algorithm ?
   a) Depth Sort
   b) Warnock algorithm
   c) Z-buffer
   d) None of these

10) The rectangle portion of the interface window that define where image will actually appear are called
   a) Transformation
   b) View Port
   c) Clipping window
   d) Screen coordinate system

11) The process of mapping a world window in world coordinates system to viewport are called
   a) View Port
   b) Transformation viewing
   c) Clipping window
   d) All

12) According to Cohen-Sutherland algorithm a line is completely outside the window if
   a) The region codes of line end endpoints have a '1' in same bit position
   b) The endpoints region code is nonzero values
   c) If L bit and R bit are nonzero
   d) The region codes of line end endpoints have a '0' in same bit position

13) The _____ algorithm divides 2D space into 9 regions, of which only the middle part (viewport) is visible.
   a) Cohen-Sutherland
   b) Liang Barsky
   c) Sutherland Hodgeman
   d) N-L-N

14) Bitonal images contains _____ intensity values.
   a) 1
   b) 2
   c) 3
   d) 4

SLR-TJ – 236

Seat No.	

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any three** : **(4×3=12)**

   1) Match the following :

A) Plasma panel	i) Polarizer
B) DVST	ii) Zinc sulfide
C) LCD	iii) Dielectric mesh
D) Thin film electroluminescent	iv) Neon gas

   2) Write a short note on RLE.

   3) Write DDA line algorithm.

   4) Distinguish Raster scan display and Random scan display.

3. Solve **any one** : **(1×8=8)**

   A) Draw a line from (0, 0) to (–8, –4) using Bresenham line algorithm.

   OR

   B) What are different transformations in 3D ? Explain with example and diagrams.

4. Write a note on : **8**

   a) Seed fill algorithm

   b) Edge fill algorithm.

SECTION – II

5. Solve **any three** : **(3×4=12)**

   1) Describe different application of multimedia.

   2) Explain anti-aliasing and half toning.

   3) Explain Memory allocation for display file.

   4) Distinguish window transformation and view transformation.

6. Solve **any one** : **(1×8=8)**

   A) What are different types of curves ? Explain Bspline curve in detail.

   OR

   B) Write down Warnock algorithm and its role.

7. Describe Cohen-Sutherland algorithm for line clipping. **8**

SLR-TJ – 236

Seat No.	

Set **Q**

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose correct alternative : **(14×1=14)**

1) The region code of a point within window is
   a) 1111 b) 0000 c) 1000 d) 0001

2) Which of the following is not a hidden surface removal algorithm ?
   a) Depth Sort b) Warnock algorithm
   c) Z-buffer d) None of these

3) The rectangle portion of the interface window that define where image will actually appear are called
   a) Transformation b) View Port
   c) Clipping window d) Screen coordinate system

4) The process of mapping a world window in world coordinates system to viewport are called
   a) View Port b) Transformation viewing
   c) Clipping window d) All

5) According to Cohen-Sutherland algorithm a line is completely outside the window if
   a) The region codes of line end endpoints have a '1' in same bit position
   b) The endpoints region code is nonzero values
   c) If L bit and R bit are nonzero
   d) The region codes of line end endpoints have a '0' in same bit position

6) The _____ algorithm divides 2D space into 9 regions, of which only the middle part (viewport) is visible.
   a) Cohen-Sutherland b) Liang Barsky
   c) Sutherland Hodgeman d) N-L-N

7) Bitonal images contains _____ intensity values.
   a) 1 b) 2 c) 3 d) 4

8) Refreshing is not needed in DVST because of the presence of
   a) Primary Gun b) Flood Gun
   c) Focusing Node d) Control Grid

9) The maximum number of points that can be displayed without overlap on a CRT is referred to as
   a) Resolution b) Persistence
   c) Attenuation d) None of these

10) Mid-point line and circle drawing algorithm use the design of
   a) Distance parameter b) Decision parameter
   c) Describe points d) Both a) and b)

11) Digitizing a picture definition into a set of intensity values is known as
   a) Scanning b) Refreshing
   c) Scan conversion d) All

12) The transformation that produce a parallel mirror of object are called
   a) Reflection b) Rotation
   c) Shear d) Scaling

13) Coordinates of window are known as
   a) Screen coordinates b) World coordinates
   c) Device coordinates d) Cartesian coordinates

14) _____ used to regulate the flow of electron in CRT ?
   a) Control grid b) Focusing anode
   c) Electron gun d) All

_____

SLR-TJ – 236

Seat No.	

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any three** : **(4×3=12)**

   1) Match the following :

A) Plasma panel	i) Polarizer
B) DVST	ii) Zinc sulfide
C) LCD	iii) Dielectric mesh
D) Thin film electroluminescent	iv) Neon gas

   2) Write a short note on RLE.

   3) Write DDA line algorithm.

   4) Distinguish Raster scan display and Random scan display.

3. Solve **any one** : **(1×8=8)**

   A) Draw a line from (0, 0) to (–8, –4) using Bresenham line algorithm.

   OR

   B) What are different transformations in 3D ? Explain with example and diagrams.

4. Write a note on : **8**

   a) Seed fill algorithm

   b) Edge fill algorithm.

SECTION – II

5. Solve **any three** : **(3×4=12)**

   1) Describe different application of multimedia.

   2) Explain anti-aliasing and half toning.

   3) Explain Memory allocation for display file.

   4) Distinguish window transformation and view transformation.

6. Solve **any one** : **(1×8=8)**

   A) What are different types of curves ? Explain Bspline curve in detail.

   OR

   B) Write down Warnock algorithm and its role.

7. Describe Cohen-Sutherland algorithm for line clipping. **8**

SLR-TJ – 236

Seat No.	

Set **R**

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose correct alternative : **(14×1=14)**

1) The transformation that produce a parallel mirror of object are called
   a) Reflection b) Rotation c) Shear d) Scaling

2) Coordinates of window are known as
   a) Screen coordinates b) World coordinates
   c) Device coordinates d) Cartesian coordinates

3) _____ used to regulate the flow of electron in CRT ?
   a) Control grid b) Focusing anode
   c) Electron gun d) All

4) The region code of a point within window is
   a) 1111 b) 0000 c) 1000 d) 0001

5) Which of the following is not a hidden surface removal algorithm ?
   a) Depth Sort b) Warnock algorithm
   c) Z-buffer d) None of these

6) The rectangle portion of the interface window that define where image will actually appear are called
   a) Transformation b) View Port
   c) Clipping window d) Screen coordinate system

P.T.O.

7) The process of mapping a world window in world coordinates system to viewport are called
   a) View Port
   b) Transformation viewing
   c) Clipping window
   d) All

8) According to Cohen-Sutherland algorithm a line is completely outside the window if
   a) The region codes of line end endpoints have a '1' in same bit position
   b) The endpoints region code is nonzero values
   c) If L bit and R bit are nonzero
   d) The region codes of line end endpoints have a '0' in same bit position

9) The _____ algorithm divides 2D space into 9 regions, of which only the middle part (viewport) is visible.
   a) Cohen-Sutherland
   b) Liang Barsky
   c) Sutherland Hodgeman
   d) N-L-N

10) Bitonal images contains _____ intensity values.
   a) 1
   b) 2
   c) 3
   d) 4

11) Refreshing is not needed in DVST because of the presence of
   a) Primary Gun
   b) Flood Gun
   c) Focusing Node
   d) Control Grid

12) The maximum number of points that can be displayed without overlap on a CRT is referred to as
   a) Resolution
   b) Persistence
   c) Attenuation
   d) None of these

13) Mid-point line and circle drawing algorithm use the design of
   a) Distance parameter
   b) Decision parameter
   c) Describe points
   d) Both a) and b)

14) Digitizing a picture definition into a set of intensity values is known as
   a) Scanning
   b) Refreshing
   c) Scan conversion
   d) All

_____

SLR-TJ – 236

Seat No.	

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any three** : **(4×3=12)**

   1) Match the following :

A) Plasma panel	i) Polarizer
B) DVST	ii) Zinc sulfide
C) LCD	iii) Dielectric mesh
D) Thin film electroluminescent	iv) Neon gas

   2) Write a short note on RLE.

   3) Write DDA line algorithm.

   4) Distinguish Raster scan display and Random scan display.

3. Solve **any one** : **(1×8=8)**

   A) Draw a line from (0, 0) to (–8, –4) using Bresenham line algorithm.

   OR

   B) What are different transformations in 3D ? Explain with example and diagrams.

4. Write a note on : **8**

   a) Seed fill algorithm

   b) Edge fill algorithm.

SECTION – II

5. Solve **any three** : **(3×4=12)**

   1) Describe different application of multimedia.

   2) Explain anti-aliasing and half toning.

   3) Explain Memory allocation for display file.

   4) Distinguish window transformation and view transformation.

6. Solve **any one** : **(1×8=8)**

   A) What are different types of curves ? Explain Bspline curve in detail.

   OR

   B) Write down Warnock algorithm and its role.

7. Describe Cohen-Sutherland algorithm for line clipping. **8**

SLR-TJ – 236

Seat No.	

Set **S**

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose correct alternative : **(14×1=14)**

1) The rectangle portion of the interface window that define where image will actually appear are called
   a) Transformation b) View Port
   c) Clipping window d) Screen coordinate system

2) The process of mapping a world window in world coordinates system to viewport are called
   a) View Port b) Transformation viewing
   c) Clipping window d) All

3) According to Cohen-Sutherland algorithm a line is completely outside the window if
   a) The region codes of line end endpoints have a '1' in same bit position
   b) The endpoints region code is nonzero values
   c) If L bit and R bit are nonzero
   d) The region codes of line end endpoints have a '0' in same bit position

4) The _____ algorithm divides 2D space into 9 regions, of which only the middle part (viewport) is visible.
   a) Cohen-Sutherland b) Liang Barsky
   c) Sutherland Hodgeman d) N-L-N

P.T.O.

5) Bitonal images contains _____ intensity values.
   a) 1 b) 2 c) 3 d) 4

6) Refreshing is not needed in DVST because of the presence of
   a) Primary Gun b) Flood Gun
   c) Focusing Node d) Control Grid

7) The maximum number of points that can be displayed without overlap on a CRT is referred to as
   a) Resolution b) Persistence
   c) Attenuation d) None of these

8) Mid-point line and circle drawing algorithm use the design of
   a) Distance parameter b) Decision parameter
   c) Describe points d) Both a) and b)

9) Digitizing a picture definition into a set of intensity values is known as
   a) Scanning b) Refreshing
   c) Scan conversion d) All

10) The transformation that produce a parallel mirror of object are called
   a) Reflection b) Rotation
   c) Shear d) Scaling

11) Coordinates of window are known as
   a) Screen coordinates b) World coordinates
   c) Device coordinates d) Cartesian coordinates

12) _____ used to regulate the flow of electron in CRT ?
   a) Control grid b) Focusing anode
   c) Electron gun d) All

13) The region code of a point within window is
   a) 1111 b) 0000
   c) 1000 d) 0001

14) Which of the following is not a hidden surface removal algorithm ?
   a) Depth Sort b) Warnock algorithm
   c) Z-buffer d) None of these

SLR-TJ – 236

Seat No.	

S.E. (CSE) (Part – I) (Old CGPA) Examination, 2017
COMPUTER GRAPHICS

Day and Date : Thursday, 21-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any three** : **(4×3=12)**

   1) Match the following :

A) Plasma panel	i) Polarizer
B) DVST	ii) Zinc sulfide
C) LCD	iii) Dielectric mesh
D) Thin film electroluminescent	iv) Neon gas

   2) Write a short note on RLE.

   3) Write DDA line algorithm.

   4) Distinguish Raster scan display and Random scan display.

3. Solve **any one** : **(1×8=8)**

   A) Draw a line from (0, 0) to (–8, –4) using Bresenham line algorithm.

   OR

   B) What are different transformations in 3D ? Explain with example and diagrams.

4. Write a note on : **8**

   a) Seed fill algorithm

   b) Edge fill algorithm.

SECTION – II

5. Solve **any three** : **(3×4=12)**

   1) Describe different application of multimedia.

   2) Explain anti-aliasing and half toning.

   3) Explain Memory allocation for display file.

   4) Distinguish window transformation and view transformation.

6. Solve **any one** : **(1×8=8)**

   A) What are different types of curves ? Explain Bspline curve in detail.

   OR

   B) Write down Warnock algorithm and its role.

7. Describe Cohen-Sutherland algorithm for line clipping. **8**

SLR-TJ – 237

Seat No.	

Set P

S.E. (CSE) (Part – I) (Old) Examination, 2017
DATA STRUCTURE – I

Day and Date : Tuesday, 28-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer :

1) Which Data Structure is used to perform recursion ?
a) Queue b) Stack c) Linked List d) Tree

2) What's happen if base condition is not defined in recursion ?
a) Stack underflow b) Stack overflow
c) Both a) and b) d) None of these

3) If the two strings are identical, then strcmp ( ) function returns
a) 1 b) – 1 c) 0 d) – 0

4) Can you combine the following two statements into one ?
char*p;
p = (char*) malloc (100);
a) char p = (char)* malloc (100); b) char*p = (char) malloc (100);
c) char*p = (char*) malloc (100); d) char*p = (char*) (malloc*) (100);

5) If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable ?
a) • b) & c) * d) –>

6) Are the expression *ptr++ and ++* ptr are same ?
a) True b) False

7) By default, all the files are opened in _____ mode.
a) Binary b) Text c) Can't say d) Both a) and b)

8) It is not possible to combine two or more file opening mode in open ( ) method.
a) True b) False

9) _____ is return type of isopen ( ) function.
a) int b) bool c) float d) char*

P.T.O.

10) Which data structure is needed to convert infix notation to postfix notation ?
a) Branch b) Tree c) Queue d) Stack

11) The type of expression in which operator succeeds its operands is ?
a) Infix Expression b) Perfix Expression
c) Postfix Expression d) None

12) If the elements "A", "B", "C" and "D" are placed in a stack and are deleted one at a time, in what order will they be removed ?
a) ABCD b) DCBA c) DCAB d) ABDC

13) A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end (rear) is known as a ?
a) Queue b) Stack c) Tree d) Linked list

14) If the MAX_SIZE is the size of the array used in the implementation of circular queue. How is rear manipulated while inserting an element in the queue ?
a) rear = (rear%1) + MAX_SIZE b) rear=rear%(MAX_SIZE+1)
c) rear=(rear+1)%MAX_SIZE d) rear=rear+(1%MAX_SIZE)

15) A data structure in which elements can be inserted or deleted at/from both the ends but not in the middle is
a) Queue b) Circular queue c) Dequeue d) Priority queue

16) A linear collection of data elements where the linear node is given by means of pointer is called
a) Linked list b) Node list c) Primitive list d) None

17) Which of the following operations is performed more efficiently by doubly linked list than by singly linked list ?
a) Deleting a node whose location in given
b) Searching of an unsorted list for a given item
c) Inverting a node after the node with given location
d) Traversing a list to process each node

18) In linked list each node contain minimum of two fields. One field is data field to store the data second field is
a) Pointer to character b) Pointer to integer
c) Pointer to node d) Node

19) Which one can work as data structure ?
a) Function b) Pointer c) Array d) All a), b), c)

20) In doubly linked lists, traversal can be performed
a) Only in forward direction b) Only in reverse direction
c) In both directions d) None

SLR-TJ – 237

Seat No.	

S.E. (CSE) (Part – I) (Old) Examination, 2017
DATA STRUCTURE – I

Day and Date : Tuesday, 28-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four** : **20**
   a) Write a recursive function to find factorial of number.
   b) List any five string handling functions and write what they are for.
   c) Write in short with example about "pointer to function".
   d) Write a note on Array of Pointers.
   e) List and write about file manipulating functions.
   f) Write a note on command line arguments.

3. Answer **any two** : **20**
   a) Explain with example recursive algorithm of the puzzle tower of Hanoi.
   b) Write a program without using library function to compare two strings to check whether they are same or not.
   c) Write in detail about any three file handling functions.

SECTION – II

4. Write a note on **any four** of the following : **20**
   a) Data structures
   b) Circular Queue
   c) Priority Queue
   d) Types of Lists
   e) Applications of linked list.

5. Answer **any two** : **20**
   a) Explain and write the algorithm to evaluate postfix expression with example.
   b) Write and explain operations on Stack.
   c) Write a program to implement Queue using Linked List.

Set P

SLR-TJ – 237

Seat No.	

Set Q

S.E. (CSE) (Part – I) (Old) Examination, 2017
DATA STRUCTURE – I

Day and Date : Tuesday, 28-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer :

1) A linear collection of data elements where the linear node is given by means of pointer is called
   a) Linked list b) Node list c) Primitive list d) None

2) Which of the following operations is performed more efficiently by doubly linked list than by singly linked list ?
   a) Deleting a node whose location in given
   b) Searching of an unsorted list for a given item
   c) Inverting a node after the node with given location
   d) Traversing a list to process each node

3) In linked list each node contain minimum of two fields. One field is data field to store the data second field is
   a) Pointer to character b) Pointer to integer
   c) Pointer to node d) Node

4) Which one can work as data structure ?
   a) Function b) Pointer c) Array d) All a), b), c)

5) In doubly linked lists, traversal can be performed
   a) Only in forward direction b) Only in reverse direction
   c) In both directions d) None

6) Which Data Structure is used to perform recursion ?
   a) Queue b) Stack c) Linked List d) Tree

7) What's happen if base condition is not defined in recursion ?
   a) Stack underflow b) Stack overflow
   c) Both a) and b) d) None of these

P.T.O.

8) If the two strings are identical, then strcmp ( ) function returns
a) 1 b) – 1 c) 0 d) – 0

9) Can you combine the following two statements into one ?
char*p;
p = (char*) malloc (100);
a) char p = (char)* malloc (100); b) char*p = (char) malloc (100);
c) char*p = (char*) malloc (100); d) char*p = (char*) (malloc*) (100);

10) If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable ?
a) • b) & c) * d) –>

11) Are the expression *ptr++ and ++* ptr are same ?
a) True b) False

12) By default, all the files are opened in _____ mode.
a) Binary b) Text c) Can't say d) Both a) and b)

13) It is not possible to combine two or more file opening mode in open ( ) method.
a) True b) False

14) _____ is return type of isopen ( ) function.
a) int b) bool c) float d) char*

15) Which data structure is needed to convert infix notation to postfix notation ?
a) Branch b) Tree c) Queue d) Stack

16) The type of expression in which operator succeeds its operands is ?
a) Infix Expression b) Perfix Expression
c) Postfix Expression d) None

17) If the elements "A", "B", "C" and "D" are placed in a stack and are deleted one at a time, in what order will they be removed ?
a) ABCD b) DCBA c) DCAB d) ABDC

18) A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end (rear) is known as a ?
a) Queue b) Stack c) Tree d) Linked list

19) If the MAX_SIZE is the size of the array used in the implementation of circular queue. How is rear manipulated while inserting an element in the queue ?
a) rear = (rear%1) + MAX_SIZE b) rear=rear%(MAX_SIZE+1)
c) rear=(rear+1)%MAX_SIZE d) rear=rear+(1%MAX_SIZE)

20) A data structure in which elements can be inserted or deleted at/from both the ends but not in the middle is
a) Queue b) Circular queue c) Dequeue d) Priority queue

_____

SLR-TJ – 237

Seat No.	

S.E. (CSE) (Part – I) (Old) Examination, 2017
DATA STRUCTURE – I

Day and Date : Tuesday, 28-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four** : **20**
   a) Write a recursive function to find factorial of number.
   b) List any five string handling functions and write what they are for.
   c) Write in short with example about "pointer to function".
   d) Write a note on Array of Pointers.
   e) List and write about file manipulating functions.
   f) Write a note on command line arguments.

3. Answer **any two** : **20**
   a) Explain with example recursive algorithm of the puzzle tower of Hanoi.
   b) Write a program without using library function to compare two strings to check whether they are same or not.
   c) Write in detail about any three file handling functions.

SECTION – II

4. Write a note on **any four** of the following : **20**
   a) Data structures
   b) Circular Queue
   c) Priority Queue
   d) Types of Lists
   e) Applications of linked list.

5. Answer **any two** : **20**
   a) Explain and write the algorithm to evaluate postfix expression with example.
   b) Write and explain operations on Stack.
   c) Write a program to implement Queue using Linked List.

Set Q

Seat No.	

SLR-TJ – 237

Set R

S.E. (CSE) (Part – I) (Old) Examination, 2017
DATA STRUCTURE – I

Day and Date : Tuesday, 28-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer :

1) The type of expression in which operator succeeds its operands is ?
   a) Infix Expression b) Perfix Expression
   c) Postfix Expression d) None

2) If the elements "A", "B", "C" and "D" are placed in a stack and are deleted one at a time, in what order will they be removed ?
   a) ABCD b) DCBA c) DCAB d) ABDC

3) A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end (rear) is known as a ?
   a) Queue b) Stack c) Tree d) Linked list

4) If the MAX_SIZE is the size of the array used in the implementation of circular queue. How is rear manipulated while inserting an element in the queue ?
   a) rear = (rear%1) + MAX_SIZE b) rear=rear%(MAX_SIZE+1)
   c) rear=(rear+1)%MAX_SIZE d) rear=rear+(1%MAX_SIZE)

5) A data structure in which elements can be inserted or deleted at/from both the ends but not in the middle is
   a) Queue b) Circular queue c) Dequeue d) Priority queue

6) A linear collection of data elements where the linear node is given by means of pointer is called
   a) Linked list b) Node list c) Primitive list d) None

7) Which of the following operations is performed more efficiently by doubly linked list than by singly linked list ?
   a) Deleting a node whose location in given
   b) Searching of an unsorted list for a given item
   c) Inverting a node after the node with given location
   d) Traversing a list to process each node

8) In linked list each node contain minimum of two fields. One field is data field to store the data second field is
   a) Pointer to character b) Pointer to integer
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9) Which one can work as data structure ?
   a) Function b) Pointer c) Array d) All a), b), c)

10) In doubly linked lists, traversal can be performed
   a) Only in forward direction b) Only in reverse direction
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11) Which Data Structure is used to perform recursion ?
   a) Queue b) Stack c) Linked List d) Tree

12) What's happen if base condition is not defined in recursion ?
   a) Stack underflow b) Stack overflow
   c) Both a) and b) d) None of these

13) If the two strings are identical, then strcmp ( ) function returns
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14) Can you combine the following two statements into one ?
   char*p;
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   c) char*p = (char*) malloc (100); d) char*p = (char*) (malloc*) (100);

15) If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable ?
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16) Are the expression *ptr++ and ++* ptr are same ?
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17) By default, all the files are opened in _____ mode.
   a) Binary b) Text c) Can't say d) Both a) and b)

18) It is not possible to combine two or more file opening mode in open ( ) method.
   a) True b) False

19) _____ is return type of isopen ( ) function.
   a) int b) bool c) float d) char*

20) Which data structure is needed to convert infix notation to postfix notation ?
   a) Branch b) Tree c) Queue d) Stack

_____

SLR-TJ – 237

Seat No.	

S.E. (CSE) (Part – I) (Old) Examination, 2017
DATA STRUCTURE – I

Day and Date : Tuesday, 28-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four** : **20**
   a) Write a recursive function to find factorial of number.
   b) List any five string handling functions and write what they are for.
   c) Write in short with example about "pointer to function".
   d) Write a note on Array of Pointers.
   e) List and write about file manipulating functions.
   f) Write a note on command line arguments.

3. Answer **any two** : **20**
   a) Explain with example recursive algorithm of the puzzle tower of Hanoi.
   b) Write a program without using library function to compare two strings to check whether they are same or not.
   c) Write in detail about any three file handling functions.

SECTION – II

4. Write a note on **any four** of the following : **20**
   a) Data structures
   b) Circular Queue
   c) Priority Queue
   d) Types of Lists
   e) Applications of linked list.

5. Answer **any two** : **20**
   a) Explain and write the algorithm to evaluate postfix expression with example.
   b) Write and explain operations on Stack.
   c) Write a program to implement Queue using Linked List.

Set R

SLR-TJ – 237

Seat No.	

Set S

S.E. (CSE) (Part – I) (Old) Examination, 2017
DATA STRUCTURE – I

Day and Date : Tuesday, 28-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer :

1) Are the expression *ptr++ and ++* ptr are same ?
   a) True b) False

2) By default, all the files are opened in _____ mode.
   a) Binary b) Text c) Can't say d) Both a) and b)

3) It is not possible to combine two or more file opening mode in open ( ) method.
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4) _____ is return type of isopen ( ) function.
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5) Which data structure is needed to convert infix notation to postfix notation ?
   a) Branch b) Tree c) Queue d) Stack

6) The type of expression in which operator succeeds its operands is ?
   a) Infix Expression b) Perfix Expression
   c) Postfix Expression d) None

7) If the elements "A", "B", "C" and "D" are placed in a stack and are deleted one at a time, in what order will they be removed ?
   a) ABCD b) DCBA c) DCAB d) ABDC

8) A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end (rear) is known as a ?
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9) If the MAX_SIZE is the size of the array used in the implementation of circular queue. How is rear manipulated while inserting an element in the queue ?
   a) rear = (rear%1) + MAX_SIZE b) rear=rear%(MAX_SIZE+1)
   c) rear=(rear+1)%MAX_SIZE d) rear=rear+(1%MAX_SIZE)

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12) Which of the following operations is performed more efficiently by doubly linked list than by singly linked list ?
a) Deleting a node whose location in given
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14) Which one can work as data structure ?
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15) In doubly linked lists, traversal can be performed
a) Only in forward direction b) Only in reverse direction
c) In both directions d) None

16) Which Data Structure is used to perform recursion ?
a) Queue b) Stack c) Linked List d) Tree

17) What's happen if base condition is not defined in recursion ?
a) Stack underflow b) Stack overflow
c) Both a) and b) d) None of these

18) If the two strings are identical, then strcmp ( ) function returns
a) 1 b) – 1 c) 0 d) – 0

19) Can you combine the following two statements into one ?
char*p;
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a) char p = (char)* malloc (100); b) char*p = (char) malloc (100);
c) char*p = (char*) malloc (100); d) char*p = (char*) (malloc*) (100);

20) If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable ?
a) • b) & c) * d) –>

SLR-TJ – 237

Seat No.	

S.E. (CSE) (Part – I) (Old) Examination, 2017
DATA STRUCTURE – I

Day and Date : Tuesday, 28-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four** : **20**
   a) Write a recursive function to find factorial of number.
   b) List any five string handling functions and write what they are for.
   c) Write in short with example about "pointer to function".
   d) Write a note on Array of Pointers.
   e) List and write about file manipulating functions.
   f) Write a note on command line arguments.

3. Answer **any two** : **20**
   a) Explain with example recursive algorithm of the puzzle tower of Hanoi.
   b) Write a program without using library function to compare two strings to check whether they are same or not.
   c) Write in detail about any three file handling functions.

SECTION – II

4. Write a note on **any four** of the following : **20**
   a) Data structures
   b) Circular Queue
   c) Priority Queue
   d) Types of Lists
   e) Applications of linked list.

5. Answer **any two** : **20**
   a) Explain and write the algorithm to evaluate postfix expression with example.
   b) Write and explain operations on Stack.
   c) Write a program to implement Queue using Linked List.

Set S

SLR-TJ – 238

Seat No.	

Set **P**

S.E. (CSE) (Part – I) (Old) Examination, 2017
SWITCHING THEORY AND LOGIC DESIGN

Day and Date : Thursday, 30-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

SECTION – I

1) _____ input decides whether ALU performs a logical operation or an arithmetic operation.
   a) Cin b) Mode select c) Select inputs d) None of these

2) Maximum MOD number for a 3-bit binary counter is
   a) 3 b) 6 c) 8 d) 16

3) To parallely load a byte of data into a shift register, there must be
   a) 1 clock pulse b) 4 clock pulses
   c) 8 clock pulses d) 1 clock pulse for each 1

4) Master Slave configuration is used in J-K flip flop to eliminate
   a) Forbidden b) Ambiguous
   c) Race around condition d) Not allowed

5) The output of combinational circuits depends upon
   a) Present input only b) Past inputs only
   c) Both present and past inputs d) None of these

6) While converting the SR flip flop into D flip flop, the SR inputs are
   a) $S = D, \overline{R = D}$ b) $\overline{S = D}, R = D$ c) $S = R = D$ d) $S = \overline{R = D}$

7) A carry look ahead adder is frequently used for addition because it
   a) is faster b) is more accurate
   c) less number of gates d) costs less

8) POS expression of F (A, B, C) = Σ m (1, 3, 7) is
   a) Σ m(0, 2, 4, 5, 6) b) π M(1, 3, 7)
   c) π M(0, 2, 4, 5, 6) d) None of these

9) A MOD-10 counter must have
   a) 10 flip flops b) 3 flip flops c) 4 flip flops d) 2 flip flops

10) A digital circuit that can count the clock pulse is called
   a) Latch b) Counter c) Shift Register d) Trigger

SECTION – II

11) A MUX with 4 bit data select inputs is a
   a) 2:1 MUX b) 4:1 MUX c) 16:1 MUX d) 8:1 MUX

12) The address width/lines of a memory of size 1024 × 8 bit is
   a) 10 bits b) 8 bits c) 16 bits d) 12 bits

13) A memory whose data and need to be refreshed is called
   a) Static memory b) Dynamic memory
   c) ROM d) None of these

14) Electrically erasable programmable read only memory is called
   a) ROM b) PROM c) EEPROM d) EAROM

15) PLA contains
   a) Programmable AND array and non-programmable OR array
   b) Non-Programmable AND array and programmable OR array
   c) Programmable AND array and programmable OR array
   d) Non-Programmable AND array and non-programmable OR array

16) IC 74151 is used as
   a) Encoder b) Decoder c) Multiplexer d) De-multiplexer

17) For conserving power in multiplexed display in IC 7447 following pin is used
   a) LT b) RBI c) BI d) RBO

18) While specifying memory size, the letter K stands for
   a) 1024 b) 1000 c) 2048 d) 10

19) A number of 4 line to 16 line decoders required to make a 8 line to 250 line decoder is
   a) 16 b) 17 c) 32 d) 64

20) Decoder IC 7447 is used for
   a) Common anode display b) Common cathode display
   c) For both d) None of above

SLR-TJ – 238

Seat No.	

S.E. (CSE) (Part – I) (Old) Examination, 2017
SWITCHING THEORY AND LOGIC DESIGN

Day and Date : Thursday, 30-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Draw ***neat*** *diagrams.*
4) Assume suitable data ***if*** *necessary.*

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   a) What is the race around condition in J-K flip flop ? How it is removed ?
   b) Write a short note on SOP and POS.
   c) Explain twisted ring counter.
   d) Explain don't care condition with example.
   e) Minimize the function using K-map.
   $F = \Sigma m(0, 1, 3, 6, 7)$.

3. a) Explain carry look ahead adder in detail. **10**
   b) What is a counter ? Explain up-down counter in detail. **10**

OR

   b) Design full adder and full sub-tractor using K-map. **10**

SECTION – II

4. Attempt **any four** : **(4×5=20)**
   a) Implement full sub-tractor using decoder.
   b) Write a short note on 'data selector'.
   c) Define the follow terms :
      i) Write cycle time (tWC) ii) Access cycle time (tA)

d) Compare static RAM and dynamic RAM.

e) Write a short note on PLA.

5. Attempt **any two** : **(2×10=20)**

a) What is priority encoder ? Explain IC 74148 in detail and give function of each pin.

b) Design and obtain 2048×8 memory using 256×8 memory chips.

c) What are the components of gate level design ? Explain each component of it with examples in detail.

SLR-TJ – 238

Seat No.	

Set **Q**

S.E. (CSE) (Part – I) (Old) Examination, 2017
SWITCHING THEORY AND LOGIC DESIGN

Day and Date : Thursday, 30-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

SECTION – I

1) A MOD-10 counter must have
   a) 10 flip flops b) 3 flip flops c) 4 flip flops d) 2 flip flops
2) A digital circuit that can count the clock pulse is called
   a) Latch b) Counter c) Shift Register d) Trigger
3) A carry look ahead adder is frequently used for addition because it
   a) is faster b) is more accurate
   c) less number of gates d) costs less
4) POS expression of F (A, B, C) = Σm (1, 3, 7) is
   a) Σm(0, 2, 4, 5, 6) b) πM(1, 3, 7)
   c) πM(0, 2, 4, 5, 6) d) None of these
5) _____ input decides whether ALU performs a logical operation or an arithmetic operation.
   a) Cin b) Mode select c) Select inputs d) None of these
6) Maximum MOD number for a 3-bit binary counter is
   a) 3 b) 6 c) 8 d) 16
7) To parallely load a byte of data into a shift register, there must be
   a) 1 clock pulse b) 4 clock pulses
   c) 8 clock pulses d) 1 clock pulse for each 1
8) Master Slave configuration is used in J-K flip flop to eliminate
   a) Forbidden b) Ambiguous
   c) Race around condition d) Not allowed

9) The output of combinational circuits depends upon
   a) Present input only
   b) Past inputs only
   c) Both present and past inputs
   d) None of these

10) While converting the SR flip flop into D flip flop, the SR inputs are
   a) $S = D, \overline{R = D}$
   b) $\overline{S = D}, R = D$
   c) $S = R = D$
   d) $S = \overline{R = D}$

SECTION – II

11) A number of 4 line to 16 line decoders required to make a 8 line to 250 line decoder is
   a) 16
   b) 17
   c) 32
   d) 64

12) Decoder IC 7447 is used for
   a) Common anode display
   b) Common cathode display
   c) For both
   d) None of above

13) For conserving power in multiplexed display in IC 7447 following pin is used
   a) LT
   b) RBI
   c) BI
   d) RBO

14) While specifying memory size, the letter K stands for
   a) 1024
   b) 1000
   c) 2048
   d) 10

15) A MUX with 4 bit data select inputs is a
   a) 2:1 MUX
   b) 4:1 MUX
   c) 16:1 MUX
   d) 8:1 MUX

16) The address width/lines of a memory of size 1024×8 bit is
   a) 10 bits
   b) 8 bits
   c) 16 bits
   d) 12 bits

17) A memory whose data and need to be refreshed is called
   a) Static memory
   b) Dynamic memory
   c) ROM
   d) None of these

18) Electrically erasable programmable read only memory is called
   a) ROM
   b) PROM
   c) EEPROM
   d) EAROM

19) PLA contains
   a) Programmable AND array and non-programmable OR array
   b) Non-Programmable AND array and programmable OR array
   c) Programmable AND array and programmable OR array
   d) Non-Programmable AND array and non-programmable OR array

20) IC 74151 is used as
   a) Encoder
   b) Decoder
   c) Multiplexer
   d) De-multiplexer

SLR-TJ – 238

Seat No.	

S.E. (CSE) (Part – I) (Old) Examination, 2017
SWITCHING THEORY AND LOGIC DESIGN

Day and Date : Thursday, 30-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Draw ***neat*** *diagrams.*
4) Assume suitable data ***if*** *necessary.*

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   a) What is the race around condition in J-K flip flop ? How it is removed ?
   b) Write a short note on SOP and POS.
   c) Explain twisted ring counter.
   d) Explain don't care condition with example.
   e) Minimize the function using K-map.
   $F = \Sigma m(0, 1, 3, 6, 7)$.

3. a) Explain carry look ahead adder in detail. **10**
   b) What is a counter ? Explain up-down counter in detail. **10**

OR

   b) Design full adder and full sub-tractor using K-map. **10**

SECTION – II

4. Attempt **any four** : **(4×5=20)**
   a) Implement full sub-tractor using decoder.
   b) Write a short note on 'data selector'.
   c) Define the follow terms :
      i) Write cycle time (tWC) ii) Access cycle time (tA)

d) Compare static RAM and dynamic RAM.

e) Write a short note on PLA.

5. Attempt **any two** : **(2×10=20)**

a) What is priority encoder ? Explain IC 74148 in detail and give function of each pin.

b) Design and obtain 2048 × 8 memory using 256 × 8 memory chips.

c) What are the components of gate level design ? Explain each component of it with examples in detail.

SLR-TJ – 238

Seat No.	

Set **R**

S.E. (CSE) (Part – I) (Old) Examination, 2017
SWITCHING THEORY AND LOGIC DESIGN

Day and Date : Thursday, 30-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

SECTION – I

1) The output of combinational circuits depends upon
   a) Present input only b) Past inputs only
   c) Both present and past inputs d) None of these

2) While converting the SR flip flop into D flip flop, the SR inputs are
   a) $S = D, \overline{R = D}$ b) $\overline{S = D}, R = D$ c) $S = R = D$ d) $S = \overline{R = D}$

3) A MOD-10 counter must have
   a) 10 flip flops b) 3 flip flops c) 4 flip flops d) 2 flip flops

4) A digital circuit that can count the clock pulse is called
   a) Latch b) Counter c) Shift Register d) Trigger

5) To parallely load a byte of data into a shift register, there must be
   a) 1 clock pulse b) 4 clock pulses
   c) 8 clock pulses d) 1 clock pulse for each 1

6) Master Slave configuration is used in J-K flip flop to eliminate
   a) Forbidden b) Ambiguous
   c) Race around condition d) Not allowed

7) _____ input decides whether ALU performs a logical operation or an arithmetic operation.
   a) Cin b) Mode select c) Select inputs d) None of these

8) Maximum MOD number for a 3-bit binary counter is
   a) 3 b) 6 c) 8 d) 16

9) A carry look ahead adder is frequently used for addition because it
   a) is faster b) is more accurate
   c) less number of gates d) costs less

10) POS expression of F (A, B, C) = Σ m (1, 3, 7) is
   a) Σ m(0, 2, 4, 5, 6) b) π M(1, 3, 7)
   c) π M(0, 2, 4, 5, 6) d) None of these

SECTION – II

11) PLA contains
   a) Programmable AND array and non-programmable OR array
   b) Non-Programmable AND array and programmable OR array
   c) Programmable AND array and programmable OR array
   d) Non-Programmable AND array and non-programmable OR array

12) IC 74151 is used as
   a) Encoder b) Decoder c) Multiplexer d) De-multiplexer

13) A number of 4 line to 16 line decoders required to make a 8 line to 250 line decoder is
   a) 16 b) 17 c) 32 d) 64

14) Decoder IC 7447 is used for
   a) Common anode display b) Common cathode display
   c) For both d) None of above

15) A memory whose data and need to be refreshed is called
   a) Static memory b) Dynamic memory
   c) ROM d) None of these

16) Electrically erasable programmable read only memory is called
   a) ROM b) PROM c) EEPROM d) EAROM

17) A MUX with 4 bit data select inputs is a
   a) 2:1 MUX b) 4:1 MUX c) 16:1 MUX d) 8:1 MUX

18) The address width/lines of a memory of size 1024 $\times$ 8 bit is
   a) 10 bits b) 8 bits c) 16 bits d) 12 bits

19) For conserving power in multiplexed display in IC 7447 following pin is used
   a) LT b) RBI c) BI d) RBO

20) While specifying memory size, the letter K stands for
   a) 1024 b) 1000 c) 2048 d) 10

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Seat No.	

S.E. (CSE) (Part – I) (Old) Examination, 2017
SWITCHING THEORY AND LOGIC DESIGN

Day and Date : Thursday, 30-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Draw ***neat*** *diagrams.*
4) Assume suitable data ***if*** *necessary.*

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   a) What is the race around condition in J-K flip flop ? How it is removed ?
   b) Write a short note on SOP and POS.
   c) Explain twisted ring counter.
   d) Explain don't care condition with example.
   e) Minimize the function using K-map.
   $F = \Sigma m(0, 1, 3, 6, 7)$.

3. a) Explain carry look ahead adder in detail. **10**
   b) What is a counter ? Explain up-down counter in detail. **10**

OR

   b) Design full adder and full sub-tractor using K-map. **10**

SECTION – II

4. Attempt **any four** : **(4×5=20)**
   a) Implement full sub-tractor using decoder.
   b) Write a short note on 'data selector'.
   c) Define the follow terms :
      i) Write cycle time (tWC) ii) Access cycle time (tA)

d) Compare static RAM and dynamic RAM.

e) Write a short note on PLA.

5. Attempt **any two** : **(2×10=20)**

a) What is priority encoder ? Explain IC 74148 in detail and give function of each pin.

b) Design and obtain 2048 × 8 memory using 256 × 8 memory chips.

c) What are the components of gate level design ? Explain each component of it with examples in detail.

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Seat No.	

Set **S**

S.E. (CSE) (Part – I) (Old) Examination, 2017
SWITCHING THEORY AND LOGIC DESIGN

Day and Date : Thursday, 30-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

SECTION – I

1) To parallely load a byte of data into a shift register, there must be
   a) 1 clock pulse b) 4 clock pulses
   c) 8 clock pulses d) 1 clock pulse for each 1
2) Master Slave configuration is used in J-K flip flop to eliminate
   a) Forbidden b) Ambiguous
   c) Race around condition d) Not allowed
3) The output of combinational circuits depends upon
   a) Present input only b) Past inputs only
   c) Both present and past inputs d) None of these
4) While converting the SR flip flop into D flip flop, the SR inputs are
   a) $S = D, \overline{R = D}$ b) $\overline{S = D}, R = D$ c) $S = R = D$ d) $S = \overline{R = D}$
5) A carry look ahead adder is frequently used for addition because it
   a) is faster b) is more accurate
   c) less number of gates d) costs less
6) POS expression of $F(A, B, C) = \Sigma m(1, 3, 7)$ is
   a) $\Sigma m(0, 2, 4, 5, 6)$ b) $\pi M(1, 3, 7)$
   c) $\pi M(0, 2, 4, 5, 6)$ d) None of these
7) A MOD-10 counter must have
   a) 10 flip flops b) 3 flip flops c) 4 flip flops d) 2 flip flops
8) A digital circuit that can count the clock pulse is called
   a) Latch b) Counter c) Shift Register d) Trigger

9) _____ input decides whether ALU performs a logical operation or an arithmetic operation.
   a) Cin b) Mode select c) Select inputs d) None of these

10) Maximum MOD number for a 3-bit binary counter is
   a) 3 b) 6 c) 8 d) 16

SECTION – II

11) A memory whose data and need to be refreshed is called
   a) Static memory b) Dynamic memory
   c) ROM d) None of these

12) Electrically erasable programmable read only memory is called
   a) ROM b) PROM c) EEPROM d) EAROM

13) PLA contains
   a) Programmable AND array and non-programmable OR array
   b) Non-Programmable AND array and programmable OR array
   c) Programmable AND array and programmable OR array
   d) Non-Programmable AND array and non-programmable OR array

14) IC 74151 is used as
   a) Encoder b) Decoder c) Multiplexer d) De-multiplexer

15) For conserving power in multiplexed display in IC 7447 following pin is used
   a) LT b) RBI c) BI d) RBO

16) While specifying memory size, the letter K stands for
   a) 1024 b) 1000 c) 2048 d) 10

17) A number of 4 line to 16 line decoders required to make a 8 line to 250 line decoder is
   a) 16 b) 17 c) 32 d) 64

18) Decoder IC 7447 is used for
   a) Common anode display b) Common cathode display
   c) For both d) None of above

19) A MUX with 4 bit data select inputs is a
   a) 2:1 MUX b) 4:1 MUX c) 16:1 MUX d) 8:1 MUX

20) The address width/lines of a memory of size 1024 × 8 bit is
   a) 10 bits b) 8 bits c) 16 bits d) 12 bits

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Seat No.	

S.E. (CSE) (Part – I) (Old) Examination, 2017
SWITCHING THEORY AND LOGIC DESIGN

Day and Date : Thursday, 30-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Draw ***neat*** *diagrams.*
4) Assume suitable data ***if*** *necessary.*

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   a) What is the race around condition in J-K flip flop ? How it is removed ?
   b) Write a short note on SOP and POS.
   c) Explain twisted ring counter.
   d) Explain don't care condition with example.
   e) Minimize the function using K-map.
   $F = \Sigma m(0, 1, 3, 6, 7)$.

3. a) Explain carry look ahead adder in detail. **10**
   b) What is a counter ? Explain up-down counter in detail. **10**

OR

   b) Design full adder and full sub-tractor using K-map. **10**

SECTION – II

4. Attempt **any four** : **(4×5=20)**
   a) Implement full sub-tractor using decoder.
   b) Write a short note on 'data selector'.
   c) Define the follow terms :
      i) Write cycle time (tWC) ii) Access cycle time (tA)

d) Compare static RAM and dynamic RAM.

e) Write a short note on PLA.

5. Attempt **any two** : **(2×10=20)**

a) What is priority encoder ? Explain IC 74148 in detail and give function of each pin.

b) Design and obtain 2048 × 8 memory using 256 × 8 memory chips.

c) What are the components of gate level design ? Explain each component of it with examples in detail.

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Seat No.	

Set P

S.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
APPLIED MATHEMATICS – II

Day and Date : Tuesday, 21-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*
*4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
5) 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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) Which of the following statement applies to Bisection method ?
   a) converges within few iterations
   b) it is faster than Newton-Raphsons method
   c) rate of convergence is 2
   d) it requires that there will be no error in determining the sign of function f(x) in each approximation

2) Using Newtons Raphson method, the first approximation to the root of equation $2x^3 - 3x - 6 = 0$ near to x = 2 is
   a) 1.908 b) 1.809 c) 1.709 d) 1.609

3) For solving simultaneous linear equation, in which method as soon as getting the value of one variable is immediately used to compute next variable ?
   a) Gauss Seidal Method b) Jacobi Method
   c) Gauss Jordon Method d) Gauss Elimination Method

4) The power method is used to _____
   a) fit the curve b) solve non-linear equations
   c) find greatest eigen value of matrix d) find roots of transcendental equations

5) If $I = \int_{-1}^{1} f(x)\,dx = a_1 f(x_1) + a_2 f(x_2) + a_3 f(x_3)$ by Gaussian three point quadrature formula, the value of a_1, a_2, a_3 are _____
   a) $\frac{5}{8}, \frac{9}{8}, \frac{5}{8}$ b) $-\sqrt{3/5}, 0, \sqrt{3/5}$
   c) $\frac{5}{9}, \frac{8}{9}, \frac{5}{9}$ d) $-\frac{5}{8}, \frac{8}{9}, \frac{5}{9}$

P.T.O.

6) For given data

x	0	0.5	1
y	1	0.8	0.5

by Trapezoidal rule the value of $I = \int_0^1 y^2\,dx$ is _____

a) 0.7750 b) 0.5750 c) 0.6750 d) 0.6325

7) The Newton Raphson iterative formula for finding $\sqrt{N}$, where N is positive real number is _____

a) $x_{n+1} = \frac{1}{2}\left(x_n + \frac{N}{x_n}\right)$ b) $x_{n+1} = \frac{1}{2}\left(x_n - \frac{N}{x_n}\right)$

c) $x_{n+1} = \frac{1}{2}(3x_n - Nx_n)$ d) $x_{n+1} = 2\left(x_n + \frac{N}{x_n}\right)$

8) A method of converting fuzzy set into classical set is known as
a) fuzzification b) defuzzification
c) extension principle d) None

9) An ordinary fuzzy set is also called as
a) Type 2 fuzzy set b) Level 2 fuzzy set
c) Type 1 level 1 fuzzy set d) Type 2 level 2 fuzzy set

10) 1 – cut of a given fuzzy set is also called as
a) Normal fuzzy set b) Core of fuzzy set
c) Interval valued fuzzy set d) Sub-normal set

11) If $B(x) = 2^{-x}$ for $x \in (0, 10) = X$ then α_{+A} = _____

a) $\left(\frac{\log\alpha}{\log 2}, 10\right)$ b) $\left(\frac{\log\alpha}{\log 2}, 10\right]$ c) $\left[0, \frac{\log\alpha}{\log 2}\right)$ d) $\left(0, \frac{\log\alpha}{\log 2}\right)$

12) The α-cuts of fuzzy number, except O-cut are _____
a) closed intervals b) open intervals c) bounded d) fuzzy set

13) Using Lukasiewicz implication $i\left(\frac{1}{2}, 0\right)$ = _____

a) 0 b) $\frac{1}{2}$ c) 1.5 d) $-\frac{1}{2}$

14) Consider the fuzzy sets

$$A = \frac{0.4}{x} + \frac{0.6}{y} + \frac{1}{z} + \frac{0.34}{u} + \frac{0.12}{v}$$

$$B = \frac{0.3}{x} + \frac{0.5}{y} + \frac{0.67}{z} + \frac{0.9}{u} + \frac{0.8}{v}$$

then the scalar cardinality $|A \cup B|$ = _____

a) 4.02 b) 5.95 c) 5.63 d) 3.7

_____

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Seat No.	

S.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
APPLIED MATHEMATICS – II

Day and Date : Tuesday, 21-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*

SECTION – I

2. a) Solve for a positive real root of the equation $x - \cos x = 0$ by Regula Falsi method (Perform three approximations). **3**

b) Find a positive real root of $x e^x - 2 = 0$ correct to three places of decimals using Newton-Raphson's method. **3**

c) Solve the system of non-linear equations $x^2 = 3xy - 8$, $y = 3(x + 1)$ by Newton Raphsons method in one step, starting with initial approximation $x_0 = -2$, $y_0 = -2$. **4**

3. a) Solve the following set of equations by Jacobi method (perform three iterations). **3**
$2x + 20y - 2z = -44$, $10x + 2y + z = 9$, $-2x + 3y + 10z = 22$

b) Find the largest eigen value of the matrix $\begin{bmatrix} 4 & 2 \\ 1 & 3 \end{bmatrix}$ by performing 4 iterations of Power method. Taking initial vector $X_0 = [0 \;\; 1]^T$. **3**

c) Solve the following set of algebraic equations by Gauss Elimination method. **3**
$x + y + z = 9$, $2x - 3y + 4z = 13$, $3x + 4y + 5z = 40$

4. a) Evaluate $\int_0^1 \frac{x^2}{1+x^3} dx$ using Simpsons $\frac{1}{3}^{rd}$ rule with $h = 0.25$. **3**

b) Evaluate $\int_0^2 \frac{1}{\left(1+x^3\right)} dx$ using Gaussian two point quadrature formula. **3**

c) Evaluate $\int_1^{1.4} \int_2^{2.4} \frac{1}{xy} dxdy$ by using Trapezoidal rule taking $h = k = 0.2$. **3**

5. a) Find a double root of the equation $x^3 - 5x^2 + 8x - 4 = 0$ which is near to 1.8 by Newton Raphson method. **3**

b) Evaluate $\int_0^{0.5} \left(\frac{x}{\sin x}\right) dx$ using Romberg's method taking width 0.25, 0.125 and 0.0625. **6**

OR

b) Solve the following set of linear algebraic equations by LU – decomposition method. **6**
$x + 5y + z = 14$, $2x + y + 3z = 13$, $3x + y + 4z = 17$

SECTION – II

6. a) Solve the fuzzy equation A + x = B **5**

$$\text{where } A(x) = \frac{x+2}{2} \quad -2 < x \le 0$$
$$= \frac{2-x}{2} \quad 0 < x \le 2$$
$$= 0 \quad \text{otherwise}$$

$$B(x) = \frac{x-2}{2} \quad 2 < x \le 4$$
$$= \frac{6-x}{2} \quad 4 < x \le 6$$
$$= 0 \quad \text{otherwise}$$

b) For the given two fuzzy sets **4**

$$A = \frac{0.1}{x_1} + \frac{0.6}{x_2} + \frac{0.8}{x_3} + \frac{0.9}{x_4} + \frac{0.7}{x_5} + \frac{0.1}{x_6}$$

$$B = \frac{0.9}{x_1} + \frac{0.7}{x_2} + \frac{0.5}{x_3} + \frac{0.2}{x_4} + \frac{0.1}{x_5} + \frac{0}{x_6}$$

Find :

i) $0.5_{\overline{A}}$

ii) $0.2_{\overline{B}}$

iii) $0.4_{(\overline{A} \cap \overline{B})}$.

7. a) Explain the concept of fuzzy quantifiers and their types. **5**

OR

a) If A and B are fuzzy sets defined on universal set X given by **5**

$$A = \frac{0.5}{-1} + \frac{1}{0} + \frac{0.5}{1} + \frac{0.3}{2}$$

$B = \frac{0.5}{2} + \frac{1}{3} + \frac{0.5}{4} + \frac{0.3}{5}$ and let f such that f : XXX $\rightarrow$ X be a crisp function given by $f(x_1, x_2) = x_1 \cdot x_2 \quad \forall\ x_1, x_2 \in X$ then by using an extension principle find f(A, B).

b) Find α-cut and strong α-cut of fuzzy set A defined by **4**

$$A(x) = \frac{x-2}{2} \quad 2 < x \le 4$$
$$= \frac{6-x}{2} \quad 4 < x \le 6$$
$$= 0 \quad \text{otherwise}$$

for $\alpha = 0.1, 0.3$.

8. a) Find the fuzzy number MIN (A, B) where A and B are two fuzzy numbers whose membership functions are given by **6**

$$A(x) = \begin{cases} \dfrac{x+1}{2} & -1 < x \le 1 \\ \dfrac{3-x}{2} & 1 < x \le 3 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \dfrac{x-1}{2} & 1 < x \le 3 \\ \dfrac{5-x}{2} & 3 < x \le 5 \\ 0 & \text{otherwise} \end{cases}$$

b) Determine which of the following fuzzy sets qualify as fuzzy numbers with justification. **4**

i) $C(x) = \min\{1, x\} \quad x \ge 0$

$\quad\quad = 0 \quad\quad x < 0$

ii) $D(x) = 1 \quad\quad \text{if } x = 3$

$\quad\quad = 0 \quad\quad \text{otherwise}$

9. a) Use Max-Min composition rule for the following matrix relation. **3**

$$\begin{bmatrix} 1 & 0.5 & 0 \\ 0.3 & 1 & 0.4 \\ 0 & 0.2 & 1 \end{bmatrix} \circ \begin{bmatrix} 1 & 0.2 & 0 \\ 0.7 & 1 & 0.3 \\ 0 & 0.7 & 1 \end{bmatrix}$$

b) Calculate the fuzzy numbers A + B and B – A where the membership functions as below. **6**

$$A(x) = \begin{cases} \dfrac{x-1}{3} & 1 < x \le 4 \\ \dfrac{7-x}{3} & 4 < x \le 7 \\ 0 & x > 7, x \le 1 \end{cases}$$

$$B(x) = \begin{cases} 0 & x \le 7, x > 13 \\ \dfrac{x-7}{13} & 7 < x \le 10 \\ \dfrac{13-x}{13} & 10 < x \le 13 \end{cases}$$

Set P

SLR-TJ – 239

Seat No.	

Set Q

S.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
APPLIED MATHEMATICS – II

Day and Date : Tuesday, 21-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*
*4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
5) 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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) A method of converting fuzzy set into classical set is known as
   a) fuzzification b) defuzzification
   c) extension principle d) None

2) An ordinary fuzzy set is also called as
   a) Type 2 fuzzy set b) Level 2 fuzzy set
   c) Type 1 level 1 fuzzy set d) Type 2 level 2 fuzzy set

3) 1 – cut of a given fuzzy set is also called as
   a) Normal fuzzy set b) Core of fuzzy set
   c) Interval valued fuzzy set d) Sub-normal set

4) If $B(x) = 2^{-x}$ for $x \in (0, 10) = X$ then α_{+A} = _____
   a) $\left(\frac{\log\alpha}{\log 2}, 10\right)$ b) $\left(\frac{\log\alpha}{\log 2}, 10\right]$ c) $\left[0, \frac{\log\alpha}{\log 2}\right)$ d) $\left(0, \frac{\log\alpha}{\log 2}\right)$

5) The α-cuts of fuzzy number, except O-cut are _____
   a) closed intervals b) open intervals c) bounded d) fuzzy set

6) Using Lukasiewicz implication $i\left(\frac{1}{2}, 0\right)$ = _____
   a) 0 b) $\frac{1}{2}$ c) 1.5 d) $-\frac{1}{2}$

7) Consider the fuzzy sets
   $A = \frac{0.4}{x} + \frac{0.6}{y} + \frac{1}{z} + \frac{0.34}{u} + \frac{0.12}{v}$
   $B = \frac{0.3}{x} + \frac{0.5}{y} + \frac{0.67}{z} + \frac{0.9}{u} + \frac{0.8}{v}$
   then the scalar cardinality $|A \cup B|$ = _____
   a) 4.02 b) 5.95 c) 5.63 d) 3.7

P.T.O.

8) Which of the following statement applies to Bisection method ?
   a) converges within few iterations
   b) it is faster than Newton-Raphsons method
   c) rate of convergence is 2
   d) it requires that there will be no error in determining the sign of function f(x) in each approximation

9) Using Newtons Raphson method, the first approximation to the root of equation $2x^3 - 3x - 6 = 0$ near to x = 2 is
   a) 1.908 b) 1.809 c) 1.709 d) 1.609

10) For solving simultaneous linear equation, in which method as soon as getting the value of one variable is immediately used to compute next variable ?
   a) Gauss Seidal Method b) Jacobi Method
   c) Gauss Jordon Method d) Gauss Elimination Method

11) The power method is used to _____
   a) fit the curve b) solve non-linear equations
   c) find greatest eigen value of matrix d) find roots of transcendental equations

12) If $I = \int_{-1}^{1} f(x)\,dx = a_1 f(x_1) + a_2 f(x_2) + a_3 f(x_3)$ by Gaussian three point quadrature formula, the value of a_1, a_2, a_3 are _____
   a) $\frac{5}{8}, \frac{9}{8}, \frac{5}{8}$ b) $-\sqrt{3/5}, 0, \sqrt{3/5}$
   c) $\frac{5}{9}, \frac{8}{9}, \frac{5}{9}$ d) $-\frac{5}{8}, \frac{8}{9}, \frac{5}{9}$

13) For given data

x	0	0.5	1
y	1	0.8	0.5

by Trapezoidal rule the value of $I = \int_{0}^{1} y^2\,dx$ is _____
   a) 0.7750 b) 0.5750 c) 0.6750 d) 0.6325

14) The Newton Raphson iterative formula for finding $\sqrt{N}$, where N is positive real number is _____
   a) $x_{n+1} = \frac{1}{2}\left(x_n + \frac{N}{x_n}\right)$ b) $x_{n+1} = \frac{1}{2}\left(x_n - \frac{N}{x_n}\right)$
   c) $x_{n+1} = \frac{1}{2}(3x_n - Nx_n)$ d) $x_{n+1} = 2\left(x_n + \frac{N}{x_n}\right)$

_____

SLR-TJ – 239

Seat No.	

S.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
APPLIED MATHEMATICS – II

Day and Date : Tuesday, 21-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*

SECTION – I

2. a) Solve for a positive real root of the equation $x - \cos x = 0$ by Regula Falsi method (Perform three approximations). **3**

b) Find a positive real root of $x e^x - 2 = 0$ correct to three places of decimals using Newton-Raphson's method. **3**

c) Solve the system of non-linear equations $x^2 = 3xy - 8$, $y = 3(x + 1)$ by Newton Raphsons method in one step, starting with initial approximation $x_0 = -2$, $y_0 = -2$. **4**

3. a) Solve the following set of equations by Jacobi method (perform three iterations). **3**
$2x + 20y - 2z = -44$, $10x + 2y + z = 9$, $-2x + 3y + 10z = 22$

b) Find the largest eigen value of the matrix $\begin{bmatrix} 4 & 2 \\ 1 & 3 \end{bmatrix}$ by performing 4 iterations of Power method. Taking initial vector $X_0 = [0 \;\; 1]^T$. **3**

c) Solve the following set of algebraic equations by Gauss Elimination method. **3**
$x + y + z = 9$, $2x - 3y + 4z = 13$, $3x + 4y + 5z = 40$

4. a) Evaluate $\int_0^1 \frac{x^2}{1+x^3} dx$ using Simpsons $\frac{1}{3}^{rd}$ rule with $h = 0.25$. **3**

b) Evaluate $\int_0^2 \frac{1}{\left(1+x^3\right)} dx$ using Gaussian two point quadrature formula. **3**

c) Evaluate $\int_1^{1.4} \int_2^{2.4} \frac{1}{xy} dxdy$ by using Trapezoidal rule taking $h = k = 0.2$. **3**

5. a) Find a double root of the equation $x^3 - 5x^2 + 8x - 4 = 0$ which is near to 1.8 by Newton Raphson method. **3**

b) Evaluate $\int_0^{0.5} \left(\frac{x}{\sin x}\right) dx$ using Romberg's method taking width 0.25, 0.125 and 0.0625. **6**

OR

b) Solve the following set of linear algebraic equations by LU – decomposition method. **6**
$x + 5y + z = 14$, $2x + y + 3z = 13$, $3x + y + 4z = 17$

SECTION – II

6. a) Solve the fuzzy equation A + x = B **5**

$$\text{where } A(x) = \frac{x+2}{2} \quad -2 < x \le 0$$
$$= \frac{2-x}{2} \quad 0 < x \le 2$$
$$= 0 \quad \text{otherwise}$$

$$B(x) = \frac{x-2}{2} \quad 2 < x \le 4$$
$$= \frac{6-x}{2} \quad 4 < x \le 6$$
$$= 0 \quad \text{otherwise}$$

b) For the given two fuzzy sets **4**

$$A = \frac{0.1}{x_1} + \frac{0.6}{x_2} + \frac{0.8}{x_3} + \frac{0.9}{x_4} + \frac{0.7}{x_5} + \frac{0.1}{x_6}$$

$$B = \frac{0.9}{x_1} + \frac{0.7}{x_2} + \frac{0.5}{x_3} + \frac{0.2}{x_4} + \frac{0.1}{x_5} + \frac{0}{x_6}$$

Find :

i) $0.5_{\overline{A}}$

ii) $0.2_{\overline{B}}$

iii) $0.4_{(\overline{A} \cap \overline{B})}$.

7. a) Explain the concept of fuzzy quantifiers and their types. **5**

OR

a) If A and B are fuzzy sets defined on universal set X given by **5**

$$A = \frac{0.5}{-1} + \frac{1}{0} + \frac{0.5}{1} + \frac{0.3}{2}$$

$B = \frac{0.5}{2} + \frac{1}{3} + \frac{0.5}{4} + \frac{0.3}{5}$ and let f such that f : XXX $\rightarrow$ X be a crisp function given by $f(x_1, x_2) = x_1 \cdot x_2 \quad \forall\ x_1, x_2 \in X$ then by using an extension principle find f(A, B).

b) Find α-cut and strong α-cut of fuzzy set A defined by **4**

$$A(x) = \frac{x-2}{2} \quad 2 < x \le 4$$
$$= \frac{6-x}{2} \quad 4 < x \le 6$$
$$= 0 \quad \text{otherwise}$$

for $\alpha = 0.1, 0.3$.

8. a) Find the fuzzy number MIN (A, B) where A and B are two fuzzy numbers whose membership functions are given by **6**

$$A(x) = \begin{cases} \dfrac{x+1}{2} & -1 < x \le 1 \\ \dfrac{3-x}{2} & 1 < x \le 3 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \dfrac{x-1}{2} & 1 < x \le 3 \\ \dfrac{5-x}{2} & 3 < x \le 5 \\ 0 & \text{otherwise} \end{cases}$$

b) Determine which of the following fuzzy sets qualify as fuzzy numbers with justification. **4**

i) $C(x) = \min\{1, x\} \quad x \ge 0$

$\quad\quad = 0 \quad\quad x < 0$

ii) $D(x) = 1 \quad\quad \text{if } x = 3$

$\quad\quad = 0 \quad\quad \text{otherwise}$

9. a) Use Max-Min composition rule for the following matrix relation. **3**

$$\begin{bmatrix} 1 & 0.5 & 0 \\ 0.3 & 1 & 0.4 \\ 0 & 0.2 & 1 \end{bmatrix} \circ \begin{bmatrix} 1 & 0.2 & 0 \\ 0.7 & 1 & 0.3 \\ 0 & 0.7 & 1 \end{bmatrix}$$

b) Calculate the fuzzy numbers A + B and B – A where the membership functions as below. **6**

$$A(x) = \begin{cases} \dfrac{x-1}{3} & 1 < x \le 4 \\ \dfrac{7-x}{3} & 4 < x \le 7 \\ 0 & x > 7, x \le 1 \end{cases}$$

$$B(x) = \begin{cases} 0 & x \le 7, x > 13 \\ \dfrac{x-7}{13} & 7 < x \le 10 \\ \dfrac{13-x}{13} & 10 < x \le 13 \end{cases}$$

Set Q

SLR-TJ – 239

Seat No.	

Set R

S.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
APPLIED MATHEMATICS – II

Day and Date : Tuesday, 21-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*
*4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
5) 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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) If $I = \int_{-1}^{1} f(x)\,dx = a_1 f(x_1) + a_2 f(x_2) + a_3 f(x_3)$ by Gaussian three point quadrature formula, the value of a_1, a_2, a_3 are _____

a) $\frac{5}{8}, \frac{9}{8}, \frac{5}{8}$ b) $-\sqrt{3/5}, 0, \sqrt{3/5}$

c) $\frac{5}{9}, \frac{8}{9}, \frac{5}{9}$ d) $-\frac{5}{8}, \frac{8}{9}, \frac{5}{9}$

2) For given data

x	0	0.5	1
y	1	0.8	0.5

by Trapezoidal rule the value of $I = \int_{0}^{1} y^2\,dx$ is _____

a) 0.7750 b) 0.5750 c) 0.6750 d) 0.6325

3) The Newton Raphson iterative formula for finding $\sqrt{N}$, where N is positive real number is _____

a) $x_{n+1} = \frac{1}{2}\left(x_n + \frac{N}{x_n}\right)$ b) $x_{n+1} = \frac{1}{2}\left(x_n - \frac{N}{x_n}\right)$

c) $x_{n+1} = \frac{1}{2}(3x_n - Nx_n)$ d) $x_{n+1} = 2\left(x_n + \frac{N}{x_n}\right)$

4) A method of converting fuzzy set into classical set is known as

a) fuzzification b) defuzzification

c) extension principle d) None

P.T.O.

5) An ordinary fuzzy set is also called as
   a) Type 2 fuzzy set
   b) Level 2 fuzzy set
   c) Type 1 level 1 fuzzy set
   d) Type 2 level 2 fuzzy set

6) 1 – cut of a given fuzzy set is also called as
   a) Normal fuzzy set
   b) Core of fuzzy set
   c) Interval valued fuzzy set
   d) Sub-normal set

7) If $B(x) = 2^{-x}$ for $x \in (0, 10) = X$ then α_{+A} = _____
   a) $\left(\frac{\log \alpha}{\log 2}, 10\right)$
   b) $\left(\frac{\log \alpha}{\log 2}, 10\right]$
   c) $\left[0, \frac{\log \alpha}{\log 2}\right)$
   d) $\left(0, \frac{\log \alpha}{\log 2}\right)$

8) The α-cuts of fuzzy number, except O-cut are _____
   a) closed intervals
   b) open intervals
   c) bounded
   d) fuzzy set

9) Using Lukasiewicz implication i $\left(\frac{1}{2}, 0\right)$ = _____
   a) 0
   b) $\frac{1}{2}$
   c) 1.5
   d) $-\frac{1}{2}$

10) Consider the fuzzy sets

$$A = \frac{0.4}{x} + \frac{0.6}{y} + \frac{1}{z} + \frac{0.34}{u} + \frac{0.12}{v}$$

$$B = \frac{0.3}{x} + \frac{0.5}{y} + \frac{0.67}{z} + \frac{0.9}{u} + \frac{0.8}{v}$$

then the scalar cardinality $|A \cup B|$ = _____
   a) 4.02
   b) 5.95
   c) 5.63
   d) 3.7

11) Which of the following statement applies to Bisection method ?
   a) converges within few iterations
   b) it is faster than Newton-Raphsons method
   c) rate of convergence is 2
   d) it requires that there will be no error in determining the sign of function f(x) in each approximation

12) Using Newtons Raphson method, the first approximation to the root of equation $2x^3 - 3x - 6 = 0$ near to x = 2 is
   a) 1.908
   b) 1.809
   c) 1.709
   d) 1.609

13) For solving simultaneous linear equation, in which method as soon as getting the value of one variable is immediately used to compute next variable ?
   a) Gauss Seidal Method
   b) Jacobi Method
   c) Gauss Jordon Method
   d) Gauss Elimination Method

14) The power method is used to _____
   a) fit the curve
   b) solve non-linear equations
   c) find greatest eigen value of matrix
   d) find roots of transcendental equations

_____

SLR-TJ – 239

Seat No.	

S.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
APPLIED MATHEMATICS – II

Day and Date : Tuesday, 21-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*

SECTION – I

2. a) Solve for a positive real root of the equation $x - \cos x = 0$ by Regula Falsi method (Perform three approximations). **3**

b) Find a positive real root of $x e^x - 2 = 0$ correct to three places of decimals using Newton-Raphson's method. **3**

c) Solve the system of non-linear equations $x^2 = 3xy - 8$, $y = 3(x + 1)$ by Newton Raphsons method in one step, starting with initial approximation $x_0 = -2$, $y_0 = -2$. **4**

3. a) Solve the following set of equations by Jacobi method (perform three iterations). **3**
$2x + 20y - 2z = -44$, $10x + 2y + z = 9$, $-2x + 3y + 10z = 22$

b) Find the largest eigen value of the matrix $\begin{bmatrix} 4 & 2 \\ 1 & 3 \end{bmatrix}$ by performing 4 iterations of Power method. Taking initial vector $X_0 = [0 \;\; 1]^T$. **3**

c) Solve the following set of algebraic equations by Gauss Elimination method. **3**
$x + y + z = 9$, $2x - 3y + 4z = 13$, $3x + 4y + 5z = 40$

4. a) Evaluate $\int_0^1 \frac{x^2}{1+x^3} dx$ using Simpsons $\frac{1}{3}^{rd}$ rule with $h = 0.25$. **3**

b) Evaluate $\int_0^2 \frac{1}{\left(1+x^3\right)} dx$ using Gaussian two point quadrature formula. **3**

c) Evaluate $\int_1^{1.4} \int_2^{2.4} \frac{1}{xy} dxdy$ by using Trapezoidal rule taking $h = k = 0.2$. **3**

5. a) Find a double root of the equation $x^3 - 5x^2 + 8x - 4 = 0$ which is near to 1.8 by Newton Raphson method. **3**

b) Evaluate $\int_0^{0.5} \left(\frac{x}{\sin x}\right) dx$ using Romberg's method taking width 0.25, 0.125 and 0.0625. **6**

OR

b) Solve the following set of linear algebraic equations by LU – decomposition method. **6**
$x + 5y + z = 14$, $2x + y + 3z = 13$, $3x + y + 4z = 17$

SECTION – II

6. a) Solve the fuzzy equation A + x = B **5**

$$\text{where } A(x) = \frac{x+2}{2} \quad -2 < x \le 0$$
$$= \frac{2-x}{2} \quad 0 < x \le 2$$
$$= 0 \quad \text{otherwise}$$

$$B(x) = \frac{x-2}{2} \quad 2 < x \le 4$$
$$= \frac{6-x}{2} \quad 4 < x \le 6$$
$$= 0 \quad \text{otherwise}$$

b) For the given two fuzzy sets **4**

$$A = \frac{0.1}{x_1} + \frac{0.6}{x_2} + \frac{0.8}{x_3} + \frac{0.9}{x_4} + \frac{0.7}{x_5} + \frac{0.1}{x_6}$$

$$B = \frac{0.9}{x_1} + \frac{0.7}{x_2} + \frac{0.5}{x_3} + \frac{0.2}{x_4} + \frac{0.1}{x_5} + \frac{0}{x_6}$$

Find :

i) $0.5_{\overline{A}}$

ii) $0.2_{\overline{B}}$

iii) $0.4_{(\overline{A} \cap \overline{B})}$.

7. a) Explain the concept of fuzzy quantifiers and their types. **5**

OR

a) If A and B are fuzzy sets defined on universal set X given by **5**

$$A = \frac{0.5}{-1} + \frac{1}{0} + \frac{0.5}{1} + \frac{0.3}{2}$$

$B = \frac{0.5}{2} + \frac{1}{3} + \frac{0.5}{4} + \frac{0.3}{5}$ and let f such that f : XXX $\rightarrow$ X be a crisp function given by $f(x_1, x_2) = x_1 \cdot x_2 \quad \forall\ x_1, x_2 \in X$ then by using an extension principle find f(A, B).

b) Find α-cut and strong α-cut of fuzzy set A defined by **4**

$$A(x) = \frac{x-2}{2} \quad 2 < x \le 4$$
$$= \frac{6-x}{2} \quad 4 < x \le 6$$
$$= 0 \quad \text{otherwise}$$

for $\alpha = 0.1, 0.3$.

8. a) Find the fuzzy number MIN (A, B) where A and B are two fuzzy numbers whose membership functions are given by **6**

$$A(x) = \begin{cases} \dfrac{x+1}{2} & -1 < x \le 1 \\ \dfrac{3-x}{2} & 1 < x \le 3 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \dfrac{x-1}{2} & 1 < x \le 3 \\ \dfrac{5-x}{2} & 3 < x \le 5 \\ 0 & \text{otherwise} \end{cases}$$

b) Determine which of the following fuzzy sets qualify as fuzzy numbers with justification. **4**

i) $C(x) = \min\{1, x\} \quad x \ge 0$

$\quad\quad = 0 \quad\quad x < 0$

ii) $D(x) = 1 \quad\quad \text{if } x = 3$

$\quad\quad = 0 \quad\quad \text{otherwise}$

9. a) Use Max-Min composition rule for the following matrix relation. **3**

$$\begin{bmatrix} 1 & 0.5 & 0 \\ 0.3 & 1 & 0.4 \\ 0 & 0.2 & 1 \end{bmatrix} \circ \begin{bmatrix} 1 & 0.2 & 0 \\ 0.7 & 1 & 0.3 \\ 0 & 0.7 & 1 \end{bmatrix}$$

b) Calculate the fuzzy numbers A + B and B – A where the membership functions as below. **6**

$$A(x) = \begin{cases} \dfrac{x-1}{3} & 1 < x \le 4 \\ \dfrac{7-x}{3} & 4 < x \le 7 \\ 0 & x > 7, x \le 1 \end{cases}$$

$$B(x) = \begin{cases} 0 & x \le 7, x > 13 \\ \dfrac{x-7}{13} & 7 < x \le 10 \\ \dfrac{13-x}{13} & 10 < x \le 13 \end{cases}$$

Set R

SLR-TJ – 239

Seat No.	

Set S

S.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
APPLIED MATHEMATICS – II

Day and Date : Tuesday, 21-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*
*4) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer book Page No. **3**. **Each** question carries **one** mark.*
5) 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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) 1 – cut of a given fuzzy set is also called as
   a) Normal fuzzy set b) Core of fuzzy set
   c) Interval valued fuzzy set d) Sub-normal set

2) If $B(x) = 2^{-x}$ for $x \in (0, 10) = X$ then α_{+A} = _____
   a) $\left(\frac{\log\alpha}{\log 2}, 10\right)$ b) $\left(\frac{\log\alpha}{\log 2}, 10\right]$ c) $\left[0, \frac{\log\alpha}{\log 2}\right)$ d) $\left(0, \frac{\log\alpha}{\log 2}\right)$

3) The α-cuts of fuzzy number, except O-cut are _____
   a) closed intervals b) open intervals c) bounded d) fuzzy set

4) Using Lukasiewicz implication $i\left(\frac{1}{2}, 0\right)$ = _____
   a) 0 b) $\frac{1}{2}$ c) 1.5 d) $-\frac{1}{2}$

5) Consider the fuzzy sets
   $A = \frac{0.4}{x} + \frac{0.6}{y} + \frac{1}{z} + \frac{0.34}{u} + \frac{0.12}{v}$
   $B = \frac{0.3}{x} + \frac{0.5}{y} + \frac{0.67}{z} + \frac{0.9}{u} + \frac{0.8}{v}$
   then the scalar cardinality $|A \cup B|$ = _____
   a) 4.02 b) 5.95 c) 5.63 d) 3.7

6) Which of the following statement applies to Bisection method ?
   a) converges within few iterations
   b) it is faster than Newton-Raphsons method
   c) rate of convergence is 2
   d) it requires that there will be no error in determining the sign of function f(x) in each approximation

P.T.O.

7) Using Newtons Raphson method, the first approximation to the root of equation $2x^3 - 3x - 6 = 0$ near to $x = 2$ is
   a) 1.908 b) 1.809 c) 1.709 d) 1.609

8) For solving simultaneous linear equation, in which method as soon as getting the value of one variable is immediately used to compute next variable ?
   a) Gauss Seidal Method b) Jacobi Method
   c) Gauss Jordon Method d) Gauss Elimination Method

9) The power method is used to _____
   a) fit the curve b) solve non-linear equations
   c) find greatest eigen value of matrix d) find roots of transcendental equations

10) If $I = \int_{-1}^{1} f(x)\,dx = a_1 f(x_1) + a_2 f(x_2) + a_3 f(x_3)$ by Gaussian three point quadrature formula, the value of a_1, a_2, a_3 are _____
   a) $\frac{5}{8}, \frac{9}{8}, \frac{5}{8}$ b) $-\sqrt{3/5}, 0, \sqrt{3/5}$
   c) $\frac{5}{9}, \frac{8}{9}, \frac{5}{9}$ d) $-\frac{5}{8}, \frac{8}{9}, \frac{5}{9}$

11) For given data

x	0	0.5	1
y	1	0.8	0.5

by Trapezoidal rule the value of $I = \int_{0}^{1} y^2\,dx$ is _____
   a) 0.7750 b) 0.5750 c) 0.6750 d) 0.6325

12) The Newton Raphson iterative formula for finding $\sqrt{N}$, where N is positive real number is _____
   a) $x_{n+1} = \frac{1}{2}\left(x_n + \frac{N}{x_n}\right)$ b) $x_{n+1} = \frac{1}{2}\left(x_n - \frac{N}{x_n}\right)$
   c) $x_{n+1} = \frac{1}{2}(3x_n - Nx_n)$ d) $x_{n+1} = 2\left(x_n + \frac{N}{x_n}\right)$

13) A method of converting fuzzy set into classical set is known as
   a) fuzzification b) defuzzification
   c) extension principle d) None

14) An ordinary fuzzy set is also called as
   a) Type 2 fuzzy set b) Level 2 fuzzy set
   c) Type 1 level 1 fuzzy set d) Type 2 level 2 fuzzy set

_____

SLR-TJ – 239

Seat No.	

S.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
APPLIED MATHEMATICS – II

Day and Date : Tuesday, 21-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Attempt **any three** questions from **each** Section.*
*2) Figures to the **right** indicate **full** marks.*
*3) **Use** of calculator is **allowed**.*

SECTION – I

2. a) Solve for a positive real root of the equation $x - \cos x = 0$ by Regula Falsi method (Perform three approximations). **3**

b) Find a positive real root of $x e^x - 2 = 0$ correct to three places of decimals using Newton-Raphson's method. **3**

c) Solve the system of non-linear equations $x^2 = 3xy - 8$, $y = 3(x + 1)$ by Newton Raphsons method in one step, starting with initial approximation $x_0 = -2$, $y_0 = -2$. **4**

3. a) Solve the following set of equations by Jacobi method (perform three iterations). **3**
$2x + 20y - 2z = -44$, $10x + 2y + z = 9$, $-2x + 3y + 10z = 22$

b) Find the largest eigen value of the matrix $\begin{bmatrix} 4 & 2 \\ 1 & 3 \end{bmatrix}$ by performing 4 iterations of Power method. Taking initial vector $X_0 = [0 \;\; 1]^T$. **3**

c) Solve the following set of algebraic equations by Gauss Elimination method. **3**
$x + y + z = 9$, $2x - 3y + 4z = 13$, $3x + 4y + 5z = 40$

4. a) Evaluate $\int_0^1 \frac{x^2}{1+x^3} dx$ using Simpsons $\frac{1}{3}^{rd}$ rule with $h = 0.25$. **3**

b) Evaluate $\int_0^2 \frac{1}{\left(1+x^3\right)} dx$ using Gaussian two point quadrature formula. **3**

c) Evaluate $\int_1^{1.4} \int_2^{2.4} \frac{1}{xy} dxdy$ by using Trapezoidal rule taking $h = k = 0.2$. **3**

5. a) Find a double root of the equation $x^3 - 5x^2 + 8x - 4 = 0$ which is near to 1.8 by Newton Raphson method. **3**

b) Evaluate $\int_0^{0.5} \left(\frac{x}{\sin x}\right) dx$ using Romberg's method taking width 0.25, 0.125 and 0.0625. **6**

OR

b) Solve the following set of linear algebraic equations by LU – decomposition method. **6**
$x + 5y + z = 14$, $2x + y + 3z = 13$, $3x + y + 4z = 17$

SECTION – II

6. a) Solve the fuzzy equation A + x = B **5**

$$\text{where } A(x) = \frac{x+2}{2} \quad -2 < x \le 0$$
$$= \frac{2-x}{2} \quad 0 < x \le 2$$
$$= 0 \quad \text{otherwise}$$

$$B(x) = \frac{x-2}{2} \quad 2 < x \le 4$$
$$= \frac{6-x}{2} \quad 4 < x \le 6$$
$$= 0 \quad \text{otherwise}$$

b) For the given two fuzzy sets **4**

$$A = \frac{0.1}{x_1} + \frac{0.6}{x_2} + \frac{0.8}{x_3} + \frac{0.9}{x_4} + \frac{0.7}{x_5} + \frac{0.1}{x_6}$$

$$B = \frac{0.9}{x_1} + \frac{0.7}{x_2} + \frac{0.5}{x_3} + \frac{0.2}{x_4} + \frac{0.1}{x_5} + \frac{0}{x_6}$$

Find :

i) $0.5_{\overline{A}}$

ii) $0.2_{\overline{B}}$

iii) $0.4_{(\overline{A} \cap \overline{B})}$.

7. a) Explain the concept of fuzzy quantifiers and their types. **5**

OR

a) If A and B are fuzzy sets defined on universal set X given by **5**

$$A = \frac{0.5}{-1} + \frac{1}{0} + \frac{0.5}{1} + \frac{0.3}{2}$$

$B = \frac{0.5}{2} + \frac{1}{3} + \frac{0.5}{4} + \frac{0.3}{5}$ and let f such that f : XXX $\rightarrow$ X be a crisp function given by $f(x_1, x_2) = x_1 \cdot x_2 \quad \forall\ x_1, x_2 \in X$ then by using an extension principle find f(A, B).

b) Find α-cut and strong α-cut of fuzzy set A defined by **4**

$$A(x) = \frac{x-2}{2} \quad 2 < x \le 4$$
$$= \frac{6-x}{2} \quad 4 < x \le 6$$
$$= 0 \quad \text{otherwise}$$

for $\alpha = 0.1, 0.3$.

8. a) Find the fuzzy number MIN (A, B) where A and B are two fuzzy numbers whose membership functions are given by **6**

$$A(x) = \begin{cases} \dfrac{x+1}{2} & -1 < x \le 1 \\ \dfrac{3-x}{2} & 1 < x \le 3 \\ 0 & \text{otherwise} \end{cases}$$

$$B(x) = \begin{cases} \dfrac{x-1}{2} & 1 < x \le 3 \\ \dfrac{5-x}{2} & 3 < x \le 5 \\ 0 & \text{otherwise} \end{cases}$$

b) Determine which of the following fuzzy sets qualify as fuzzy numbers with justification. **4**

i) $C(x) = \min\{1, x\} \quad x \ge 0$

$\quad\quad = 0 \quad\quad x < 0$

ii) $D(x) = 1 \quad\quad \text{if } x = 3$

$\quad\quad = 0 \quad\quad \text{otherwise}$

9. a) Use Max-Min composition rule for the following matrix relation. **3**

$$\begin{bmatrix} 1 & 0.5 & 0 \\ 0.3 & 1 & 0.4 \\ 0 & 0.2 & 1 \end{bmatrix} \circ \begin{bmatrix} 1 & 0.2 & 0 \\ 0.7 & 1 & 0.3 \\ 0 & 0.7 & 1 \end{bmatrix}$$

b) Calculate the fuzzy numbers A + B and B – A where the membership functions as below. **6**

$$A(x) = \begin{cases} \dfrac{x-1}{3} & 1 < x \le 4 \\ \dfrac{7-x}{3} & 4 < x \le 7 \\ 0 & x > 7, x \le 1 \end{cases}$$

$$B(x) = \begin{cases} 0 & x \le 7, x > 13 \\ \dfrac{x-7}{13} & 7 < x \le 10 \\ \dfrac{13-x}{13} & 10 < x \le 13 \end{cases}$$

Set S

SLR-TJ – 240

Seat No.	

Set P

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
THEORY OF COMPUTATION

Day and Date : Wednesday, 22-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.*

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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) Finite automata has
   a) Finite memory b) Finite control
   c) Read only head d) All a,b,c

2) The language accepted by finite automata is
   a) Context free b) Regular
   c) Non-regular d) None

3) A FA can be used for
   a) String recognition b) Arithmatic operations
   c) Both (a) and (b) d) None

4) A finite automata is a/an
   a) Acceptor b) Computing device
   c) Both (a) and (b) d) None

5) Regular expressions are
   a) Compact representation of strings
   b) Representation of strings over some alphabet
   c) Compact representation of certain set of strings in algebric manner
   d) None

6) If L_1 and L_2 are two regular languages, then concatenation of L_1 and L_2 is
   a) L_1L_2 b) $L_1.L_2$ c) $L_1 \times L_2$ d) None

7) If G = ({S}, {a}, {S – > SS}, S) then the language L (G) is
   a) ϕ b) aa(a)* c) (aa)* d) None

8) A FA with null string capability is known as
   a) NFA b) DFA c) $NFA^{-\wedge}$ d) All

9) The word 'FORMAL' in formal language means
   a) No meaning
   b) The symbol used have well defined meaning
   c) Only strings are significant
   d) None of the above

10) A NFA can be enhanced to move forward without reading the input tape is
   a) True b) False

11) A TM is more powerful than FA because
   a) Head movement is confinement to one direction
   b) Head movement is in both direction (L,R)
   c) It has capability to remember arbitrary long sequence of input string
   d) All of the above

12) A PDA behaves like a Tm when it has number of auxiliary memory
   a) 0 b) Exactly 2 c) 2 or more d) Both a and b

13) The language L = $\{a^n b^n a^n : n >= 1\}$ is recognized by
   a) TM b) 2PDA c) Post Machine d) All of the above

14) A turing can solve every computational problem only if given an infinite amount of time
   a) True b) False

SLR-TJ – 240

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
THEORY OF COMPUTATION

Day and Date : Wednesday, 22-11-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any three** : **(3×4=12)**

   1) Define Regular language with example.

   2) Compare NFA and DFA.

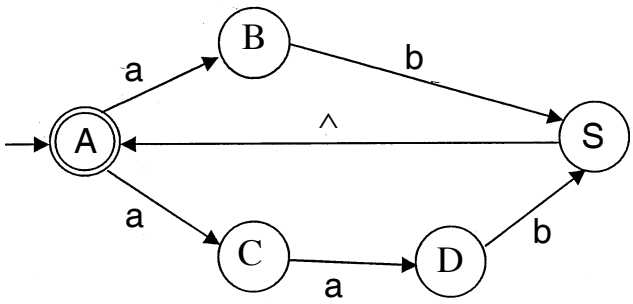
   3) Construct the DFA for (00)*(11)*.

   4) Determine all the strings in

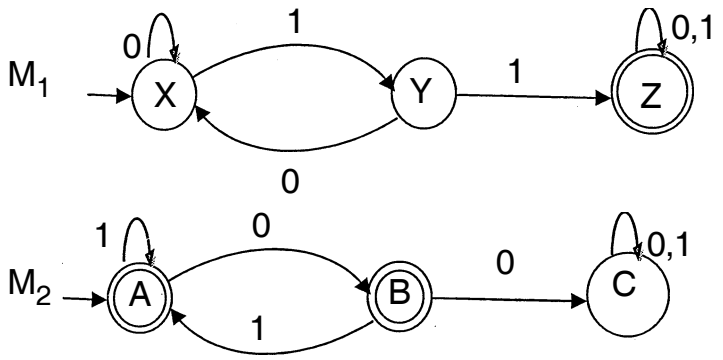
      L = ((a + b) * b (a + ab)*) of length less than four.

3. Solve **any one** : **8**

   1) Convert the following $NFA^{-\wedge}$ to DFA by applying steps in the algorithm and draw transition diagrams for equivalent NFA and DFA.



2) Following FAs recognize the languages L_1 and L_2. Draw FAs recognizing languages $L_1 \cup L_2, L_1 \cap L_2, L_1 - L_2$



4. State and explain different types of grammar. **8**

SECTION – II

5. Solve **any three** : **(3×4=12)**

   1) What is PDA ? Explain with e.g.
   2) Explain Basic Turing machine model.
   3) Explain Multiple Turing machine.
   4) State and explain pumping lemma for Regular language.

6. Attempt **any one** : **8**

   1) Explain in detail the variations in Turing Machine.
   2) Construct a PDA for accepting Palindromes with marker over {a, b}.

7. Explain in detail universal Turing machine. **8**

SLR-TJ – 240

Seat No.	

Set Q

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
THEORY OF COMPUTATION

Day and Date : Wednesday, 22-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.*

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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) A FA with null string capability is known as

a) NFA b) DFA c) $NFA^{-\wedge}$ d) All

2) The word 'FORMAL' in formal language means

a) No meaning
b) The symbol used have well defined meaning
c) Only strings are significant
d) None of the above

3) A NFA can be enhanced to move forward without reading the input tape is

a) True b) False

4) A TM is more powerful than FA because

a) Head movement is confinement to one direction
b) Head movement is in both direction (L,R)
c) It has capability to remember arbitrary long sequence of input string
d) All of the above

5) A PDA behaves like a Tm when it has number of auxiliary memory

a) 0 b) Exactly 2 c) 2 or more d) Both a and b

6) The language L = {$a^n b^n a^n$: n > = 1} is recognized by
   a) TM b) 2PDA c) Post Machine d) All of the above

7) A turing can solve every computational problem only if given an infinite amount of time
   a) True b) False

8) Finite automata has
   a) Finite memory b) Finite control
   c) Read only head d) All a,b,c

9) The language accepted by finite automata is
   a) Context free b) Regular
   c) Non-regular d) None

10) A FA can be used for
   a) String recognition b) Arithmatic operations
   c) Both (a) and (b) d) None

11) A finite automata is a/an
   a) Acceptor b) Computing device
   c) Both (a) and (b) d) None

12) Regular expressions are
   a) Compact representation of strings
   b) Representation of strings over some alphabet
   c) Compact representation of certain set of strings in algebric manner
   d) None

13) If L_1 and L_2 are two regular languages, then concatenation of L_1 and L_2 is
   a) L_1L_2 b) $L_1.L_2$ c) $L_1 \times L_2$ d) None

14) If G = ({S}, {a}, {S – > SS}, S) then the language L (G) is
   a) ϕ b) aa(a)* c) (aa)* d) None

SLR-TJ – 240

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
THEORY OF COMPUTATION

Day and Date : Wednesday, 22-11-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any three** : **(3×4=12)**

   1) Define Regular language with example.

   2) Compare NFA and DFA.

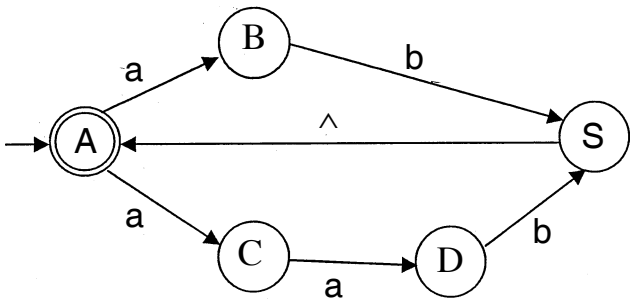
   3) Construct the DFA for (00)*(11)*.

   4) Determine all the strings in

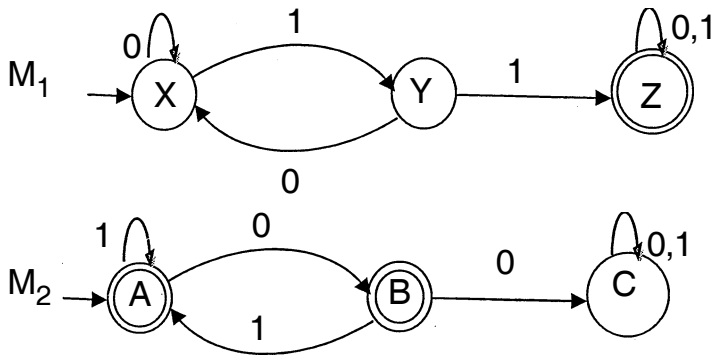
      L = ((a + b) * b (a + ab)*) of length less than four.

3. Solve **any one** : **8**

   1) Convert the following $NFA^{-\wedge}$ to DFA by applying steps in the algorithm and draw transition diagrams for equivalent NFA and DFA.



2) Following FAs recognize the languages L_1 and L_2. Draw FAs recognizing languages $L_1 \cup L_2, L_1 \cap L_2, L_1 - L_2$



4. State and explain different types of grammar. **8**

SECTION – II

5. Solve **any three** : **(3×4=12)**

   1) What is PDA ? Explain with e.g.
   2) Explain Basic Turing machine model.
   3) Explain Multiple Turing machine.
   4) State and explain pumping lemma for Regular language.

6. Attempt **any one** : **8**

   1) Explain in detail the variations in Turing Machine.
   2) Construct a PDA for accepting Palindromes with marker over {a, b}.

7. Explain in detail universal Turing machine. **8**

SLR-TJ – 240

Seat No.	

Set R

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
THEORY OF COMPUTATION

Day and Date : Wednesday, 22-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.*

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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) Regular expressions are
   a) Compact representation of strings
   b) Representation of strings over some alphabet
   c) Compact representation of certain set of strings in algebric manner
   d) None

2) If L_1 and L_2 are two regular languages, then concatenation of L_1 and L_2 is
   a) L_1L_2 b) $L_1.L_2$ c) $L_1 \times L_2$ d) None

3) If G = ({S}, {a}, {S – > SS}, S) then the language L (G) is
   a) ϕ b) aa(a)* c) (aa)* d) None

4) A FA with null string capability is known as
   a) NFA b) DFA c) $NFA^{-\wedge}$ d) All

5) The word 'FORMAL' in formal language means
   a) No meaning
   b) The symbol used have well defined meaning
   c) Only strings are significant
   d) None of the above

P.T.O.

6) A NFA can be enhanced to move forward without reading the input tape is
   a) True b) False

7) A TM is more powerful than FA because
   a) Head movement is confinement to one direction
   b) Head movement is in both direction (L,R)
   c) It has capability to remember arbitrary long sequence of input string
   d) All of the above

8) A PDA behaves like a Tm when it has number of auxiliary memory
   a) 0 b) Exactly 2 c) 2 or more d) Both a and b

9) The language $L = \{a^n b^n a^n : n >= 1\}$ is recognized by
   a) TM b) 2PDA c) Post Machine d) All of the above

10) A turing can solve every computational problem only if given an infinite amount of time
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11) Finite automata has
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12) The language accepted by finite automata is
   a) Context free b) Regular
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13) A FA can be used for
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14) A finite automata is a/an
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Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
THEORY OF COMPUTATION

Day and Date : Wednesday, 22-11-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any three** : **(3×4=12)**

   1) Define Regular language with example.

   2) Compare NFA and DFA.

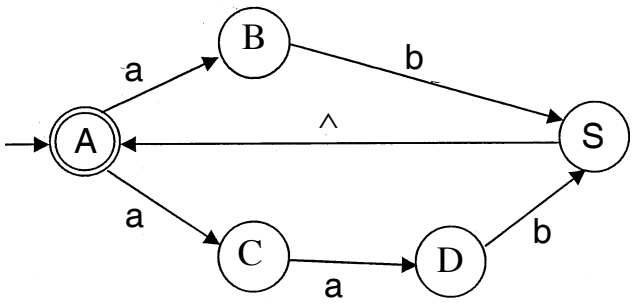
   3) Construct the DFA for (00)*(11)*.

   4) Determine all the strings in

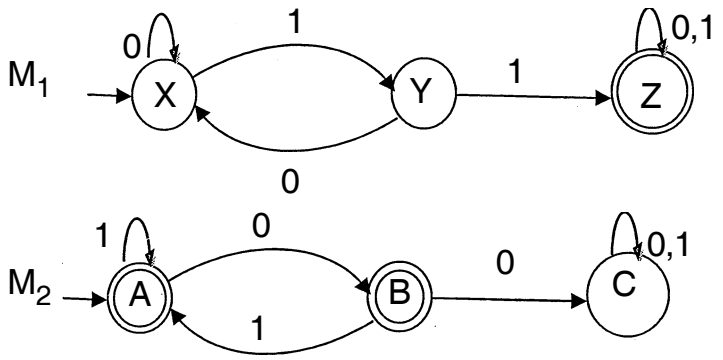
      L = ((a + b) * b (a + ab)*) of length less than four.

3. Solve **any one** : **8**

   1) Convert the following $NFA^{-\wedge}$ to DFA by applying steps in the algorithm and draw transition diagrams for equivalent NFA and DFA.



2) Following FAs recognize the languages L_1 and L_2. Draw FAs recognizing languages $L_1 \cup L_2, L_1 \cap L_2, L_1 - L_2$



4. State and explain different types of grammar. **8**

SECTION – II

5. Solve **any three** : **(3×4=12)**

   1) What is PDA ? Explain with e.g.
   2) Explain Basic Turing machine model.
   3) Explain Multiple Turing machine.
   4) State and explain pumping lemma for Regular language.

6. Attempt **any one** : **8**

   1) Explain in detail the variations in Turing Machine.
   2) Construct a PDA for accepting Palindromes with marker over {a, b}.

7. Explain in detail universal Turing machine. **8**

SLR-TJ – 240

Seat No.	

Set **S**

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
THEORY OF COMPUTATION

Day and Date : Wednesday, 22-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.*

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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) A NFA can be enhanced to move forward without reading the input tape is
   a) True b) False

2) A TM is more powerful than FA because
   a) Head movement is confinement to one direction
   b) Head movement is in both direction (L,R)
   c) It has capability to remember arbitrary long sequence of input string
   d) All of the above

3) A PDA behaves like a Tm when it has number of auxiliary memory
   a) 0 b) Exactly 2 c) 2 or more d) Both a and b

4) The language $L = \{a^n b^n a^n : n >= 1\}$ is recognized by
   a) TM b) 2PDA c) Post Machine d) All of the above

5) A turing can solve every computational problem only if given an infinite amount of time
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6) Finite automata has
   a) Finite memory b) Finite control
   c) Read only head d) All a,b,c

P.T.O.

7) The language accepted by finite automata is
   a) Context free
   b) Regular
   c) Non-regular
   d) None

8) A FA can be used for
   a) String recognition
   b) Arithmatic operations
   c) Both (a) and (b)
   d) None

9) A finite automata is a/an
   a) Acceptor
   b) Computing device
   c) Both (a) and (b)
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10) Regular expressions are
   a) Compact representation of strings
   b) Representation of strings over some alphabet
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11) If L_1 and L_2 are two regular languages, then concatenation of L_1 and L_2 is
   a) L_1L_2
   b) $L_1.L_2$
   c) $L_1 \times L_2$
   d) None

12) If G = ({S}, {a}, {S – > SS}, S) then the language L (G) is
   a) ϕ
   b) aa(a)*
   c) (aa)*
   d) None

13) A FA with null string capability is known as
   a) NFA
   b) DFA
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   d) All

14) The word 'FORMAL' in formal language means
   a) No meaning
   b) The symbol used have well defined meaning
   c) Only strings are significant
   d) None of the above

SLR-TJ – 240

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
THEORY OF COMPUTATION

Day and Date : Wednesday, 22-11-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any three** : **(3×4=12)**

   1) Define Regular language with example.

   2) Compare NFA and DFA.

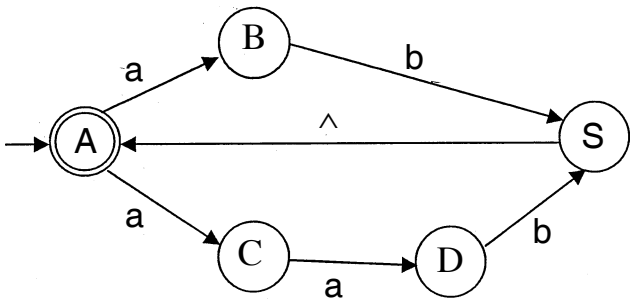
   3) Construct the DFA for (00)*(11)*.

   4) Determine all the strings in

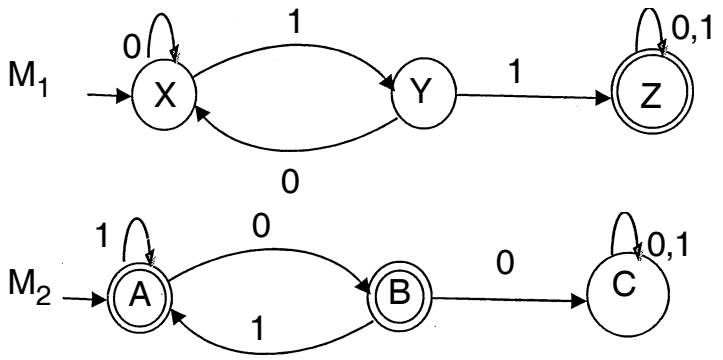
      L = ((a + b) * b (a + ab)*) of length less than four.

3. Solve **any one** : **8**

   1) Convert the following $NFA^{-\wedge}$ to DFA by applying steps in the algorithm and draw transition diagrams for equivalent NFA and DFA.



2) Following FAs recognize the languages L_1 and L_2. Draw FAs recognizing languages $L_1 \cup L_2, L_1 \cap L_2, L_1 - L_2$



4. State and explain different types of grammar. **8**

SECTION – II

5. Solve **any three** : **(3×4=12)**

   1) What is PDA ? Explain with e.g.
   2) Explain Basic Turing machine model.
   3) Explain Multiple Turing machine.
   4) State and explain pumping lemma for Regular language.

6. Attempt **any one** : **8**

   1) Explain in detail the variations in Turing Machine.
   2) Construct a PDA for accepting Palindromes with marker over {a, b}.

7. Explain in detail universal Turing machine. **8**

SLR-TJ – 241

Seat No.	

Set **P**

S.E. (CSE) (Part – II) Examination, 2017
MICROPROCESSORS (CGPA)

Day and Date : Thursday, 23-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(1×14=14)**

1) How many data lines are there in 8085 ?
   a) 8 b) 16 c) 24 d) 18

2) Ready pin of microprocessor is used
   a) To indicate that the microprocessor is ready to receive inputs
   b) To indicate that the microprocessor is ready to receive outputs
   c) To introduce wait state
   d) To provide direct memory access

3) Special purpose register is
   a) Stack pointer
   b) Program array
   c) Index pointer
   d) Queue pointer

4) Instruction DAD D is
   a) 1 byte instruction
   b) 2 byte instruction
   c) 3 byte instruction
   d) 4 byte instruction

5) How many machine cycles are required for IN instruction ?
   a) 2 b) 5 c) 3 d) 4

6) The addressing mode used in MVI A, 04H
   a) Absolute
   b) Immediate
   c) Indirect
   d) Index

7) In 8085 RET6 transfers the program execution to
   a) 0030 H
   b) 0024 H
   c) 0042 H
   d) 0003 H

8) Following IC is used as DMA controller IC.
   a) 8086 b) 8259 c) 8257 d) 8255

9) 8086 has _____ no. of address lines, so it can address upto _____ of memory.
   a) 16, 64 KB b) 20, 1 MB c) 24, 16 MB d) 26, 64 MB

10) Which of the following is USART IC ?
   a) 8251 b) 8255 c) 8259 d) 8085

11) 'Mode 1' of 8255 PPI is
   a) Simple I/O mode b) Strobed Bidirectional I/O
   c) Strobed I/O d) None of these

12) If control word format of 8255 is 0000 0111 = 07 H, then which bit is set ?
   a) PC3 b) PC4 c) PC6 d) PC7

13) Vector address of RST 7.5 interrupt is
   a) 0024 H b) 003C H c) 0034 H d) 002C H

14) Which processor is 16 bit processor ?
   a) 8085 b) 8086 c) 80286 d) 80386

_____

SLR-TJ – 241

Seat No.	

S.E. (CSE) (Part – II) Examination, 2017
MICROPROCESSORS (CGPA)

Day and Date : Thursday, 23-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any 3** : **(3×4=12)**
   1) Explain 8085 programming model with suitable diagram.
   2) List classifications of instruction set of 8085 and explain any two with examples.
   3) Write a short note on interfacing of 8085 with memory components.
   4) Draw timing diagram of memory write cycle.

3. Attempt **any 1** : **(1×8=8)**
   1) Explain architecture of 8085 with suitable diagram.
   2) Discuss interfacing of 8085 with keyboard with suitable diagram.

4. Write assembly language program to add two 32 bit numbers. **(1×8=8)**

SECTION – II

5. Attempt **any 3** : **(3×4=12)**
   1) Explain RIM and SIM by giving formats.
   2) Differentiate between slave mode and master mode of 8255.
   3) Give features of 8251 with suitable block diagram.
   4) Give features of 80386 and 80286.

6. Attempt **any one** : **(1×8=8)**
   1) Explain interfacing of 7 segment display with 8255 with neat diagram.
   2) Explain synchronous and asynchronous transmission format.

7. Write assembly language program for masking of interrupt using 8259. **(1×8=8)**

Set P

Set P

SLR-TJ – 241

Seat No.	

Set **Q**

S.E. (CSE) (Part – II) Examination, 2017
MICROPROCESSORS (CGPA)

Day and Date : Thursday, 23-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(1×14=14)**

1) Following IC is used as DMA controller IC.
a) 8086 b) 8259 c) 8257 d) 8255

2) 8086 has _____ no. of address lines, so it can address upto _____ of memory.
a) 16, 64 KB b) 20, 1 MB c) 24, 16 MB d) 26, 64 MB

3) Which of the following is USART IC ?
a) 8251 b) 8255 c) 8259 d) 8085

4) 'Mode 1' of 8255 PPI is
a) Simple I/O mode b) Strobed Bidirectional I/O
c) Strobed I/O d) None of these

5) If control word format of 8255 is 0000 0111 = 07 H, then which bit is set ?
a) PC3 b) PC4 c) PC6 d) PC7

6) Vector address of RST 7.5 interrupt is
a) 0024 H b) 003C H c) 0034 H d) 002C H

7) Which processor is 16 bit processor ?
a) 8085 b) 8086 c) 80286 d) 80386

8) How many data lines are there in 8085 ?
a) 8 b) 16 c) 24 d) 18

P.T.O.

9) Ready pin of microprocessor is used
   a) To indicate that the microprocessor is ready to receive inputs
   b) To indicate that the microprocessor is ready to receive outputs
   c) To introduce wait state
   d) To provide direct memory access

10) Special purpose register is
   a) Stack pointer
   b) Program array
   c) Index pointer
   d) Queue pointer

11) Instruction DAD D is
   a) 1 byte instruction
   b) 2 byte instruction
   c) 3 byte instruction
   d) 4 byte instruction

12) How many machine cycles are required for IN instruction ?
   a) 2 b) 5 c) 3 d) 4

13) The addressing mode used in MVI A, 04H
   a) Absolute
   b) Immediate
   c) Indirect
   d) Index

14) In 8085 RET6 transfers the program execution to
   a) 0030 H
   b) 0024 H
   c) 0042 H
   d) 0003 H

SLR-TJ – 241

Seat No.	

S.E. (CSE) (Part – II) Examination, 2017
MICROPROCESSORS (CGPA)

Day and Date : Thursday, 23-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any 3** : **(3×4=12)**
   1) Explain 8085 programming model with suitable diagram.
   2) List classifications of instruction set of 8085 and explain any two with examples.
   3) Write a short note on interfacing of 8085 with memory components.
   4) Draw timing diagram of memory write cycle.

3. Attempt **any 1** : **(1×8=8)**
   1) Explain architecture of 8085 with suitable diagram.
   2) Discuss interfacing of 8085 with keyboard with suitable diagram.

4. Write assembly language program to add two 32 bit numbers. **(1×8=8)**

SECTION – II

5. Attempt **any 3** : **(3×4=12)**
   1) Explain RIM and SIM by giving formats.
   2) Differentiate between slave mode and master mode of 8255.
   3) Give features of 8251 with suitable block diagram.
   4) Give features of 80386 and 80286.

6. Attempt **any one** : **(1×8=8)**
   1) Explain interfacing of 7 segment display with 8255 with neat diagram.
   2) Explain synchronous and asynchronous transmission format.

7. Write assembly language program for masking of interrupt using 8259. **(1×8=8)**

Set Q

Set Q

SLR-TJ – 241

Seat No.	

Set **R**

S.E. (CSE) (Part – II) Examination, 2017
MICROPROCESSORS (CGPA)

Day and Date : Thursday, 23-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(1×14=14)**

1) How many machine cycles are required for IN instruction ?
a) 2 b) 5 c) 3 d) 4

2) The addressing mode used in MVI A, 04H
a) Absolute
b) Immediate
c) Indirect
d) Index

3) In 8085 RET6 transfers the program execution to
a) 0030 H
b) 0024 H
c) 0042 H
d) 0003 H

4) Following IC is used as DMA controller IC.
a) 8086 b) 8259 c) 8257 d) 8255

5) 8086 has _____ no. of address lines, so it can address upto _____ of memory.
a) 16, 64 KB b) 20, 1 MB c) 24, 16 MB d) 26, 64 MB

6) Which of the following is USART IC ?
a) 8251 b) 8255 c) 8259 d) 8085

7) 'Mode 1' of 8255 PPI is
   a) Simple I/O mode
   b) Strobed Bidirectional I/O
   c) Strobed I/O
   d) None of these

8) If control word format of 8255 is 0000 0111 = 07 H, then which bit is set ?
   a) PC3
   b) PC4
   c) PC6
   d) PC7

9) Vector address of RST 7.5 interrupt is
   a) 0024 H
   b) 003C H
   c) 0034 H
   d) 002C H

10) Which processor is 16 bit processor ?
   a) 8085
   b) 8086
   c) 80286
   d) 80386

11) How many data lines are there in 8085 ?
   a) 8
   b) 16
   c) 24
   d) 18

12) Ready pin of microprocessor is used
   a) To indicate that the microprocessor is ready to receive inputs
   b) To indicate that the microprocessor is ready to receive outputs
   c) To introduce wait state
   d) To provide direct memory access

13) Special purpose register is
   a) Stack pointer
   b) Program array
   c) Index pointer
   d) Queue pointer

14) Instruction DAD D is
   a) 1 byte instruction
   b) 2 byte instruction
   c) 3 byte instruction
   d) 4 byte instruction

SLR-TJ – 241

Seat No.	

S.E. (CSE) (Part – II) Examination, 2017
MICROPROCESSORS (CGPA)

Day and Date : Thursday, 23-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any 3** : **(3×4=12)**
   1) Explain 8085 programming model with suitable diagram.
   2) List classifications of instruction set of 8085 and explain any two with examples.
   3) Write a short note on interfacing of 8085 with memory components.
   4) Draw timing diagram of memory write cycle.

3. Attempt **any 1** : **(1×8=8)**
   1) Explain architecture of 8085 with suitable diagram.
   2) Discuss interfacing of 8085 with keyboard with suitable diagram.

4. Write assembly language program to add two 32 bit numbers. **(1×8=8)**

SECTION – II

5. Attempt **any 3** : **(3×4=12)**
   1) Explain RIM and SIM by giving formats.
   2) Differentiate between slave mode and master mode of 8255.
   3) Give features of 8251 with suitable block diagram.
   4) Give features of 80386 and 80286.

6. Attempt **any one** : **(1×8=8)**
   1) Explain interfacing of 7 segment display with 8255 with neat diagram.
   2) Explain synchronous and asynchronous transmission format.

7. Write assembly language program for masking of interrupt using 8259. **(1×8=8)**

Set R

Set R

SLR-TJ – 241

Seat No.	

Set **S**

S.E. (CSE) (Part – II) Examination, 2017
MICROPROCESSORS (CGPA)

Day and Date : Thursday, 23-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **(1×14=14)**

1) Which of the following is USART IC ?
a) 8251 b) 8255 c) 8259 d) 8085

2) 'Mode 1' of 8255 PPI is
a) Simple I/O mode b) Strobed Bidirectional I/O
c) Strobed I/O d) None of these

3) If control word format of 8255 is 0000 0111 = 07 H, then which bit is set ?
a) PC3 b) PC4 c) PC6 d) PC7

4) Vector address of RST 7.5 interrupt is
a) 0024 H b) 003C H c) 0034 H d) 002C H

5) Which processor is 16 bit processor ?
a) 8085 b) 8086 c) 80286 d) 80386

6) How many data lines are there in 8085 ?
a) 8 b) 16 c) 24 d) 18

7) Ready pin of microprocessor is used
a) To indicate that the microprocessor is ready to receive inputs
b) To indicate that the microprocessor is ready to receive outputs
c) To introduce wait state
d) To provide direct memory access

8) Special purpose register is
   a) Stack pointer
   b) Program array
   c) Index pointer
   d) Queue pointer

9) Instruction DAD D is
   a) 1 byte instruction
   b) 2 byte instruction
   c) 3 byte instruction
   d) 4 byte instruction

10) How many machine cycles are required for IN instruction ?
   a) 2 b) 5 c) 3 d) 4

11) The addressing mode used in MVI A, 04H
   a) Absolute
   b) Immediate
   c) Indirect
   d) Index

12) In 8085 RET6 transfers the program execution to
   a) 0030 H
   b) 0024 H
   c) 0042 H
   d) 0003 H

13) Following IC is used as DMA controller IC.
   a) 8086 b) 8259 c) 8257 d) 8255

14) 8086 has _____ no. of address lines, so it can address upto _____ of memory.
   a) 16, 64 KB b) 20, 1 MB c) 24, 16 MB d) 26, 64 MB

_____

SLR-TJ – 241

Seat No.	

S.E. (CSE) (Part – II) Examination, 2017
MICROPROCESSORS (CGPA)

Day and Date : Thursday, 23-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any 3** : **(3×4=12)**
   1) Explain 8085 programming model with suitable diagram.
   2) List classifications of instruction set of 8085 and explain any two with examples.
   3) Write a short note on interfacing of 8085 with memory components.
   4) Draw timing diagram of memory write cycle.

3. Attempt **any 1** : **(1×8=8)**
   1) Explain architecture of 8085 with suitable diagram.
   2) Discuss interfacing of 8085 with keyboard with suitable diagram.

4. Write assembly language program to add two 32 bit numbers. **(1×8=8)**

SECTION – II

5. Attempt **any 3** : **(3×4=12)**
   1) Explain RIM and SIM by giving formats.
   2) Differentiate between slave mode and master mode of 8255.
   3) Give features of 8251 with suitable block diagram.
   4) Give features of 80386 and 80286.

6. Attempt **any one** : **(1×8=8)**
   1) Explain interfacing of 7 segment display with 8255 with neat diagram.
   2) Explain synchronous and asynchronous transmission format.

7. Write assembly language program for masking of interrupt using 8259. **(1×8=8)**

Set S

Set S

SLR-TJ – 242

Seat No.	

Set P

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA STRUCTURES

Day and Date : Friday, 24-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternatives : **14**

1) What is postfix form of prefix * + A B – CD ?
   a) A B + * C D – b) A B C + * –
   c) A B + * C D – d) None of the above

2) Which of the following is essential for converting an infix expression to postfix form efficiently ?
   a) An operand stack b) An operator stack
   c) An operand and operator stack d) A parse tree

3) In a threaded binary tree, left pointer of a leaf node contains the address of its _____ in inorder traversal.
   a) Successor b) Left child c) Predecessor d) Right child

4) Complete binary tree can be implemented using _____
   a) Queue and graph b) Array and linked list
   c) Tree and linked list d) Array and graph

5) The tree traversal technique in which the root is traversed before its children is known as
   a) Postorder traversal b) Preorder traversal
   c) Inorder traversal d) None of above

6) In singly circular linked list insertion of record at the end of linked list involves the modification of _____
   a) No pointer b) 1 pointer c) 2 pointer d) 3 pointers

7) If a node having two children is deleted from a binary tree, it is replaced by its
   a) Postorder predecessor b) Inorder successor
   c) Preorder predecessor d) None

8) B and B+ tree are examples of _____
   a) Binary search tree b) Complete binary tree
   c) Multiway search tree d) Only binary tree

9) If every node u in G is adjacent to every other node v in G, A graph is said to be _____
   a) Isolated b) Complete
   c) Finite d) Strongly connected

10) For empty AVL tree if we insert node in order as : 45, 35, 39 then which of the following rotation is applied ?
   a) RL rotation b) L R Rotation c) RR rotation d) LL rotation

11) Dijkestra algorithms is used for finding _____
   a) Cycle in the graph b) Topological sort
   c) Shortest path d) Tree in a graph

12) A B-tree of order 4 is built from scratch by 10 successive insertions. What is the maximum number of node splitting operations that may take place ?
   a) 3 b) 4 c) 5 d) 6

13) Graphs are represented using _____
   a) Adjacency tree b) Adjacency linked list
   c) Adjancency graph d) Adjacency queue

14) In AVL tree which is valid balance factor ?
   a) 0, –1, 1 b) 0, 2, –1 c) –1, –2, 2 d) None of these

_____

SLR-TJ – 242

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA STRUCTURES

Day and Date : Friday, 24-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer following questions (**any three**) : **(4×3=12)**
   a) Write C functions for push and pop operations of stack.
   b) How an infix expression is converted to postfix using stack ? Convert following expression into postfix by providing proper explanation and showing content of stack.
      (A + B) * C/D + E ^ F/G.
   c) Explain operations of circular queue with examples and changes made in front and rear variables during operations.
   d) The inorder and preorder traversals yield the following sequence of nodes. Create a binary tree :
      Inorder : E A C K F H D B G
      Preorder : F A E K C D H G B.

3. Answer **any one** : **8**
   a) Write a menu driven program to implement Singly Circular Linked List showing operations :
      1) Insert a node in the beginning of the list
      2) Insert a node at a given position in the list
      3) Delete a node before a given node
      4) Display the linked list.
   b) Write a program to subtract two polynomials using Singly Linked List.

4. Create a Binary Search Tree for following elements : **8**

   40, 25, 70, 22, 35, 60, 80, 90, 10, 30.

   Traverse the tree using Inorder, Preorder and Postorder traversals. Delete the following nodes and show the status of the tree after deletion with proper explanation :
   a) Node 30
   b) Node 80
   c) Node 30.

SECTION – II

5. Attempt **any three** : **(3×4=12)**

A) What is graph ? With an example explain Adjacency Matrix Graph Representation for directed and undirected graph.

B) What is an AVL tree ? Explain double rotation operations in AVL tree with examples.

C) Why there is a need of multiway tree ? Explain.

D) Explain the following terms related to graph :

a) Graph

b) Weighted graph

c) Self loop

d) Complete graph.

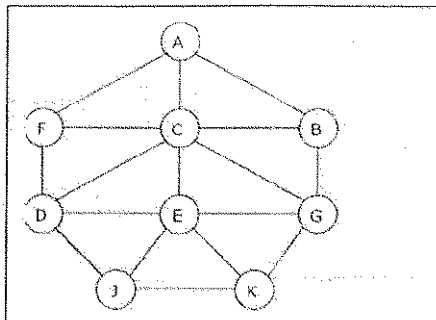
E) Give the node structure of Leaf and Non-leaf node in B+ tree. Also state its rules.

6. Attempt **any two** : **(8×2=16)**

A) What are the properties of a B+ tree ? Construct the B-tree of order 3 and 4 for the following elements.

4, 16, 18, 12, 19, 22, 25, 7, 38, 53, 94, 20 (with explanation for every step).

B) Consider the graph shown below. Traverse the graph shown below in breadth first order :



A Graph G

Node	Adjacency List
A	F, C, B
B	A, C, G
C	A, B, D, E, F, G
D	C, F, E, J
E	C, D, G, J, K
F	A, C, D
G	B, C, E, K
J	D, E, K
K	E, G, J

Adjacency list for graph G

C) Insert the following key in order to build an AVL tree (Explain every step and rotation) :

a) 5, 13, 26, 21, 35, 29, 12, 18, 20, 27

b) P, D, R, K, A, Q, Z, U, B ,F.

SLR-TJ – 242

Seat No.	

Set Q

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA STRUCTURES

Day and Date : Friday, 24-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternatives : **14**

1) B and B+ tree are examples of _____
   a) Binary search tree b) Complete binary tree
   c) Multiway search tree d) Only binary tree

2) If every node u in G is adjacent to every other node v in G, A graph is said to be _____
   a) Isolated b) Complete
   c) Finite d) Strongly connected

3) For empty AVL tree if we insert node in order as : 45, 35, 39 then which of the following rotation is applied ?
   a) RL rotation b) L R Rotation c) RR rotation d) LL rotation

4) Dijkestra algorithms is used for finding _____
   a) Cycle in the graph b) Topological sort
   c) Shortest path d) Tree in a graph

5) A B-tree of order 4 is built from scratch by 10 successive insertions. What is the maximum number of node splitting operations that may take place ?
   a) 3 b) 4 c) 5 d) 6

6) Graphs are represented using _____
   a) Adjacency tree b) Adjacency linked list
   c) Adjancency graph d) Adjacency queue

P.T.O.

7) In AVL tree which is valid balance factor ?
   a) 0, –1, 1 b) 0, 2, –1 c) –1, –2, 2 d) None of these

8) What is postfix form of prefix * + A B – CD ?
   a) A B + * C D – b) A B C + * –
   c) A B + * C D – d) None of the above

9) Which of the following is essential for converting an infix expression to postfix form efficiently ?
   a) An operand stack b) An operator stack
   c) An operand and operator stack d) A parse tree

10) In a threaded binary tree, left pointer of a leaf node contains the address of its _____ in inorder traversal.
   a) Successor b) Left child c) Predecessor d) Right child

11) Complete binary tree can be implemented using _____
   a) Queue and graph b) Array and linked list
   c) Tree and linked list d) Array and graph

12) The tree traversal technique in which the root is traversed before its children is known as
   a) Postorder traversal b) Preorder traversal
   c) Inorder traversal d) None of above

13) In singly circular linked list insertion of record at the end of linked list involves the modification of _____
   a) No pointer b) 1 pointer c) 2 pointer d) 3 pointers

14) If a node having two children is deleted from a binary tree, it is replaced by its
   a) Postorder predecessor b) Inorder successor
   c) Preorder predecessor d) None

_____

SLR-TJ – 242

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA STRUCTURES

Day and Date : Friday, 24-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer following questions (**any three**) : **(4×3=12)**
   a) Write C functions for push and pop operations of stack.
   b) How an infix expression is converted to postfix using stack ? Convert following expression into postfix by providing proper explanation and showing content of stack.
      (A + B) * C/D + E ^ F/G.
   c) Explain operations of circular queue with examples and changes made in front and rear variables during operations.
   d) The inorder and preorder traversals yield the following sequence of nodes. Create a binary tree :
      Inorder : E A C K F H D B G
      Preorder : F A E K C D H G B.

3. Answer **any one** : **8**
   a) Write a menu driven program to implement Singly Circular Linked List showing operations :
      1) Insert a node in the beginning of the list
      2) Insert a node at a given position in the list
      3) Delete a node before a given node
      4) Display the linked list.
   b) Write a program to subtract two polynomials using Singly Linked List.

4. Create a Binary Search Tree for following elements : **8**

   40, 25, 70, 22, 35, 60, 80, 90, 10, 30.

   Traverse the tree using Inorder, Preorder and Postorder traversals. Delete the following nodes and show the status of the tree after deletion with proper explanation :
   a) Node 30
   b) Node 80
   c) Node 30.

SECTION – II

5. Attempt **any three** : **(3×4=12)**

A) What is graph ? With an example explain Adjacency Matrix Graph Representation for directed and undirected graph.

B) What is an AVL tree ? Explain double rotation operations in AVL tree with examples.

C) Why there is a need of multiway tree ? Explain.

D) Explain the following terms related to graph :

a) Graph

b) Weighted graph

c) Self loop

d) Complete graph.

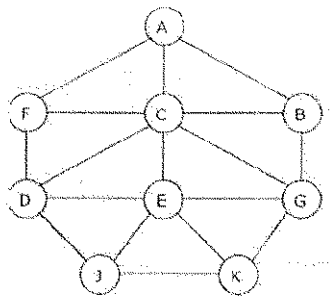
E) Give the node structure of Leaf and Non-leaf node in B+ tree. Also state its rules.

6. Attempt **any two** : **(8×2=16)**

A) What are the properties of a B+ tree ? Construct the B-tree of order 3 and 4 for the following elements.

4, 16, 18, 12, 19, 22, 25, 7, 38, 53, 94, 20 (with explanation for every step).

B) Consider the graph shown below. Traverse the graph shown below in breadth first order :



A Graph G

Node	Adjacency List
A	F, C, B
B	A, C, G
C	A, B, D, E, F, G
D	C, F, E, J
E	C, D, G, J, K
F	A, C, D
G	B, C, E, K
J	D, E, K
K	E, G, J

Adjacency list for graph G

C) Insert the following key in order to build an AVL tree (Explain every step and rotation) :

a) 5, 13, 26, 21, 35, 29, 12, 18, 20, 27

b) P, D, R, K, A, Q, Z, U, B ,F.

SLR-TJ – 242

Seat No.	

Set R

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA STRUCTURES

Day and Date : Friday, 24-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternatives : **14**

1) The tree traversal technique in which the root is traversed before its children is known as
   a) Postorder traversal b) Preorder traversal
   c) Inorder traversal d) None of above

2) In singly circular linked list insertion of record at the end of linked list involves the modification of _____
   a) No pointer b) 1 pointer c) 2 pointer d) 3 pointers

3) If a node having two children is deleted from a binary tree, it is replaced by its
   a) Postorder predecessor b) Inorder successor
   c) Preorder predecessor d) None

4) B and B+ tree are examples of _____
   a) Binary search tree b) Complete binary tree
   c) Multiway search tree d) Only binary tree

5) If every node u in G is adjacent to every other node v in G, A graph is said to be _____
   a) Isolated b) Complete
   c) Finite d) Strongly connected

P.T.O.

6) For empty AVL tree if we insert node in order as : 45, 35, 39 then which of the following rotation is applied ?
   a) RL rotation b) L R Rotation c) RR rotation d) LL rotation

7) Dijkestra algorithms is used for finding _____
   a) Cycle in the graph b) Topological sort
   c) Shortest path d) Tree in a graph

8) A B-tree of order 4 is built from scratch by 10 successive insertions. What is the maximum number of node splitting operations that may take place ?
   a) 3 b) 4 c) 5 d) 6

9) Graphs are represented using _____
   a) Adjacency tree b) Adjacency linked list
   c) Adjancency graph d) Adjacency queue

10) In AVL tree which is valid balance factor ?
   a) 0, –1, 1 b) 0, 2, –1 c) –1, –2, 2 d) None of these

11) What is postfix form of prefix * + A B – CD ?
   a) A B + * C D – b) A B C + * –
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12) Which of the following is essential for converting an infix expression to postfix form efficiently ?
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13) In a threaded binary tree, left pointer of a leaf node contains the address of its _____ in inorder traversal.
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14) Complete binary tree can be implemented using _____
   a) Queue and graph b) Array and linked list
   c) Tree and linked list d) Array and graph

_____

SLR-TJ – 242

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA STRUCTURES

Day and Date : Friday, 24-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer following questions (**any three**) : **(4×3=12)**
   a) Write C functions for push and pop operations of stack.
   b) How an infix expression is converted to postfix using stack ? Convert following expression into postfix by providing proper explanation and showing content of stack.
      (A + B) * C/D + E ^ F/G.
   c) Explain operations of circular queue with examples and changes made in front and rear variables during operations.
   d) The inorder and preorder traversals yield the following sequence of nodes. Create a binary tree :
      Inorder : E A C K F H D B G
      Preorder : F A E K C D H G B.

3. Answer **any one** : **8**
   a) Write a menu driven program to implement Singly Circular Linked List showing operations :
      1) Insert a node in the beginning of the list
      2) Insert a node at a given position in the list
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      4) Display the linked list.
   b) Write a program to subtract two polynomials using Singly Linked List.

4. Create a Binary Search Tree for following elements : **8**

   40, 25, 70, 22, 35, 60, 80, 90, 10, 30.

   Traverse the tree using Inorder, Preorder and Postorder traversals. Delete the following nodes and show the status of the tree after deletion with proper explanation :
   a) Node 30
   b) Node 80
   c) Node 30.

SECTION – II

5. Attempt **any three** : **(3×4=12)**

A) What is graph ? With an example explain Adjacency Matrix Graph Representation for directed and undirected graph.

B) What is an AVL tree ? Explain double rotation operations in AVL tree with examples.

C) Why there is a need of multiway tree ? Explain.

D) Explain the following terms related to graph :

a) Graph

b) Weighted graph

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d) Complete graph.

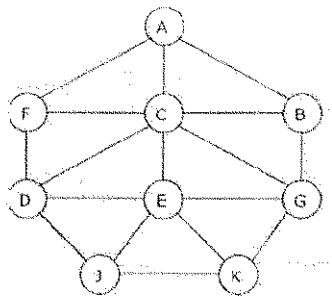
E) Give the node structure of Leaf and Non-leaf node in B+ tree. Also state its rules.

6. Attempt **any two** : **(8×2=16)**

A) What are the properties of a B+ tree ? Construct the B-tree of order 3 and 4 for the following elements.

4, 16, 18, 12, 19, 22, 25, 7, 38, 53, 94, 20 (with explanation for every step).

B) Consider the graph shown below. Traverse the graph shown below in breadth first order :



A Graph G

Node	Adjacency List
A	F, C, B
B	A, C, G
C	A, B, D, E, F, G
D	C, F, E, J
E	C, D, G, J, K
F	A, C, D
G	B, C, E, K
J	D, E, K
K	E, G, J

Adjacency list for graph G

C) Insert the following key in order to build an AVL tree (Explain every step and rotation) :

a) 5, 13, 26, 21, 35, 29, 12, 18, 20, 27

b) P, D, R, K, A, Q, Z, U, B ,F.

SLR-TJ – 242

Seat No.	

Set S

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA STRUCTURES

Day and Date : Friday, 24-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternatives : **14**

1) For empty AVL tree if we insert node in order as : 45, 35, 39 then which of the following rotation is applied ?
   a) RL rotation b) L R Rotation c) RR rotation d) LL rotation

2) Dijkestra algorithms is used for finding _____
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   c) Shortest path d) Tree in a graph

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4) Graphs are represented using _____
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5) In AVL tree which is valid balance factor ?
   a) 0, –1, 1 b) 0, 2, –1 c) –1, –2, 2 d) None of these

6) What is postfix form of prefix * + A B – CD ?
   a) A B + * C D – b) A B C + * –
   c) A B + * C D – d) None of the above

P.T.O.

7) Which of the following is essential for converting an infix expression to postfix form efficiently ?
   a) An operand stack
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_____

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA STRUCTURES

Day and Date : Friday, 24-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer following questions (**any three**) : **(4×3=12)**
   a) Write C functions for push and pop operations of stack.
   b) How an infix expression is converted to postfix using stack ? Convert following expression into postfix by providing proper explanation and showing content of stack.
      (A + B) * C/D + E ^ F/G.
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   d) The inorder and preorder traversals yield the following sequence of nodes. Create a binary tree :
      Inorder : E A C K F H D B G
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3. Answer **any one** : **8**
   a) Write a menu driven program to implement Singly Circular Linked List showing operations :
      1) Insert a node in the beginning of the list
      2) Insert a node at a given position in the list
      3) Delete a node before a given node
      4) Display the linked list.
   b) Write a program to subtract two polynomials using Singly Linked List.

4. Create a Binary Search Tree for following elements : **8**

   40, 25, 70, 22, 35, 60, 80, 90, 10, 30.

   Traverse the tree using Inorder, Preorder and Postorder traversals. Delete the following nodes and show the status of the tree after deletion with proper explanation :
   a) Node 30
   b) Node 80
   c) Node 30.

SECTION – II

5. Attempt **any three** : **(3×4=12)**

A) What is graph ? With an example explain Adjacency Matrix Graph Representation for directed and undirected graph.

B) What is an AVL tree ? Explain double rotation operations in AVL tree with examples.

C) Why there is a need of multiway tree ? Explain.

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b) Weighted graph

c) Self loop

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E) Give the node structure of Leaf and Non-leaf node in B+ tree. Also state its rules.

6. Attempt **any two** : **(8×2=16)**

A) What are the properties of a B+ tree ? Construct the B-tree of order 3 and 4 for the following elements.

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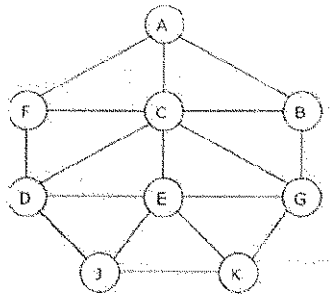
B) Consider the graph shown below. Traverse the graph shown below in breadth first order :



A Graph G

Node	Adjacency List
A	F, C, B
B	A, C, G
C	A, B, D, E, F, G
D	C, F, E, J
E	C, D, G, J, K
F	A, C, D
G	B, C, E, K
J	D, E, K
K	E, G, J

Adjacency list for graph G

C) Insert the following key in order to build an AVL tree (Explain every step and rotation) :

a) 5, 13, 26, 21, 35, 29, 12, 18, 20, 27

b) P, D, R, K, A, Q, Z, U, B ,F.

SLR-TJ – 243

Seat No.	

Set P

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 25-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*
4) ***All*** *questions are* ***compulsory****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) To provide a flicker-free image without increasing the bandwidth requirement, a technique known as _____ is used.
A) Interfacing B) Interlacing
C) Both A) and B) D) None of above

2) 10Base5 cabling is also called as
A) Thin Ethernet B) Thick Ethernet
C) Base Ethernet D) None of above

3) As a data packet moves from lower to upper layers, headers are _____ at receiver side.
A) Added B) Removed
C) Rearranged D) Modified

4) Which of the following protocol is collision-free protocol ?
A) Bit-map protocol B) Pure ALOHA
C) CSMA/CD D) CSMA

5) _____ packets are the warning packets to reduce the transmission rate and traffic.
A) Datagram B) Warning
C) Choke D) VC

6) Count-to-infinity problem can occur in
   A) Link state routing
   B) Distance vector routing
   C) Shortest path routing
   D) None of above

7) _____ occurs because the velocity of propagation of a signal through a guided medium varies with frequency.
   A) Delay distortion
   B) Attenuation
   C) Noise
   D) Both A) and B)

8) Nyquist formulation for capacity evaluation is given by
   A) $C = 2B \log_2 M$
   B) $C = B \log_2 (1 + SNR)$
   C) $C = 2B \log_{10} M$
   D) $C = B \log_{10} (1 + SNR)$

9) The variation in the packet arrival times is called _____
   A) Piggybacking
   B) Delayed delivery
   C) Jitter
   D) None of above

10) For detecting cable breaks, excessive length, bad taps echo packet based _____ technique is used.
   A) Space domain reflectometry
   B) Frequency domain reflectometry
   C) Length domain reflectometry
   D) Time domain reflectometry

11) The address 127 .x.x.x is reserved for
   A) Host
   B) Broadcast
   C) Loop back
   D) Network

12) _____ are used to indicate start and end of frame in character stuffing.
   A) Bit pattern
   B) 00 and 11
   C) Character counts
   D) Special characters

13) Which of the following method corrects error ?
   A) CRC
   B) Parity checks
   C) Hamming Code
   D) Checksum

14) Unrestricted Simplex Protocol is also called as _____
   A) Utopia
   B) Ubscas
   C) Uspl
   D) None of these

_____

SLR-TJ – 243

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 25-11-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Figures to the* ***right*** *indicate* ***full*** *marks.*

2) ***All*** *questions are* ***compulsory****.*

SECTION – I

2. Attempt **any four** : **(4×4=16)**

   A) Write a note on delay distortion.

   B) Describe channel capacity in detail.

   C) Describe Manchester and differential Manchester encoding.

   D) Explain CRC with suitable example.

   E) Write a note on simplex stop and wait protocol.

   F) Write a note on ATM reference model.

3. Attempt **any one** : **(6×1=6)**

   A) Write a note on framing methods of data link layer.

   B) Explain Hamming distance in detail with example.

4. Attempt the following : **(6×1=6)**

   Explain elementary data link layer protocol.

SECTION – II

5. Attempt **any four** : **(4×4=16)**

   A) Write a note on CSMA/CD.

   B) Differentiate between virtual circuit and datagram circuit.

   C) Describe count to infinity problem.

   D) Draw and explain IEEE 802.3 packet format.

   E) Write a note on load shedding.

   F) Describe IPv4 addresses and draw IPV4 header format.

6. Attempt **any one** : **(6×1=6)**

   A) Explain link state routing algorithm in detail.

   B) Explain leaky bucket and token bucket algorithm.

7. Attempt the following : **(6×1=6)**

   Explain DQDB in detail.

SLR-TJ – 243

Seat No.	

Set Q

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 25-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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3) Figures to the ***right*** *indicate* ***full*** *marks.*
4) ***All*** *questions are* ***compulsory****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) Nyquist formulation for capacity evaluation is given by
A) $C = 2B \log_2 M$ B) $C = B \log_2 (1 + SNR)$
C) $C = 2B \log_{10} M$ D) $C = B \log_{10} (1 + SNR)$

2) The variation in the packet arrival times is called _____
A) Piggybacking B) Delayed delivery
C) Jitter D) None of above

3) For detecting cable breaks, excessive length, bad taps echo packet based _____ technique is used.
A) Space domain reflectometry B) Frequency domain reflectometry
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4) The address 127 .x.x.x is reserved for
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P.T.O.

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   C) Noise
   D) Both A) and B)

_____

SLR-TJ – 243

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 25-11-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Figures to the* ***right*** *indicate* ***full*** *marks.*

2) ***All*** *questions are* ***compulsory****.*

SECTION – I

2. Attempt **any four** : **(4×4=16)**

   A) Write a note on delay distortion.

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   D) Explain CRC with suitable example.

   E) Write a note on simplex stop and wait protocol.

   F) Write a note on ATM reference model.

3. Attempt **any one** : **(6×1=6)**

   A) Write a note on framing methods of data link layer.

   B) Explain Hamming distance in detail with example.

4. Attempt the following : **(6×1=6)**

   Explain elementary data link layer protocol.

SECTION – II

5. Attempt **any four** : **(4×4=16)**

   A) Write a note on CSMA/CD.

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   F) Describe IPv4 addresses and draw IPV4 header format.

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   Explain DQDB in detail.

SLR-TJ – 243

Seat No.	

Set R

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 25-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*
4) ***All*** *questions are* ***compulsory****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) _____ packets are the warning packets to reduce the transmission rate and traffic.
A) Datagram B) Warning
C) Choke D) VC

2) Count-to-infinity problem can occur in
A) Link state routing B) Distance vector routing
C) Shortest path routing D) None of above

3) _____ occurs because the velocity of propagation of a signal through a guided medium varies with frequency.
A) Delay distortion B) Attenuation
C) Noise D) Both A) and B)

4) Nyquist formulation for capacity evaluation is given by
A) $C = 2B \log_2 M$ B) $C = B \log_2 (1 + SNR)$
C) $C = 2B \log_{10} M$ D) $C = B \log_{10} (1 + SNR)$

5) The variation in the packet arrival times is called _____
A) Piggybacking B) Delayed delivery
C) Jitter D) None of above

P.T.O.

6) For detecting cable breaks, excessive length, bad taps echo packet based _____ technique is used.
   A) Space domain reflectometry
   B) Frequency domain reflectometry
   C) Length domain reflectometry
   D) Time domain reflectometry

7) The address 127 .x.x.x is reserved for
   A) Host
   B) Broadcast
   C) Loop back
   D) Network

8) _____ are used to indicate start and end of frame in character stuffing.
   A) Bit pattern
   B) 00 and 11
   C) Character counts
   D) Special characters

9) Which of the following method corrects error ?
   A) CRC
   B) Parity checks
   C) Hamming Code
   D) Checksum

10) Unrestricted Simplex Protocol is also called as _____
   A) Utopia
   B) Ubscas
   C) Uspl
   D) None of these

11) To provide a flicker-free image without increasing the bandwidth requirement, a technique known as _____ is used.
   A) Interfacing
   B) Interlacing
   C) Both A) and B)
   D) None of above

12) 10Base5 cabling is also called as
   A) Thin Ethernet
   B) Thick Ethernet
   C) Base Ethernet
   D) None of above

13) As a data packet moves from lower to upper layers, headers are _____ at receiver side.
   A) Added
   B) Removed
   C) Rearranged
   D) Modified

14) Which of the following protocol is collision-free protocol ?
   A) Bit-map protocol
   B) Pure ALOHA
   C) CSMA/CD
   D) CSMA

_____

SLR-TJ – 243

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 25-11-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Figures to the* ***right*** *indicate* ***full*** *marks.*

2) ***All*** *questions are* ***compulsory****.*

SECTION – I

2. Attempt **any four** : **(4×4=16)**

   A) Write a note on delay distortion.

   B) Describe channel capacity in detail.

   C) Describe Manchester and differential Manchester encoding.

   D) Explain CRC with suitable example.

   E) Write a note on simplex stop and wait protocol.

   F) Write a note on ATM reference model.

3. Attempt **any one** : **(6×1=6)**

   A) Write a note on framing methods of data link layer.

   B) Explain Hamming distance in detail with example.

4. Attempt the following : **(6×1=6)**

   Explain elementary data link layer protocol.

SECTION – II

5. Attempt **any four** : **(4×4=16)**

   A) Write a note on CSMA/CD.

   B) Differentiate between virtual circuit and datagram circuit.

   C) Describe count to infinity problem.

   D) Draw and explain IEEE 802.3 packet format.

   E) Write a note on load shedding.

   F) Describe IPv4 addresses and draw IPV4 header format.

6. Attempt **any one** : **(6×1=6)**

   A) Explain link state routing algorithm in detail.

   B) Explain leaky bucket and token bucket algorithm.

7. Attempt the following : **(6×1=6)**

   Explain DQDB in detail.

SLR-TJ – 243

Seat No.	

Set S

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 25-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

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   C) Both A) and B)
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   D) $C = B \log_{10} (1 + SNR)$

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   B) Delayed delivery
   C) Jitter
   D) None of above

_____

SLR-TJ – 243

Seat No.	

S.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATA COMMUNICATION

Day and Date : Saturday, 25-11-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Figures to the* ***right*** *indicate* ***full*** *marks.*

2) ***All*** *questions are* ***compulsory****.*

SECTION – I

2. Attempt **any four** : **(4×4=16)**

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   C) Describe Manchester and differential Manchester encoding.

   D) Explain CRC with suitable example.

   E) Write a note on simplex stop and wait protocol.

   F) Write a note on ATM reference model.

3. Attempt **any one** : **(6×1=6)**

   A) Write a note on framing methods of data link layer.

   B) Explain Hamming distance in detail with example.

4. Attempt the following : **(6×1=6)**

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SECTION – II

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   A) Write a note on CSMA/CD.

   B) Differentiate between virtual circuit and datagram circuit.

   C) Describe count to infinity problem.

   D) Draw and explain IEEE 802.3 packet format.

   E) Write a note on load shedding.

   F) Describe IPv4 addresses and draw IPV4 header format.

6. Attempt **any one** : **(6×1=6)**

   A) Explain link state routing algorithm in detail.

   B) Explain leaky bucket and token bucket algorithm.

7. Attempt the following : **(6×1=6)**

   Explain DQDB in detail.

SLR-TJ – 244

Seat No.	

Set P

S.E. (CSE) (Part – II) (Old) Examination, 2017
DATA STRUCTURE – II

Day and Date : Tuesday, 28-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative :

1) The time complexity of linear search algorithm over an array of n elements is
A) O ($\log_2$ n) B) O (n) C) O (n $\log_2$ n) D) O (n^2)

2) A tree node that has no parent is called a
A) Leaf node B) Root node C) Internal node D) Loop node

3) In _____ Searching technique records must be in sorted order.
A) Hashing B) Binary search C) Linear search D) Tree search

4) What data structure is used for Depth first traversal of a graph ?
A) queue B) stack
C) list D) none of the above

5) The searching technique that takes O (1) time to find a data is
A) Linear Search B) Binary Search
C) Hashing D) Tree Search

6) Rehashing is used for
A) To avoid space wastage B) To increase collision
C) To avoid traversal D) To avoid clustering

7) Two main measures for the efficiency of an algorithm are
A) Processor and memory B) Complexity and capacity
C) Time and space D) Data and space

8) Which of the following ways below is a in-order traversal ?
A) Root $\rightarrow$ left sub tree $\rightarrow$ right sub tree
B) Root $\rightarrow$ right sub tree $\rightarrow$ left sub tree
C) Right sub tree $\rightarrow$ root $\rightarrow$ left sub tree
D) Left sub tree $\rightarrow$ right sub tree $\rightarrow$ root

9) In ____ tree, the heights of the two child sub trees of any node differ by at most one.
A) Binary tree B) Red black tree C) Splay tree D) AVL tree

10) Level of any node of a tree is
A) Height of its left subtree minus height of its right subtree
B) Height of its right subtree minus height of its left subtree
C) Its distance from the root
D) None of these

11) Which of the following remarks about Tree-indexing are true ?
A) It is an m-ary tree
B) Successful searches should terminate in leaf nodes
C) Unsuccessful searches may terminate in leaf nodes level of the tree structure
D) All of these

12) Hashing collision resolution techniques are
A) Close chaining, Open Addressing
B) Bucket addressing, Huffman coding
C) Chaining, Huffman coding
D) Huffman coding, linear hashing

13) Graphs are represented using
A) Adjacency tree B) Adjacency linked list
C) Adjacency graph D) Adjacency queue

14) The average case complexity of Selection Sort is
A) O (2n) B) $O(n^3)$ C) $O(n^2)$ D) $O(2^n)$

15) If there exist one path at least, between every pair of vertices in a graph, the graph is known as
A) Complete graph B) Disconnected graph
C) Connected graph D) Euler graph

16) A tree in which all leaves arrive at the same level is called
A) Binary tree B) Multiway tree
C) B-tree D) Complete binary tree

17) A connected graph T without any cycles is called
A) A tree graph B) Linked list
C) Non connected graph D) Balanced graph

18) Other name for directed graph is
A) Direct graph B) Digraph C) Dir-graph D) Edge graph

19) In AVL tree allowed balance factor can be
A) 1, 0, – 1 B) 2, 1, – 2
C) 1, 0, – 2 D) None of the above

20) _____ data structure is non linear data structure.
A) Stack B) Queue C) Graph D) Linked list

SLR-TJ – 244

Seat No.	

S.E. (CSE) (Part – II) (Old) Examination, 2017
DATA STRUCTURE – II

Day and Date : Tuesday, 28-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) **Each** Section carries **40** marks.*
*2) Attempt **all** questions in **each** Section.*
*3) Figures to the **right** indicate **full** marks.*

SECTION – I

2. Solve **any four** : **(5×4=20)**
   1) Write a program for bubble sort.
   2) What is data structure ? Explain its types.
   3) What is Time and Space complexity ? Explain with diagram.
   4) Perform merge sort (ascending) of following numbers-show every iteration.
      17, 3, 21, 5, 11, 45, 17
   5) Explain the recursive algorithm of Binary search with example.
   6) Explain with example collision and close chaining to handle collision.

3. What is Hashing ? Discuss complexity of hashing. Explain different open addressing techniques to resolve collision in detail by giving suitable examples. **10**

4. Write a C program for implementing Quick sort using recursive technique. **10**

   OR

   What is threaded-Binary tree ? Explain with example. **10**

   a) Left-in threaded Binary Tree

   b) Right-in threaded Binary Tree

   c) Fully threaded Binary Tree.

SECTION – II

5. Solve **any four** : **(5×4=20)**
   1) What is height balance tree ? Explain any two height balance trees with example.
   2) Explain various types of graph.
   3) Insert the following nodes in AVL tree, show rotations :
      15, 19, 8, 22, 11, 3, 17, 2
   4) What is multi-way tree ? Discuss its properties.
   5) Give the breadth first traversal algorithm for graph. Also explain with example.
   6) Define the Graph and how it is represented in computer memory.

6. Explain in details structure of Leaf and Non-Leaf node in B tree, also give suitable example and diagram for insertion and deletion from B tree. **10**

7. Explain finding the shortest path in a given graph using Dijkstra algorithm (state and assume suitable data). **10**

   OR

   Explain with example and algorithm the topological ordering of graph.

SLR-TJ – 244

Seat No.	

Set Q

S.E. (CSE) (Part – II) (Old) Examination, 2017
DATA STRUCTURE – II

Day and Date : Tuesday, 28-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative :

1) A tree in which all leaves arrive at the same level is called
A) Binary tree B) Multiway tree
C) B-tree D) Complete binary tree

2) A connected graph T without any cycles is called
A) A tree graph B) Linked list
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3) Other name for directed graph is
A) Direct graph B) Digraph C) Dir-graph D) Edge graph

4) In AVL tree allowed balance factor can be
A) 1, 0, – 1 B) 2, 1, – 2
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5) _____ data structure is non linear data structure.
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A) O ($\log_2$ n) B) O (n) C) O (n $\log_2$ n) D) O (n^2)

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P.T.O.

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A) To avoid space wastage
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14) In ____ tree, the heights of the two child sub trees of any node differ by at most one.
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16) Which of the following remarks about Tree-indexing are true ?
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19) The average case complexity of Selection Sort is
A) O (2n)
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A) Complete graph
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_____

SLR-TJ – 244

Seat No.	

S.E. (CSE) (Part – II) (Old) Examination, 2017
DATA STRUCTURE – II

Day and Date : Tuesday, 28-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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SECTION – I

2. Solve **any four** : **(5×4=20)**
   1) Write a program for bubble sort.
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SECTION – II

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   Explain with example and algorithm the topological ordering of graph.

SLR-TJ – 244

Seat No.	

Set R

S.E. (CSE) (Part – II) (Old) Examination, 2017
DATA STRUCTURE – II

Day and Date : Tuesday, 28-11-2017 Total Marks : 100
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MCQ/Objective Type Questions

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_____

SLR-TJ – 244

Seat No.	

S.E. (CSE) (Part – II) (Old) Examination, 2017
DATA STRUCTURE – II

Day and Date : Tuesday, 28-11-2017 Marks : 80
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SECTION – I

2. Solve **any four** : **(5×4=20)**
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   OR

   What is threaded-Binary tree ? Explain with example. **10**

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   b) Right-in threaded Binary Tree

   c) Fully threaded Binary Tree.

SECTION – II

5. Solve **any four** : **(5×4=20)**
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7. Explain finding the shortest path in a given graph using Dijkstra algorithm (state and assume suitable data). **10**

   OR

   Explain with example and algorithm the topological ordering of graph.

SLR-TJ – 244

Seat No.	

Set S

S.E. (CSE) (Part – II) (Old) Examination, 2017
DATA STRUCTURE – II

Day and Date : Tuesday, 28-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative :

1) Rehashing is used for
   A) To avoid space wastage B) To increase collision
   C) To avoid traversal D) To avoid clustering

2) Two main measures for the efficiency of an algorithm are
   A) Processor and memory B) Complexity and capacity
   C) Time and space D) Data and space

3) Which of the following ways below is a in-order traversal ?
   A) Root $\rightarrow$ left sub tree $\rightarrow$ right sub tree
   B) Root $\rightarrow$ right sub tree $\rightarrow$ left sub tree
   C) Right sub tree $\rightarrow$ root $\rightarrow$ left sub tree
   D) Left sub tree $\rightarrow$ right sub tree $\rightarrow$ root

4) In ____ tree, the heights of the two child sub trees of any node differ by at most one.
   A) Binary tree B) Red black tree C) Splay tree D) AVL tree

5) Level of any node of a tree is
   A) Height of its left subtree minus height of its right subtree
   B) Height of its right subtree minus height of its left subtree
   C) Its distance from the root
   D) None of these

6) Which of the following remarks about Tree-indexing are true ?
   A) It is an m-ary tree
   B) Successful searches should terminate in leaf nodes
   C) Unsuccessful searches may terminate in leaf nodes level of the tree structure
   D) All of these

7) Hashing collision resolution techniques are
   A) Close chaining, Open Addressing
   B) Bucket addressing, Huffman coding
   C) Chaining, Huffman coding
   D) Huffman coding, linear hashing

8) Graphs are represented using
   A) Adjacency tree B) Adjacency linked list
   C) Adjacency graph D) Adjacency queue

9) The average case complexity of Selection Sort is
   A) O (2n) B) $O(n^3)$ C) $O(n^2)$ D) $O(2^n)$

10) If there exist one path at least, between every pair of vertices in a graph, the graph is known as
   A) Complete graph B) Disconnected graph
   C) Connected graph D) Euler graph

11) A tree in which all leaves arrive at the same level is called
   A) Binary tree B) Multiway tree
   C) B-tree D) Complete binary tree

12) A connected graph T without any cycles is called
   A) A tree graph B) Linked list
   C) Non connected graph D) Balanced graph

13) Other name for directed graph is
   A) Direct graph B) Digraph C) Dir-graph D) Edge graph

14) In AVL tree allowed balance factor can be
   A) 1, 0, – 1 B) 2, 1, – 2
   C) 1, 0, – 2 D) None of the above

15) _____ data structure is non linear data structure.
   A) Stack B) Queue C) Graph D) Linked list

16) The time complexity of linear search algorithm over an array of n elements is
   A) $O(\log_2 n)$ B) O (n) C) $O(n \log_2 n)$ D) $O(n^2)$

17) A tree node that has no parent is called a
   A) Leaf node B) Root node C) Internal node D) Loop node

18) In _____ Searching technique records must be in sorted order.
   A) Hashing B) Binary search C) Linear search D) Tree search

19) What data structure is used for Depth first traversal of a graph ?
   A) queue B) stack
   C) list D) none of the above

20) The searching technique that takes O (1) time to find a data is
   A) Linear Search B) Binary Search
   C) Hashing D) Tree Search

SLR-TJ – 244

Seat No.	

S.E. (CSE) (Part – II) (Old) Examination, 2017
DATA STRUCTURE – II

Day and Date : Tuesday, 28-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***Each*** *Section carries* ***40*** *marks.*
2) Attempt ***all*** *questions in* ***each*** *Section.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Solve **any four** : **(5×4=20)**
   1) Write a program for bubble sort.
   2) What is data structure ? Explain its types.
   3) What is Time and Space complexity ? Explain with diagram.
   4) Perform merge sort (ascending) of following numbers-show every iteration.
      17, 3, 21, 5, 11, 45, 17
   5) Explain the recursive algorithm of Binary search with example.
   6) Explain with example collision and close chaining to handle collision.

3. What is Hashing ? Discuss complexity of hashing. Explain different open addressing techniques to resolve collision in detail by giving suitable examples. **10**

4. Write a C program for implementing Quick sort using recursive technique. **10**

   OR

   What is threaded-Binary tree ? Explain with example. **10**

   a) Left-in threaded Binary Tree

   b) Right-in threaded Binary Tree

   c) Fully threaded Binary Tree.

SECTION – II

5. Solve **any four** : **(5×4=20)**
   1) What is height balance tree ? Explain any two height balance trees with example.
   2) Explain various types of graph.
   3) Insert the following nodes in AVL tree, show rotations :
      15, 19, 8, 22, 11, 3, 17, 2
   4) What is multi-way tree ? Discuss its properties.
   5) Give the breadth first traversal algorithm for graph. Also explain with example.
   6) Define the Graph and how it is represented in computer memory.

6. Explain in details structure of Leaf and Non-Leaf node in B tree, also give suitable example and diagram for insertion and deletion from B tree. **10**

7. Explain finding the shortest path in a given graph using Dijkstra algorithm (state and assume suitable data). **10**

   OR

   Explain with example and algorithm the topological ordering of graph.

SLR-TJ – 245

Seat No.	

Set P

S.E. (CSE) (Part – II) Examination, 2017
FORMAL SYSTEM AND AUTOMATA (Old)

Day and Date : Thursday, 30-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternatives from the following : **20**

1) A PDA behaves like a FSM when it has number of auxiliary memory
a) 0 b) Exactly 2 c) 2 or more d) Both a) and b)

2) The language L = $\{a^n b^n a^n : n>=1\}$ is recognized by
a) TM b) 2PDA c) Post Machine d) All of the above

3) How many strings of length less than 4 contains the language described by the regular expression (x + y)*y(a+ab)* ?
a) 7 b) 10 c) 12 d) 11

4) UTM influenced the concept of
a) Computability
b) Interpretive implementation of programming language
c) Program and data is in same memory
d) All of above

5) The entity which generate Language is termed as
a) Automata b) Tokens c) Grammar d) Data

6) There are _____ tuples in finite state machine.
a) 4 b) 5 c) 6 d) Unlimited

7) PDA can be represented with the help of
a) Instantaneous description b) Transition diagram
c) Transition table d) All of these

P.T.O.

8) 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

9) The push down automata indicate the acceptance of input string in terms of
   a) Finial state b) Empty stack
   c) Both (a) and (b) d) None of these

10) Which type of symbols contain in the stack of PDA ?
   a) Variable b) Terminal
   c) Both (a) and (b) d) None of these

11) Inability of FA is
   a) Writing b) Finite memory
   c) Sequential memory d) All (a), (b) and (c)

12) The symbol Z0 in formal definition of PDA is used for
   a) Stack symbol b) Input symbol
   c) Both (a) and (b) d) None of these

13) A PDA chooses the next move based on
   a) Current state b) Next input symbol
   c) Both (a) and (b) d) None of these

14) Are ambiguous grammar context free ?
   a) Yes b) No

15) Finite automata has
   a) Finite memory b) Finite control
   c) Read only head d) All a), b) and c)

16) The language accepted by finite automata is
   a) Context free b) Regular c) Non-regular d) None

17) A FA can be used for
   a) String recognition b) Arithmetic operations
   c) Both (a) and (b) d) None

18) A finite automata is a/an
   a) Acceptor b) Computing device
   c) Both (a) and (b) d) None

19) Regular expressions are
   a) Compact representation of strings
   b) Representation of strings over some alphabet
   c) Compact representation of certain set of strings in algebraic manner
   d) None

20) If L_1 and L_2 are two regular languages, then concatenation of L_1 and L_2 is
   a) L_1L_2 b) $L_1.L_2$ c) $L_1 \times L_2$ d) None

SLR-TJ – 245

Seat No.	

S.E. (CSE) (Part – II) Examination, 2017
FORMAL SYSTEM AND AUTOMATA (Old)

Day and Date : Thursday, 30-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   1) Define CFG. Give context tree grammar that generates the following language. L = {wε (0, 1)*| w contains more 1's than 0's}.
   2) Construct FA for the language of all string that begin or end with 11.
   3) What are Type 0, Type 1, Type 2 and Type 3 Grammar ?
   4) Compare between NFA and DFA.
   5) Consider the language L = {x|x contains substring 010}. Draw Finite Automata.

3. Attempt **any two** : **(2×10=20)**
   1) Consider the language L_1 and L_2 over an alphabet {0, 1} as
      L_1 = {x | 00 is not a substring of x}
      L_2 = {x | x ends with 01}
      Construct FA for $L_1 \cup L_2$.
   2) Draw stepwise NFA – ^ for 01* + 1 (0 + 1)*.
   3) What is a CNF ? Explain steps for converting a CFG to CNF.

SECTION – II

4. Solve **any four** : **(5×4=20)**
   1) Briefly explain different types of Turing Machine Models.
   2) Explain PDA with example.
   3) Design a Turing Machine to accept language {a,b}* {ab}.
   4) State and explain pumping lemma for Regular language.
   5) Obtain a Turing Machine to accept the language containing string of 0's and 1's and ending with 011.

5. Answer **any two** : **(2×10=20)**

   1) Design a PDA for the language L = {a^n, b^n >=1}. Show an ID for the string 'aaabbb'.
   2) Define Turing Machine and explain multitape Turing Machine in detail.
   3) Prove that the language of palindromes over {0, 1} is not regular with pumping lemma.

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SLR-TJ – 245

Seat No.	

Set Q

S.E. (CSE) (Part – II) Examination, 2017
FORMAL SYSTEM AND AUTOMATA (Old)

Day and Date : Thursday, 30-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternatives from the following : **20**

1) The language accepted by finite automata is
   a) Context free b) Regular c) Non-regular d) None
2) A FA can be used for
   a) String recognition b) Arithmetic operations
   c) Both (a) and (b) d) None
3) A finite automata is a/an
   a) Acceptor b) Computing device
   c) Both (a) and (b) d) None
4) Regular expressions are
   a) Compact representation of strings
   b) Representation of strings over some alphabet
   c) Compact representation of certain set of strings in algebraic manner
   d) None
5) If L_1 and L_2 are two regular languages, then concatenation of L_1 and L_2 is
   a) L_1L_2 b) $L_1.L_2$ c) $L_1 \times L_2$ d) None
6) A PDA behaves like a FSM when it has number of auxiliary memory
   a) 0 b) Exactly 2 c) 2 or more d) Both a) and b)
7) The language $L = \{a^n b^n a^n : n>=1\}$ is recognized by
   a) TM b) 2PDA c) Post Machine d) All of the above

P.T.O.

8) How many strings of length less than 4 contains the language described by the regular expression (x + y)*y(a+ab)* ?
   a) 7 b) 10 c) 12 d) 11

9) UTM influenced the concept of
   a) Computability
   b) Interpretive implementation of programming language
   c) Program and data is in same memory
   d) All of above

10) The entity which generate Language is termed as
   a) Automata b) Tokens c) Grammar d) Data

11) There are _____ tuples in finite state machine.
   a) 4 b) 5 c) 6 d) Unlimited

12) PDA can be represented with the help of
   a) Instantaneous description b) Transition diagram
   c) Transition table d) All of these

13) 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

14) The push down automata indicate the acceptance of input string in terms of
   a) Finial state b) Empty stack
   c) Both (a) and (b) d) None of these

15) Which type of symbols contain in the stack of PDA ?
   a) Variable b) Terminal
   c) Both (a) and (b) d) None of these

16) Inability of FA is
   a) Writing b) Finite memory
   c) Sequential memory d) All (a), (b) and (c)

17) The symbol Z0 in formal definition of PDA is used for
   a) Stack symbol b) Input symbol
   c) Both (a) and (b) d) None of these

18) A PDA chooses the next move based on
   a) Current state b) Next input symbol
   c) Both (a) and (b) d) None of these

19) Are ambiguous grammar context free ?
   a) Yes b) No

20) Finite automata has
   a) Finite memory b) Finite control
   c) Read only head d) All a), b) and c)

_____

SLR-TJ – 245

Seat No.	

S.E. (CSE) (Part – II) Examination, 2017
FORMAL SYSTEM AND AUTOMATA (Old)

Day and Date : Thursday, 30-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   1) Define CFG. Give context tree grammar that generates the following language. L = {wε (0, 1)*| w contains more 1's than 0's}.
   2) Construct FA for the language of all string that begin or end with 11.
   3) What are Type 0, Type 1, Type 2 and Type 3 Grammar ?
   4) Compare between NFA and DFA.
   5) Consider the language L = {x|x contains substring 010}. Draw Finite Automata.

3. Attempt **any two** : **(2×10=20)**
   1) Consider the language L_1 and L_2 over an alphabet {0, 1} as
      L_1 = {x | 00 is not a substring of x}
      L_2 = {x | x ends with 01}
      Construct FA for $L_1 \cup L_2$.
   2) Draw stepwise NFA – ^ for 01* + 1 (0 + 1)*.
   3) What is a CNF ? Explain steps for converting a CFG to CNF.

SECTION – II

4. Solve **any four** : **(5×4=20)**
   1) Briefly explain different types of Turing Machine Models.
   2) Explain PDA with example.
   3) Design a Turing Machine to accept language {a,b}* {ab}.
   4) State and explain pumping lemma for Regular language.
   5) Obtain a Turing Machine to accept the language containing string of 0's and 1's and ending with 011.

5. Answer **any two** : **(2×10=20)**
   1) Design a PDA for the language L = {a^n, b^n >=1}. Show an ID for the string 'aaabbb'.
   2) Define Turing Machine and explain multitape Turing Machine in detail.
   3) Prove that the language of palindromes over {0, 1} is not regular with pumping lemma.

SLR-TJ – 245

Seat No.	

Set R

S.E. (CSE) (Part – II) Examination, 2017
FORMAL SYSTEM AND AUTOMATA (Old)

Day and Date : Thursday, 30-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternatives from the following : **20**

1) Inability of FA is
   a) Writing b) Finite memory
   c) Sequential memory d) All (a), (b) and (c)

2) The symbol Z0 in formal definition of PDA is used for
   a) Stack symbol b) Input symbol
   c) Both (a) and (b) d) None of these

3) A PDA chooses the next move based on
   a) Current state b) Next input symbol
   c) Both (a) and (b) d) None of these

4) Are ambiguous grammar context free ?
   a) Yes b) No

5) Finite automata has
   a) Finite memory b) Finite control
   c) Read only head d) All a), b) and c)

6) The language accepted by finite automata is
   a) Context free b) Regular c) Non-regular d) None

7) A FA can be used for
   a) String recognition b) Arithmetic operations
   c) Both (a) and (b) d) None

P.T.O.

8) A finite automata is a/an
   a) Acceptor
   b) Computing device
   c) Both (a) and (b)
   d) None

9) Regular expressions are
   a) Compact representation of strings
   b) Representation of strings over some alphabet
   c) Compact representation of certain set of strings in algebraic manner
   d) None

10) If L_1 and L_2 are two regular languages, then concatenation of L_1 and L_2 is
   a) L_1L_2
   b) $L_1.L_2$
   c) $L_1 \times L_2$
   d) None

11) A PDA behaves like a FSM when it has number of auxiliary memory
   a) 0
   b) Exactly 2
   c) 2 or more
   d) Both a) and b)

12) The language $L = \{a^n b^n a^n : n>=1\}$ is recognized by
   a) TM
   b) 2PDA
   c) Post Machine
   d) All of the above

13) How many strings of length less than 4 contains the language described by the regular expression (x + y)*y(a+ab)* ?
   a) 7
   b) 10
   c) 12
   d) 11

14) UTM influenced the concept of
   a) Computability
   b) Interpretive implementation of programming language
   c) Program and data is in same memory
   d) All of above

15) The entity which generate Language is termed as
   a) Automata
   b) Tokens
   c) Grammar
   d) Data

16) There are _____ tuples in finite state machine.
   a) 4
   b) 5
   c) 6
   d) Unlimited

17) PDA can be represented with the help of
   a) Instantaneous description
   b) Transition diagram
   c) Transition table
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18) A push down automata is different than finite automata by
   a) Its memory (stack)
   b) Number of states
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19) The push down automata indicate the acceptance of input string in terms of
   a) Finial state
   b) Empty stack
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   a) Variable
   b) Terminal
   c) Both (a) and (b)
   d) None of these

SLR-TJ – 245

Seat No.	

S.E. (CSE) (Part – II) Examination, 2017
FORMAL SYSTEM AND AUTOMATA (Old)

Day and Date : Thursday, 30-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   1) Define CFG. Give context tree grammar that generates the following language. L = {wε (0, 1)*| w contains more 1's than 0's}.
   2) Construct FA for the language of all string that begin or end with 11.
   3) What are Type 0, Type 1, Type 2 and Type 3 Grammar ?
   4) Compare between NFA and DFA.
   5) Consider the language L = {x|x contains substring 010}. Draw Finite Automata.

3. Attempt **any two** : **(2×10=20)**
   1) Consider the language L_1 and L_2 over an alphabet {0, 1} as
      L_1 = {x | 00 is not a substring of x}
      L_2 = {x | x ends with 01}
      Construct FA for $L_1 \cup L_2$.
   2) Draw stepwise NFA – ^ for 01* + 1 (0 + 1)*.
   3) What is a CNF ? Explain steps for converting a CFG to CNF.

SECTION – II

4. Solve **any four** : **(5×4=20)**
   1) Briefly explain different types of Turing Machine Models.
   2) Explain PDA with example.
   3) Design a Turing Machine to accept language {a,b}* {ab}.
   4) State and explain pumping lemma for Regular language.
   5) Obtain a Turing Machine to accept the language containing string of 0's and 1's and ending with 011.

5. Answer **any two** : **(2×10=20)**
   1) Design a PDA for the language L = {a^n, b^n >=1}. Show an ID for the string 'aaabbb'.
   2) Define Turing Machine and explain multitape Turing Machine in detail.
   3) Prove that the language of palindromes over {0, 1} is not regular with pumping lemma.

SLR-TJ – 245

Seat No.	

Set S

S.E. (CSE) (Part – II) Examination, 2017
FORMAL SYSTEM AND AUTOMATA (Old)

Day and Date : Thursday, 30-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternatives from the following : **20**

1) There are _____ tuples in finite state machine.
a) 4 b) 5 c) 6 d) Unlimited

2) PDA can be represented with the help of
a) Instantaneous description b) Transition diagram
c) Transition table d) All of these

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) The push down automata indicate the acceptance of input string in terms of
a) Finial state b) Empty stack
c) Both (a) and (b) d) None of these

5) Which type of symbols contain in the stack of PDA ?
a) Variable b) Terminal
c) Both (a) and (b) d) None of these

6) Inability of FA is
a) Writing b) Finite memory
c) Sequential memory d) All (a), (b) and (c)

7) The symbol Z0 in formal definition of PDA is used for
a) Stack symbol b) Input symbol
c) Both (a) and (b) d) None of these

8) A PDA chooses the next move based on
   a) Current state
   b) Next input symbol
   c) Both (a) and (b)
   d) None of these

9) Are ambiguous grammar context free ?
   a) Yes
   b) No

10) Finite automata has
   a) Finite memory
   b) Finite control
   c) Read only head
   d) All a), b) and c)

11) The language accepted by finite automata is
   a) Context free
   b) Regular
   c) Non-regular
   d) None

12) A FA can be used for
   a) String recognition
   b) Arithmetic operations
   c) Both (a) and (b)
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13) A finite automata is a/an
   a) Acceptor
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   c) Both (a) and (b)
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14) Regular expressions are
   a) Compact representation of strings
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   c) Compact representation of certain set of strings in algebraic manner
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   b) $L_1.L_2$
   c) $L_1 \times L_2$
   d) None

16) A PDA behaves like a FSM when it has number of auxiliary memory
   a) 0
   b) Exactly 2
   c) 2 or more
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17) The language $L = \{a^n b^n a^n : n>=1\}$ is recognized by
   a) TM
   b) 2PDA
   c) Post Machine
   d) All of the above

18) How many strings of length less than 4 contains the language described by the regular expression $(x + y)^*y(a+ab)^*$?
   a) 7
   b) 10
   c) 12
   d) 11

19) UTM influenced the concept of
   a) Computability
   b) Interpretive implementation of programming language
   c) Program and data is in same memory
   d) All of above

20) The entity which generate Language is termed as
   a) Automata
   b) Tokens
   c) Grammar
   d) Data

SLR-TJ – 245

Seat No.	

S.E. (CSE) (Part – II) Examination, 2017
FORMAL SYSTEM AND AUTOMATA (Old)

Day and Date : Thursday, 30-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   1) Define CFG. Give context tree grammar that generates the following language. L = {wε (0, 1)*| w contains more 1's than 0's}.
   2) Construct FA for the language of all string that begin or end with 11.
   3) What are Type 0, Type 1, Type 2 and Type 3 Grammar ?
   4) Compare between NFA and DFA.
   5) Consider the language L = {x|x contains substring 010}. Draw Finite Automata.

3. Attempt **any two** : **(2×10=20)**
   1) Consider the language L_1 and L_2 over an alphabet {0, 1} as
      L_1 = {x | 00 is not a substring of x}
      L_2 = {x | x ends with 01}
      Construct FA for $L_1 \cup L_2$.
   2) Draw stepwise NFA – ^ for 01* + 1 (0 + 1)*.
   3) What is a CNF ? Explain steps for converting a CFG to CNF.

SECTION – II

4. Solve **any four** : **(5×4=20)**
   1) Briefly explain different types of Turing Machine Models.
   2) Explain PDA with example.
   3) Design a Turing Machine to accept language {a,b}* {ab}.
   4) State and explain pumping lemma for Regular language.
   5) Obtain a Turing Machine to accept the language containing string of 0's and 1's and ending with 011.

5. Answer **any two** : **(2×10=20)**

   1) Design a PDA for the language L = {a^n, b^n >=1}. Show an ID for the string 'aaabbb'.
   2) Define Turing Machine and explain multitape Turing Machine in detail.
   3) Prove that the language of palindromes over {0, 1} is not regular with pumping lemma.

SLR-TJ – 246

Seat No.	

Set P

S.E. (CSE) (Part – II) (Old) Examination, 2017
COMPUTER NETWORK – I

Day and Date : Monday, 04-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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*.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) _____ is used to convert analog data or signal into digital signals.
A) Modem B) Codec C) Telephone D) All

2) When signals of different frequencies share same transmission medium, result is _____ noise.
A) Intermodulation B) Cross talk C) Impulse D) Thermal

3) _____ cable is most suitable for long distance communication.
A) Twisted pair copper B) Co-axial copper
C) Fible optic D) All above

4) Which of the following is a layer in ATM communication reference model ?
A) Session B) AAL C) Presentation D) All

5) File transfer and e-mail transfer are the functions of _____ layer.
A) Application B) DLL C) Transport D) Session layer

6) MAC is sub-layer of
A) Physical layer B) Transport layer
C) Both A) and B) D) Data link layer

7) _____ is the true end-to-end layer, from source to destination.
A) Physical B) DLL C) Network D) Transport

8) An n-bit unit containing data and check bits is referred as
A) Code word B) Message C) Reminder D) Polynominal

9) To detect d errors, a Hamming distance of _____ is needed.
A) d – 1 B) Single C) d + 1 D) 2d + 1

10) A distance vector routing algorithm is
A) Static B) Adaptive C) Non-adaptive D) Both A) and C)

11) Which of the following is not a collision free protocol ?
A) CSMA/CD B) Bit-map
C) Binary count down D) All

12) IEEE Standard 802.6 (DQDB) is for
A) LAN B) MAN C) WAN D) Internet

13) In IEEE 802.4 Standard based LAN, the stations are logically organised into
A) bus B) mesh C) ring D) star

14) _____ packets are the warning packets to reduce the transmission rate and traffic.
A) UDP B) Choke C) IP D) SCTP

15) _____ is mapping in which physical address is found for a given logical address.
A) RARP B) ICMP C) ARP D) SMTP

16) Link state routing algorithm is
A) Static B) Adaptive C) Non-adaptive D) Both A) and C)

17) The IP address 220.30.20.50 is of _____ class.
A) a B) b C) c D) d

18) Ethernet address is of _____ bytes.
A) 48 B) 4 C) 6 D) 64

19) A device in network having one NIC can have more than one IP address.
A) True B) False
C) Can not say D) None of the above

20) Loop back address is used to route a packet from them _____ to _____
A) Host ; all other hosts B) Router ; all other host
C) Host ; a specific host D) Host ; itself

_____

SLR-TJ – 246

Seat No.	

S.E. (CSE) (Part – II) (Old) Examination, 2017
COMPUTER NETWORK – I

Day and Date : Monday, 04-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Write answer to **any four** questions (**5** marks for **each**) : **20**

A) What is noise ? Briefly describe thermal and impulse type noises in signals.

B) For digital data bit stream 0100110001110 draw digital signal wave form diagrams of NRZI and pseudoternary types of digital data to digital signal encoding formats.

C) What is computer network ? Briefly describe the business application of it.

D) With diagram describe the TCP/IP reference model.

E) Illustrates the calculation of bit error detection using CRC method for Frame 1 1 0 1 0 1 1 1 1 1 and Generator 1 0 0 1 1.

F) Explain different framing methods.

3. Write answer to **any one** question : **10**

A) What is the need of sliding window protocol ? With neat clock like diagrams explain the working of sliding window protocol for window size 1 and 3 bits for frame sequence numbers.

OR

B) With neat diagrams explain the three modes of optical fiber transmission.

4. Draw the diagram of seven layer OSI reference communication model. Describe shortly the communication functions of each layer. **10**

SECTION – II

5. Write answer to **any four** questions (**5** marks for **each**) : **20**

   A) Describe ALOHA protocol with its type.

   B) Briefly describe persistent and non-persistent CSMA.

   C) Briefly describe Leaky Bucket traffic shaping technique.

   D) What is loadshading ? What is milk and wine policies for congestion control ?

   E) What are the special IP addresses ?

   F) Briefly describe working of ARP and RARP.

6. Write answer to **any one** question : **10**

   A) Describe in detail IEEE Std. 802.3 for LAN.

   OR

   B) Explain distance vector routing. What is count to infinity problem ? How it is solved ?

7. Why there is need of IP address in Internet ? Draw the format and explain all classes of IPv4 public addresses. What is subnetting ? What is subnet mask ? **10**

SLR-TJ – 246

Seat No.	

Set Q

S.E. (CSE) (Part – II) (Old) Examination, 2017
COMPUTER NETWORK – I

Day and Date : Monday, 04-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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*.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) Link state routing algorithm is
A) Static B) Adaptive C) Non-adaptive D) Both A) and C)

2) The IP address 220.30.20.50 is of _____ class.
A) a B) b C) c D) d

3) Ethernet address is of _____ bytes.
A) 48 B) 4 C) 6 D) 64

4) A device in network having one NIC can have more than one IP address.
A) True B) False
C) Can not say D) None of the above

5) Loop back address is used to route a packet from them _____ to _____
A) Host ; all other hosts B) Router ; all other host
C) Host ; a specific host D) Host ; itself

6) _____ is used to convert analog data or signal into digital signals.
A) Modem B) Codec C) Telephone D) All

7) When signals of different frequencies share same transmission medium, result is _____ noise.
A) Intermodulation B) Cross talk C) Impulse D) Thermal

P.T.O.

8) _____ cable is most suitable for long distance communication.
A) Twisted pair copper B) Co-axial copper
C) Fible optic D) All above

9) Which of the following is a layer in ATM communication reference model ?
A) Session B) AAL C) Presentation D) All

10) File transfer and e-mail transfer are the functions of _____ layer.
A) Application B) DLL C) Transport D) Session layer

11) MAC is sub-layer of
A) Physical layer B) Transport layer
C) Both A) and B) D) Data link layer

12) _____ is the true end-to-end layer, from source to destination.
A) Physical B) DLL C) Network D) Transport

13) An n-bit unit containing data and check bits is referred as
A) Code word B) Message C) Reminder D) Polynominal

14) To detect d errors, a Hamming distance of _____ is needed.
A) d – 1 B) Single C) d + 1 D) 2d + 1

15) A distance vector routing algorithm is
A) Static B) Adaptive C) Non-adaptive D) Both A) and C)

16) Which of the following is not a collision free protocol ?
A) CSMA/CD B) Bit-map
C) Binary count down D) All

17) IEEE Standard 802.6 (DQDB) is for
A) LAN B) MAN C) WAN D) Internet

18) In IEEE 802.4 Standard based LAN, the stations are logically organised into
A) bus B) mesh C) ring D) star

19) _____ packets are the warning packets to reduce the transmission rate and traffic.
A) UDP B) Choke C) IP D) SCTP

20) _____ is mapping in which physical address is found for a given logical address.
A) RARP B) ICMP C) ARP D) SMTP

_____

SLR-TJ – 246

Seat No.	

S.E. (CSE) (Part – II) (Old) Examination, 2017
COMPUTER NETWORK – I

Day and Date : Monday, 04-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Write answer to **any four** questions (**5** marks for **each**) : **20**

A) What is noise ? Briefly describe thermal and impulse type noises in signals.

B) For digital data bit stream 0100110001110 draw digital signal wave form diagrams of NRZI and pseudoternary types of digital data to digital signal encoding formats.

C) What is computer network ? Briefly describe the business application of it.

D) With diagram describe the TCP/IP reference model.

E) Illustrates the calculation of bit error detection using CRC method for Frame 1 1 0 1 0 1 1 1 1 1 and Generator 1 0 0 1 1.

F) Explain different framing methods.

3. Write answer to **any one** question : **10**

A) What is the need of sliding window protocol ? With neat clock like diagrams explain the working of sliding window protocol for window size 1 and 3 bits for frame sequence numbers.

OR

B) With neat diagrams explain the three modes of optical fiber transmission.

4. Draw the diagram of seven layer OSI reference communication model. Describe shortly the communication functions of each layer. **10**

SECTION – II

5. Write answer to **any four** questions (**5** marks for **each**) : **20**

   A) Describe ALOHA protocol with its type.

   B) Briefly describe persistent and non-persistent CSMA.

   C) Briefly describe Leaky Bucket traffic shaping technique.

   D) What is loadshading ? What is milk and wine policies for congestion control ?

   E) What are the special IP addresses ?

   F) Briefly describe working of ARP and RARP.

6. Write answer to **any one** question : **10**

   A) Describe in detail IEEE Std. 802.3 for LAN.

   OR

   B) Explain distance vector routing. What is count to infinity problem ? How it is solved ?

7. Why there is need of IP address in Internet ? Draw the format and explain all classes of IPv4 public addresses. What is subnetting ? What is subnet mask ? **10**

SLR-TJ – 246

Seat No.	

Set R

S.E. (CSE) (Part – II) (Old) Examination, 2017
COMPUTER NETWORK – I

Day and Date : Monday, 04-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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*.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) Which of the following is not a collision free protocol ?
A) CSMA/CD B) Bit-map
C) Binary count down D) All

2) IEEE Standard 802.6 (DQDB) is for
A) LAN B) MAN C) WAN D) Internet

3) In IEEE 802.4 Standard based LAN, the stations are logically organised into
A) bus B) mesh C) ring D) star

4) _____ packets are the warning packets to reduce the transmission rate and traffic.
A) UDP B) Choke C) IP D) SCTP

5) _____ is mapping in which physical address is found for a given logical address.
A) RARP B) ICMP C) ARP D) SMTP

6) Link state routing algorithm is
A) Static B) Adaptive C) Non-adaptive D) Both A) and C)

7) The IP address 220.30.20.50 is of _____ class.
A) a B) b C) c D) d

P.T.O.

8) Ethernet address is of _____ bytes.
A) 48 B) 4 C) 6 D) 64

9) A device in network having one NIC can have more than one IP address.
A) True B) False
C) Can not say D) None of the above

10) Loop back address is used to route a packet from them _____ to _____
A) Host ; all other hosts B) Router ; all other host
C) Host ; a specific host D) Host ; itself

11) _____ is used to convert analog data or signal into digital signals.
A) Modem B) Codec C) Telephone D) All

12) When signals of different frequencies share same transmission medium, result is _____ noise.
A) Intermodulation B) Cross talk C) Impulse D) Thermal

13) _____ cable is most suitable for long distance communication.
A) Twisted pair copper B) Co-axial copper
C) Fible optic D) All above

14) Which of the following is a layer in ATM communication reference model ?
A) Session B) AAL C) Presentation D) All

15) File transfer and e-mail transfer are the functions of _____ layer.
A) Application B) DLL C) Transport D) Session layer

16) MAC is sub-layer of
A) Physical layer B) Transport layer
C) Both A) and B) D) Data link layer

17) _____ is the true end-to-end layer, from source to destination.
A) Physical B) DLL C) Network D) Transport

18) An n-bit unit containing data and check bits is referred as
A) Code word B) Message C) Reminder D) Polynominal

19) To detect d errors, a Hamming distance of _____ is needed.
A) d – 1 B) Single C) d + 1 D) 2d + 1

20) A distance vector routing algorithm is
A) Static B) Adaptive C) Non-adaptive D) Both A) and C)

_____

SLR-TJ – 246

Seat No.	

S.E. (CSE) (Part – II) (Old) Examination, 2017
COMPUTER NETWORK – I

Day and Date : Monday, 04-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Write answer to **any four** questions (**5** marks for **each**) : **20**

A) What is noise ? Briefly describe thermal and impulse type noises in signals.

B) For digital data bit stream 0100110001110 draw digital signal wave form diagrams of NRZI and pseudoternary types of digital data to digital signal encoding formats.

C) What is computer network ? Briefly describe the business application of it.

D) With diagram describe the TCP/IP reference model.

E) Illustrates the calculation of bit error detection using CRC method for Frame 1 1 0 1 0 1 1 1 1 1 and Generator 1 0 0 1 1.

F) Explain different framing methods.

3. Write answer to **any one** question : **10**

A) What is the need of sliding window protocol ? With neat clock like diagrams explain the working of sliding window protocol for window size 1 and 3 bits for frame sequence numbers.

OR

B) With neat diagrams explain the three modes of optical fiber transmission.

4. Draw the diagram of seven layer OSI reference communication model. Describe shortly the communication functions of each layer. **10**

SECTION – II

5. Write answer to **any four** questions (**5** marks for **each**) : **20**

   A) Describe ALOHA protocol with its type.

   B) Briefly describe persistent and non-persistent CSMA.

   C) Briefly describe Leaky Bucket traffic shaping technique.

   D) What is loadshading ? What is milk and wine policies for congestion control ?

   E) What are the special IP addresses ?

   F) Briefly describe working of ARP and RARP.

6. Write answer to **any one** question : **10**

   A) Describe in detail IEEE Std. 802.3 for LAN.

   OR

   B) Explain distance vector routing. What is count to infinity problem ? How it is solved ?

7. Why there is need of IP address in Internet ? Draw the format and explain all classes of IPv4 public addresses. What is subnetting ? What is subnet mask ? **10**

SLR-TJ – 246

Seat No.	

Set S

S.E. (CSE) (Part – II) (Old) Examination, 2017
COMPUTER NETWORK – I

Day and Date : Monday, 04-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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*.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) MAC is sub-layer of
A) Physical layer B) Transport layer
C) Both A) and B) D) Data link layer

2) _____ is the true end-to-end layer, from source to destination.
A) Physical B) DLL C) Network D) Transport

3) An n-bit unit containing data and check bits is referred as
A) Code word B) Message C) Reminder D) Polynominal

4) To detect d errors, a Hamming distance of _____ is needed.
A) d – 1 B) Single C) d + 1 D) 2d + 1

5) A distance vector routing algorithm is
A) Static B) Adaptive C) Non-adaptive D) Both A) and C)

6) Which of the following is not a collision free protocol ?
A) CSMA/CD B) Bit-map
C) Binary count down D) All

7) IEEE Standard 802.6 (DQDB) is for
A) LAN B) MAN C) WAN D) Internet

8) In IEEE 802.4 Standard based LAN, the stations are logically organised into
A) bus B) mesh C) ring D) star

9) _____ packets are the warning packets to reduce the transmission rate and traffic.
A) UDP B) Choke C) IP D) SCTP

10) _____ is mapping in which physical address is found for a given logical address.
A) RARP B) ICMP C) ARP D) SMTP

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13) Ethernet address is of _____ bytes.
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17) When signals of different frequencies share same transmission medium, result is _____ noise.
A) Intermodulation B) Cross talk C) Impulse D) Thermal

18) _____ cable is most suitable for long distance communication.
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19) Which of the following is a layer in ATM communication reference model ?
A) Session B) AAL C) Presentation D) All

20) File transfer and e-mail transfer are the functions of _____ layer.
A) Application B) DLL C) Transport D) Session layer

_____

SLR-TJ – 246

Seat No.	

S.E. (CSE) (Part – II) (Old) Examination, 2017
COMPUTER NETWORK – I

Day and Date : Monday, 04-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Write answer to **any four** questions (**5** marks for **each**) : **20**

A) What is noise ? Briefly describe thermal and impulse type noises in signals.

B) For digital data bit stream 0100110001110 draw digital signal wave form diagrams of NRZI and pseudoternary types of digital data to digital signal encoding formats.

C) What is computer network ? Briefly describe the business application of it.

D) With diagram describe the TCP/IP reference model.

E) Illustrates the calculation of bit error detection using CRC method for Frame 1 1 0 1 0 1 1 1 1 1 and Generator 1 0 0 1 1.

F) Explain different framing methods.

3. Write answer to **any one** question : **10**

A) What is the need of sliding window protocol ? With neat clock like diagrams explain the working of sliding window protocol for window size 1 and 3 bits for frame sequence numbers.

OR

B) With neat diagrams explain the three modes of optical fiber transmission.

4. Draw the diagram of seven layer OSI reference communication model. Describe shortly the communication functions of each layer. **10**

SECTION – II

5. Write answer to **any four** questions (**5** marks for **each**) : **20**

   A) Describe ALOHA protocol with its type.

   B) Briefly describe persistent and non-persistent CSMA.

   C) Briefly describe Leaky Bucket traffic shaping technique.

   D) What is loadshading ? What is milk and wine policies for congestion control ?

   E) What are the special IP addresses ?

   F) Briefly describe working of ARP and RARP.

6. Write answer to **any one** question : **10**

   A) Describe in detail IEEE Std. 802.3 for LAN.

   OR

   B) Explain distance vector routing. What is count to infinity problem ? How it is solved ?

7. Why there is need of IP address in Internet ? Draw the format and explain all classes of IPv4 public addresses. What is subnetting ? What is subnet mask ? **10**

SLR-TJ – 247

Seat No.	

Set **P**

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
OPERATING SYSTEM CONCEPTS

Day and Date : Wednesday, 29-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3. Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Assume ***suitable*** *data if necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) SPOOLING stands for
   a) Spontaneous primary operation online
   b) Simultaneous peripheral operation online
   c) Small peripheral operation online
   d) None of these

2) Which of these statements are true ? Choose the correct alternative.
   i) An operating system can be viewed as a response allocator.
   ii) An operating system is a control program.
   iii) An operating system and computer hardware does not have a great deal of influence on each other.
   a) Statement (i), (ii) are correct and (iii) is false
   b) Statement (ii) and (iii) are false
   c) Statement (iii) is true and (i), (ii) are false
   d) Statement (i), (ii) and (iii) are true

3) The processes that are residing in main memory and are ready and waiting to execute are kept on a list called
   a) Job queue b) Ready queue c) Device queue d) None of these

P.T.O.

4) The PCB of a process does not contain
   a) The value of the cpu registers b) The process state
   c) Memory management information d) Context switch time

5) In priority scheduling algorithm, the problem of starvation in case of lower priority processes is resolved by
   a) Termination the process b) Mutual exclusion
   c) Swapping d) Aging

6) A _____ occurs when several processes access the same data and outcome of the execution depends on the particular order in which the access takes place.
   a) Dynamic condition b) Race condition
   c) Essential condition d) Critical condition

7) Process synchronization can be done at
   a) Hardware level b) Software level c) Both a) and b) d) None of these

8) Which one of the following is the deadlock avoidance algorithm ?
   a) Banker's algorithm b) Round-robin algorithm
   c) Elevator algorithm d) Karn's algorithm

9) Following is not essential condition for occurrence of deadlock.
   a) Circular wait b) No preemption
   c) Hold and wait d) None of these

10) LRU can be implemented using _____ mechanism.
   a) Stack b) Counter c) Both a) and b) d) None of these

11) First and best fit strategies in fixed partitioning can suffer from _____ fragmentation.
   a) External b) Internal c) Both a) and b) d) None of these

12) _____ page replacement algorithm cannot be implemented.
   a) FIFO b) LRU c) OPT d) All of these

13) Illegal addresses of page are trapped by
   a) Address bit b) Check bit c) Valid invalid bit d) Page bit

14) _____ is set of wires and a rigidly defined protocol that specifies a set of messages that can be sent on the wires.
   a) Bus b) Port c) BIOS d) Controller

_____

SLR-TJ – 247

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
OPERATING SYSTEM CONCEPTS

Day and Date : Wednesday, 29-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Assume ***suitable*** *data if necessary.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Write a short note on multiprogrammed batch system.
   b) What do you mean by a process ? Show and explain the flow of a process through various states from its creation to its termination.
   c) Write a short note on multilevel queue scheduling.
   d) State the Critical Section (CS) problem and also explain the requirements satisfied by solution to CS problem.

3. Attempt **any two** : **(2×8=16)**
   a) Describe the direct and indirect communication with respective primitives.
   b) Consider the following set of processes, with the length of the cpu burst time given in milliseconds,

Process	Arrival time	Burst time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

   Answer the following :
   i) Draw Gantt charts that illustrate the execution of these processes using SJF - preemptive and RR scheduling with time quantum of 3 milliseconds.
   ii) What is average waiting time for both the scheduling algorithms in part (i) ?
   iii) What is average turnaround time for both the scheduling algorithms in part (i) ?
   iv) Which scheduling algorithm results in minimal average waiting time (over all process) ?

   Represent waiting time and turnaround time for all processes in table.

   c) Can synchronization be achieved effectively using hardware instructions ? If yes, list those instructions. Also explain with the help of an algorithm how any one instruction can be effectively used to solve critical section problem.

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
   a) Explain paging mechanism.
   b) Explain swapping mechanism in paging.
   c) Explain best fit, first and worst fit in fixed partitioning.
   d) Write a note on DMA.

5. Attempt **any two** questions : **(2×8=16)**
   a) Explain fixed partitioning technique in detail.
   b) Explain deadlock prevention technique in detail.
   c) Define RAG. Explain with an example that how it can be used to check the possibility of a deadlock. Also construct RAG for the following scenario and check the possibility of a deadlock.
   There are three processes names P1, P2, P3 running in a system. There are three types of printers named X1, X2 and X3 with 1, 2 and 1 instances of each respectively. Consider the following scenario at instance t0.
   Process P1 is requesting an instance of X1, 1 instance of X2 is held by P1 and another instance of X2 is held by P2, 1 instance of X1 is held by P2, P2 is requesting an instance of X3 which is held by P3, P3 is requesting an instance of X2.

_____

SLR-TJ – 247

Seat No.	

Set **Q**

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
OPERATING SYSTEM CONCEPTS

Day and Date : Wednesday, 29-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3. Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Assume ***suitable*** *data if necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) Which one of the following is the deadlock avoidance algorithm ?
   a) Banker's algorithm b) Round-robin algorithm
   c) Elevator algorithm d) Karn's algorithm

2) Following is not essential condition for occurrence of deadlock.
   a) Circular wait b) No preemption
   c) Hold and wait d) None of these

3) LRU can be implemented using _____ mechanism.
   a) Stack b) Counter c) Both a) and b) d) None of these

4) First and best fit strategies in fixed partitioning can suffer from _____ fragmentation.
   a) External b) Internal c) Both a) and b) d) None of these

5) _____ page replacement algorithm cannot be implemented.
   a) FIFO b) LRU c) OPT d) All of these

6) Illegal addresses of page are trapped by
   a) Address bit b) Check bit c) Valid invalid bit d) Page bit

7) _____ is set of wires and a rigidly defined protocol that specifies a set of messages that can be sent on the wires.
   a) Bus b) Port c) BIOS d) Controller

8) SPOOLING stands for
   a) Spontaneous primary operation online
   b) Simultaneous peripheral operation online
   c) Small peripheral operation online
   d) None of these

9) Which of these statements are true ? Choose the correct alternative.
   i) An operating system can be viewed as a response allocator.
   ii) An operating system is a control program.
   iii) An operating system and computer hardware does not have a great deal of influence on each other.
   a) Statement (i), (ii) are correct and (iii) is false
   b) Statement (ii) and (iii) are false
   c) Statement (iii) is true and (i), (ii) are false
   d) Statement (i), (ii) and (iii) are true

10) The processes that are residing in main memory and are ready and waiting to execute are kept on a list called
   a) Job queue b) Ready queue c) Device queue d) None of these

11) The PCB of a process does not contain
   a) The value of the cpu registers b) The process state
   c) Memory management information d) Context switch time

12) In priority scheduling algorithm, the problem of starvation in case of lower priority processes is resolved by
   a) Termination the process b) Mutual exclusion
   c) Swapping d) Aging

13) A _____ occurs when several processes access the same data and outcome of the execution depends on the particular order in which the access takes place.
   a) Dynamic condition b) Race condition
   c) Essential condition d) Critical condition

14) Process synchronization can be done at
   a) Hardware level b) Software level c) Both a) and b) d) None of these

SLR-TJ – 247

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
OPERATING SYSTEM CONCEPTS

Day and Date : Wednesday, 29-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Assume ***suitable*** *data if necessary.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Write a short note on multiprogrammed batch system.
   b) What do you mean by a process ? Show and explain the flow of a process through various states from its creation to its termination.
   c) Write a short note on multilevel queue scheduling.
   d) State the Critical Section (CS) problem and also explain the requirements satisfied by solution to CS problem.

3. Attempt **any two** : **(2×8=16)**
   a) Describe the direct and indirect communication with respective primitives.
   b) Consider the following set of processes, with the length of the cpu burst time given in milliseconds,

Process	Arrival time	Burst time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

   Answer the following :
   i) Draw Gantt charts that illustrate the execution of these processes using SJF - preemptive and RR scheduling with time quantum of 3 milliseconds.
   ii) What is average waiting time for both the scheduling algorithms in part (i) ?
   iii) What is average turnaround time for both the scheduling algorithms in part (i) ?
   iv) Which scheduling algorithm results in minimal average waiting time (over all process) ?

   Represent waiting time and turnaround time for all processes in table.

   c) Can synchronization be achieved effectively using hardware instructions ? If yes, list those instructions. Also explain with the help of an algorithm how any one instruction can be effectively used to solve critical section problem.

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**
   a) Explain paging mechanism.
   b) Explain swapping mechanism in paging.
   c) Explain best fit, first and worst fit in fixed partitioning.
   d) Write a note on DMA.

5. Attempt **any two** questions : **(2×8=16)**
   a) Explain fixed partitioning technique in detail.
   b) Explain deadlock prevention technique in detail.
   c) Define RAG. Explain with an example that how it can be used to check the possibility of a deadlock. Also construct RAG for the following scenario and check the possibility of a deadlock.

      There are three processes names P1, P2, P3 running in a system. There are three types of printers named X1, X2 and X3 with 1, 2 and 1 instances of each respectively. Consider the following scenario at instance t0.

      Process P1 is requesting an instance of X1, 1 instance of X2 is held by P1 and another instance of X2 is held by P2, 1 instance of X1 is held by P2, P2 is requesting an instance of X3 which is held by P3, P3 is requesting an instance of X2.

SLR-TJ – 247

Seat No.	

Set **R**

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
OPERATING SYSTEM CONCEPTS

Day and Date : Wednesday, 29-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3. Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Assume ***suitable*** *data if necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) In priority scheduling algorithm, the problem of starvation in case of lower priority processes is resolved by
   a) Termination the process b) Mutual exclusion
   c) Swapping d) Aging

2) A _____ occurs when several processes access the same data and outcome of the execution depends on the particular order in which the access takes place.
   a) Dynamic condition b) Race condition
   c) Essential condition d) Critical condition

3) Process synchronization can be done at
   a) Hardware level b) Software level c) Both a) and b) d) None of these

4) Which one of the following is the deadlock avoidance algorithm ?
   a) Banker's algorithm b) Round-robin algorithm
   c) Elevator algorithm d) Karn's algorithm

5) Following is not essential condition for occurrence of deadlock.
   a) Circular wait b) No preemption
   c) Hold and wait d) None of these

P.T.O.

6) LRU can be implemented using _____ mechanism.
   a) Stack b) Counter c) Both a) and b) d) None of these

7) First and best fit strategies in fixed partitioning can suffer from _____ fragmentation.
   a) External b) Internal c) Both a) and b) d) None of these

8) _____ page replacement algorithm cannot be implemented.
   a) FIFO b) LRU c) OPT d) All of these

9) Illegal addresses of page are trapped by
   a) Address bit b) Check bit c) Valid invalid bit d) Page bit

10) _____ is set of wires and a rigidly defined protocol that specifies a set of messages that can be sent on the wires.
   a) Bus b) Port c) BIOS d) Controller

11) SPOOLING stands for
   a) Spontaneous primary operation online
   b) Simultaneous peripheral operation online
   c) Small peripheral operation online
   d) None of these

12) Which of these statements are true ? Choose the correct alternative.
   i) An operating system can be viewed as a response allocator.
   ii) An operating system is a control program.
   iii) An operating system and computer hardware does not have a great deal of influence on each other.
   a) Statement (i), (ii) are correct and (iii) is false
   b) Statement (ii) and (iii) are false
   c) Statement (iii) is true and (i), (ii) are false
   d) Statement (i), (ii) and (iii) are true

13) The processes that are residing in main memory and are ready and waiting to execute are kept on a list called
   a) Job queue b) Ready queue c) Device queue d) None of these

14) The PCB of a process does not contain
   a) The value of the cpu registers b) The process state
   c) Memory management information d) Context switch time

SLR-TJ – 247

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
OPERATING SYSTEM CONCEPTS

Day and Date : Wednesday, 29-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Assume ***suitable*** *data if necessary.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Write a short note on multiprogrammed batch system.
   b) What do you mean by a process ? Show and explain the flow of a process through various states from its creation to its termination.
   c) Write a short note on multilevel queue scheduling.
   d) State the Critical Section (CS) problem and also explain the requirements satisfied by solution to CS problem.

3. Attempt **any two** : **(2×8=16)**
   a) Describe the direct and indirect communication with respective primitives.
   b) Consider the following set of processes, with the length of the cpu burst time given in milliseconds,

Process	Arrival time	Burst time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

   Answer the following :
   i) Draw Gantt charts that illustrate the execution of these processes using SJF - preemptive and RR scheduling with time quantum of 3 milliseconds.
   ii) What is average waiting time for both the scheduling algorithms in part (i) ?
   iii) What is average turnaround time for both the scheduling algorithms in part (i) ?
   iv) Which scheduling algorithm results in minimal average waiting time (over all process) ?

   Represent waiting time and turnaround time for all processes in table.

   c) Can synchronization be achieved effectively using hardware instructions ? If yes, list those instructions. Also explain with the help of an algorithm how any one instruction can be effectively used to solve critical section problem.

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**

   a) Explain paging mechanism.

   b) Explain swapping mechanism in paging.

   c) Explain best fit, first and worst fit in fixed partitioning.

   d) Write a note on DMA.

5. Attempt **any two** questions : **(2×8=16)**

   a) Explain fixed partitioning technique in detail.

   b) Explain deadlock prevention technique in detail.

   c) Define RAG. Explain with an example that how it can be used to check the possibility of a deadlock. Also construct RAG for the following scenario and check the possibility of a deadlock.

   There are three processes names P1, P2, P3 running in a system. There are three types of printers named X1, X2 and X3 with 1, 2 and 1 instances of each respectively. Consider the following scenario at instance t0.

   Process P1 is requesting an instance of X1, 1 instance of X2 is held by P1 and another instance of X2 is held by P2, 1 instance of X1 is held by P2, P2 is requesting an instance of X3 which is held by P3, P3 is requesting an instance of X2.

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SLR-TJ – 247

Seat No.	

Set **S**

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
OPERATING SYSTEM CONCEPTS

Day and Date : Wednesday, 29-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3. Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Assume ***suitable*** *data if necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) LRU can be implemented using _____ mechanism.
   a) Stack b) Counter c) Both a) and b) d) None of these

2) First and best fit strategies in fixed partitioning can suffer from _____ fragmentation.
   a) External b) Internal c) Both a) and b) d) None of these

3) _____ page replacement algorithm cannot be implemented.
   a) FIFO b) LRU c) OPT d) All of these

4) Illegal addresses of page are trapped by
   a) Address bit b) Check bit c) Valid invalid bit d) Page bit

5) _____ is set of wires and a rigidly defined protocol that specifies a set of messages that can be sent on the wires.
   a) Bus b) Port c) BIOS d) Controller

6) SPOOLING stands for
   a) Spontaneous primary operation online
   b) Simultaneous peripheral operation online
   c) Small peripheral operation online
   d) None of these

P.T.O.

7) Which of these statements are true ? Choose the correct alternative.
   i) An operating system can be viewed as a response allocator.
   ii) An operating system is a control program.
   iii) An operating system and computer hardware does not have a great deal of influence on each other.
   a) Statement (i), (ii) are correct and (iii) is false
   b) Statement (ii) and (iii) are false
   c) Statement (iii) is true and (i), (ii) are false
   d) Statement (i), (ii) and (iii) are true

8) The processes that are residing in main memory and are ready and waiting to execute are kept on a list called
   a) Job queue b) Ready queue c) Device queue d) None of these

9) The PCB of a process does not contain
   a) The value of the cpu registers b) The process state
   c) Memory management information d) Context switch time

10) In priority scheduling algorithm, the problem of starvation in case of lower priority processes is resolved by
   a) Termination the process b) Mutual exclusion
   c) Swapping d) Aging

11) A _____ occurs when several processes access the same data and outcome of the execution depends on the particular order in which the access takes place.
   a) Dynamic condition b) Race condition
   c) Essential condition d) Critical condition

12) Process synchronization can be done at
   a) Hardware level b) Software level c) Both a) and b) d) None of these

13) Which one of the following is the deadlock avoidance algorithm ?
   a) Banker's algorithm b) Round-robin algorithm
   c) Elevator algorithm d) Karn's algorithm

14) Following is not essential condition for occurrence of deadlock.
   a) Circular wait b) No preemption
   c) Hold and wait d) None of these

_____

SLR-TJ – 247

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
OPERATING SYSTEM CONCEPTS

Day and Date : Wednesday, 29-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Assume ***suitable*** *data if necessary.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Write a short note on multiprogrammed batch system.
   b) What do you mean by a process ? Show and explain the flow of a process through various states from its creation to its termination.
   c) Write a short note on multilevel queue scheduling.
   d) State the Critical Section (CS) problem and also explain the requirements satisfied by solution to CS problem.

3. Attempt **any two** : **(2×8=16)**
   a) Describe the direct and indirect communication with respective primitives.
   b) Consider the following set of processes, with the length of the cpu burst time given in milliseconds,

Process	Arrival time	Burst time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

   Answer the following :
   i) Draw Gantt charts that illustrate the execution of these processes using SJF - preemptive and RR scheduling with time quantum of 3 milliseconds.
   ii) What is average waiting time for both the scheduling algorithms in part (i) ?
   iii) What is average turnaround time for both the scheduling algorithms in part (i) ?
   iv) Which scheduling algorithm results in minimal average waiting time (over all process) ?

   Represent waiting time and turnaround time for all processes in table.

   c) Can synchronization be achieved effectively using hardware instructions ? If yes, list those instructions. Also explain with the help of an algorithm how any one instruction can be effectively used to solve critical section problem.

SECTION – II

4. Attempt **any three** questions : **(3×4=12)**

   a) Explain paging mechanism.

   b) Explain swapping mechanism in paging.

   c) Explain best fit, first and worst fit in fixed partitioning.

   d) Write a note on DMA.

5. Attempt **any two** questions : **(2×8=16)**

   a) Explain fixed partitioning technique in detail.

   b) Explain deadlock prevention technique in detail.

   c) Define RAG. Explain with an example that how it can be used to check the possibility of a deadlock. Also construct RAG for the following scenario and check the possibility of a deadlock.

   There are three processes names P1, P2, P3 running in a system. There are three types of printers named X1, X2 and X3 with 1, 2 and 1 instances of each respectively. Consider the following scenario at instance t0.

   Process P1 is requesting an instance of X1, 1 instance of X2 is held by P1 and another instance of X2 is held by P2, 1 instance of X1 is held by P2, P2 is requesting an instance of X3 which is held by P3, P3 is requesting an instance of X2.

SLR-TJ – 248

Seat No.	

Set P

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
SYSTEM PROGRAMMING

Day and Date : Saturday, 2-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) The language preprocessor converts C++ program to
   a) Assembly language b) 'C' language c) Machine language d) 'C++' language

2) Which of the following statement NOT TRUE ?
   a) Problem oriented languages have very large execution gap
   b) Problem oriented languages have very small execution gap
   c) Problem oriented languages have small specification gap
   d) None of the above

3) Arrange the following steps of design specification for assembler
   i) Determine the processing necessary to obtain and maintain the information
   ii) Design suitable data structure to record the information
   iii) Determine processing necessary to perform task
   iv) Identify the information necessary to perform task
   a) i-iii-iv-ii b) iv-ii-i-iii c) i-ii-iv-iii d) iii-iv-ii-i

4) Consider the following assembly code

```
START 201
READ  N
PRINT N
N DS  01
```

What is equivalent variant II for this ?

a) (AD, 02) (C, 201)
   (IS, 09) N
   (IS, 10) N
   (DL, 02) (C, 1)
b) (AD, 01) (C, 201)
   (IS, 09) N
   (IS, 09) N
   (DL, 02) (C, 1)
c) (AD, 01) (C, 201)
   (IS, 09) N
   (IS, 10) N
   (DL, 09) (C, 1)
d) (AD, 01) (C, 201)
   (IS, 09) N
   (IS, 10) N
   (DL, 02) (C, 1)

P.T.O.

5) For efficiency reason, which table should remain in main memory ?
   a) SYMTAB b) LITTAB c) OPTAB d) POOLTAB

6) Consider the macro definition

```
        MACRO
        CONTANTS
        LCL     &A
&A      SET     1
        DB      &A
&A      SET     &A + 1
        DB      &A
        MEND
```

   In above macro definition, which instruction is used for defining local expansion variable ?
   a) SET b) LCL c) DB d) MACRO

7) A macro definition consist of
   a) A macro prototype statement
   b) One or more model statement
   c) Macro pre-processor statement
   d) All of the above

8) Resolution of externally defined symbols is performed by
   a) Linker b) Loader c) Compiler d) Assembler

9) The register descriptor has the fields
   a) Status
   b) Operand descriptor entry number
   c) Both (a) and (b)
   d) None of the above

10) A basic block
   a) Contains loops
   b) Contains label
   c) Both (a) and (b)
   d) Sequential statements

11) The linker
   a) Is same as loader
   b) Uses source code as input
   c) Is required to create a load module
   d) Resolves external references

12) In direct linking loader values of external symbols are defined in
   a) Pass – I b) Pass – II c) Both (a) and (b) d) None of the above

13) Live variable is a data flow concept used to eliminate
   a) Frequency reduction
   b) Common sub expression elimination
   c) Dead code elimination
   d) Strength reduction

14) Binary symbolic subroutine is example of
   a) Absolute loader
   b) Compile and go loader
   c) Relocating loader
   d) Direct linking loader

_____

SLR-TJ – 248

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
SYSTEM PROGRAMMING

Day and Date : Saturday, 2-12-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Answer **any three** : **(4×3=12)**
   a) Discuss macro definition, call and expansion in detail with example.
   b) Explain the tables generated by two pass assembler with example.
   c) Explain symbol table, FRT and CRT of single pass assembler in detail.
   d) Explain different types of grammar with example.
   e) How does LEX works ? Give illustration.

3. Answer **any one** : **8**
   a) Given the following source program

```
        START   100
A       DS      3
L1      MOVER   AREG, B
        ADD     AREG, C
        MOVEM   AREG, D
D       EQU     A + 1
L2      PRINTD
        ORIGIN  A – 1
C       DC      '5'
        ORIGIN  L2 + 1
        STOP
B       DC      '19'
        END     L1
```

      i) Show the content of symbol table at the end of Pass – I.
      ii) Explain the significance of EQU and ORIGIN statements in program. Explain how they are processed by assembler.
      iii) Show the intermediate code generated for the program (Variant – II)
      iv) Show the target program generated for the program.

   b) Discuss different kind of parameter in macros.

4. Explain in detail front end and back end of toy compiler with the help of examples. **8**

Set P

SECTION – II

5. Answer **any three** : **(4×3=12)**

   a) Explain memory allocation in block structured languages.

   b) Explain operand descriptor and register descriptor.

   c) Explain interpreters with pure and impure interpreters.

   d) Explain overlay structured program with example.

   e) List and explain diff. types of cards in direct linking loader.

6. Answer **any one** : **8**

   a) Define basic block. Explain local optimization with value numbers concept.

   b) Define Linking. Write and explain program linking algorithm with example.

7. Explain following loader.

   a) Absolute loader

   b) Compile and go loader. **8**

SLR-TJ – 248

Seat No.	

Set Q

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
SYSTEM PROGRAMMING

Day and Date : Saturday, 2-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) Resolution of externally defined symbols is performed by
   a) Linker b) Loader c) Compiler d) Assembler

2) The register descriptor has the fields
   a) Status b) Operand descriptor entry number
   c) Both (a) and (b) d) None of the above

3) A basic block
   a) Contains loops b) Contains label
   c) Both (a) and (b) d) Sequential statements

4) The linker
   a) Is same as loader
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   c) Is required to create a load module
   d) Resolves external references

5) In direct linking loader values of external symbols are defined in
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6) Live variable is a data flow concept used to eliminate
   a) Frequency reduction
   b) Common sub expression elimination
   c) Dead code elimination
   d) Strength reduction

7) Binary symbolic subroutine is example of
   a) Absolute loader
   b) Compile and go loader
   c) Relocating loader
   d) Direct linking loader

8) The language preprocessor converts C++ program to
   a) Assembly language b) 'C' language c) Machine language d) 'C++' language

9) Which of the following statement NOT TRUE ?
   a) Problem oriented languages have very large execution gap
   b) Problem oriented languages have very small execution gap
   c) Problem oriented languages have small specification gap
   d) None of the above

P.T.O.

10) Arrange the following steps of design specification for assembler
   i) Determine the processing necessary to obtain and maintain the information
   ii) Design suitable data structure to record the information
   iii) Determine processing necessary to perform task
   iv) Identify the information necessary to perform task
   a) i-iii-iv-ii b) iv-ii-i-iii c) i-ii-iv-iii d) iii-iv-ii-i

11) Consider the following assembly code

```
        START 201
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```

What is equivalent variant II for this ?
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      (IS, 10) N
      (DL, 02) (C, 1)
   b) (AD, 01) (C, 201)
      (IS, 09) N
      (IS, 09) N
      (DL, 02) (C, 1)
   c) (AD, 01) (C, 201)
      (IS, 09) N
      (IS, 10) N
      (DL, 09) (C, 1)
   d) (AD, 01) (C, 201)
      (IS, 09) N
      (IS, 10) N
      (DL, 02) (C, 1)

12) For efficiency reason, which table should remain in main memory ?
   a) SYMTAB b) LITTAB c) OPTAB d) POOLTAB

13) Consider the macro definition

```
        MACRO
        CONTANTS
        LCL     &A
&A      SET     1
        DB      &A
&A      SET     &A + 1
        DB      &A
        MEND
```

In above macro definition, which instruction is used for defining local expansion variable ?
   a) SET b) LCL c) DB d) MACRO

14) A macro definition consist of
   a) A macro prototype statement b) One or more model statement
   c) Macro pre-processor statement d) All of the above

_____

SLR-TJ – 248

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
SYSTEM PROGRAMMING

Day and Date : Saturday, 2-12-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Answer **any three** : **(4×3=12)**
   a) Discuss macro definition, call and expansion in detail with example.
   b) Explain the tables generated by two pass assembler with example.
   c) Explain symbol table, FRT and CRT of single pass assembler in detail.
   d) Explain different types of grammar with example.
   e) How does LEX works ? Give illustration.

3. Answer **any one** : **8**
   a) Given the following source program

```
        START   100
A       DS      3
L1      MOVER   AREG, B
        ADD     AREG, C
        MOVEM   AREG, D
D       EQU     A + 1
L2      PRINTD
        ORIGIN  A – 1
C       DC      '5'
        ORIGIN  L2 + 1
        STOP
B       DC      '19'
        END     L1
```

      i) Show the content of symbol table at the end of Pass – I.
      ii) Explain the significance of EQU and ORIGIN statements in program. Explain how they are processed by assembler.
      iii) Show the intermediate code generated for the program (Variant – II)
      iv) Show the target program generated for the program.

   b) Discuss different kind of parameter in macros.

4. Explain in detail front end and back end of toy compiler with the help of examples. **8**

Set Q

SECTION – II

5. Answer **any three** : **(4×3=12)**

   a) Explain memory allocation in block structured languages.

   b) Explain operand descriptor and register descriptor.

   c) Explain interpreters with pure and impure interpreters.

   d) Explain overlay structured program with example.

   e) List and explain diff. types of cards in direct linking loader.

6. Answer **any one** : **8**

   a) Define basic block. Explain local optimization with value numbers concept.

   b) Define Linking. Write and explain program linking algorithm with example.

7. Explain following loader.

   a) Absolute loader

   b) Compile and go loader. **8**

SLR-TJ – 248

Seat No.	

Set R

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
SYSTEM PROGRAMMING

Day and Date : Saturday, 2-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) For efficiency reason, which table should remain in main memory ?
   a) SYMTAB b) LITTAB c) OPTAB d) POOLTAB

2) Consider the macro definition

```
        MACRO
        CONTANTS
        LCL     &A
&A      SET     1
        DB      &A
&A      SET     &A + 1
        DB      &A
        MEND
```

   In above macro definition, which instruction is used for defining local expansion variable ?
   a) SET b) LCL c) DB d) MACRO

3) A macro definition consist of
   a) A macro prototype statement b) One or more model statement
   c) Macro pre-processor statement d) All of the above

4) Resolution of externally defined symbols is performed by
   a) Linker b) Loader c) Compiler d) Assembler

5) The register descriptor has the fields
   a) Status b) Operand descriptor entry number
   c) Both (a) and (b) d) None of the above

6) A basic block
   a) Contains loops b) Contains label
   c) Both (a) and (b) d) Sequential statements

7) The linker
   a) Is same as loader
   b) Uses source code as input
   c) Is required to create a load module
   d) Resolves external references

P.T.O.

8) In direct linking loader values of external symbols are defined in
   a) Pass – I b) Pass – II c) Both (a) and (b) d) None of the above

9) Live variable is a data flow concept used to eliminate
   a) Frequency reduction
   b) Common sub expression elimination
   c) Dead code elimination
   d) Strength reduction

10) Binary symbolic subroutine is example of
   a) Absolute loader
   b) Compile and go loader
   c) Relocating loader
   d) Direct linking loader

11) The language preprocessor converts C++ program to
   a) Assembly language b) 'C' language c) Machine language d) 'C++' language

12) Which of the following statement NOT TRUE ?
   a) Problem oriented languages have very large execution gap
   b) Problem oriented languages have very small execution gap
   c) Problem oriented languages have small specification gap
   d) None of the above

13) Arrange the following steps of design specification for assembler
   i) Determine the processing necessary to obtain and maintain the information
   ii) Design suitable data structure to record the information
   iii) Determine processing necessary to perform task
   iv) Identify the information necessary to perform task
   a) i-iii-iv-ii b) iv-ii-i-iii c) i-ii-iv-iii d) iii-iv-ii-i

14) Consider the following assembly code

```
        START 201
        READ  N
        PRINT N
      N DS    01
```

What is equivalent variant II for this ?

a) (AD, 02) (C, 201)
   (IS, 09) N
   (IS, 10) N
   (DL, 02) (C, 1)
b) (AD, 01) (C, 201)
   (IS, 09) N
   (IS, 09) N
   (DL, 02) (C, 1)
c) (AD, 01) (C, 201)
   (IS, 09) N
   (IS, 10) N
   (DL, 09) (C, 1)
d) (AD, 01) (C, 201)
   (IS, 09) N
   (IS, 10) N
   (DL, 02) (C, 1)

SLR-TJ – 248

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
SYSTEM PROGRAMMING

Day and Date : Saturday, 2-12-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Answer **any three** : **(4×3=12)**
   a) Discuss macro definition, call and expansion in detail with example.
   b) Explain the tables generated by two pass assembler with example.
   c) Explain symbol table, FRT and CRT of single pass assembler in detail.
   d) Explain different types of grammar with example.
   e) How does LEX works ? Give illustration.

3. Answer **any one** : **8**
   a) Given the following source program

```
        START   100
A       DS      3
L1      MOVER   AREG, B
        ADD     AREG, C
        MOVEM   AREG, D
D       EQU     A + 1
L2      PRINTD
        ORIGIN  A – 1
C       DC      '5'
        ORIGIN  L2 + 1
        STOP
B       DC      '19'
        END     L1
```

      i) Show the content of symbol table at the end of Pass – I.
      ii) Explain the significance of EQU and ORIGIN statements in program. Explain how they are processed by assembler.
      iii) Show the intermediate code generated for the program (Variant – II)
      iv) Show the target program generated for the program.

   b) Discuss different kind of parameter in macros.

4. Explain in detail front end and back end of toy compiler with the help of examples. **8**

Set R

SECTION – II

5. Answer **any three** : **(4×3=12)**

a) Explain memory allocation in block structured languages.

b) Explain operand descriptor and register descriptor.

c) Explain interpreters with pure and impure interpreters.

d) Explain overlay structured program with example.

e) List and explain diff. types of cards in direct linking loader.

6. Answer **any one** : **8**

a) Define basic block. Explain local optimization with value numbers concept.

b) Define Linking. Write and explain program linking algorithm with example.

7. Explain following loader.

a) Absolute loader

b) Compile and go loader. **8**

SLR-TJ – 248

Seat No.	

Set S

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
SYSTEM PROGRAMMING

Day and Date : Saturday, 2-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) A basic block
   a) Contains loops
   b) Contains label
   c) Both (a) and (b)
   d) Sequential statements

2) The linker
   a) Is same as loader
   b) Uses source code as input
   c) Is required to create a load module
   d) Resolves external references

3) In direct linking loader values of external symbols are defined in
   a) Pass – I
   b) Pass – II
   c) Both (a) and (b)
   d) None of the above

4) Live variable is a data flow concept used to eliminate
   a) Frequency reduction
   b) Common sub expression elimination
   c) Dead code elimination
   d) Strength reduction

5) Binary symbolic subroutine is example of
   a) Absolute loader
   b) Compile and go loader
   c) Relocating loader
   d) Direct linking loader

6) The language preprocessor converts C++ program to
   a) Assembly language
   b) 'C' language
   c) Machine language
   d) 'C++' language

7) Which of the following statement NOT TRUE ?
   a) Problem oriented languages have very large execution gap
   b) Problem oriented languages have very small execution gap
   c) Problem oriented languages have small specification gap
   d) None of the above

8) Arrange the following steps of design specification for assembler
   i) Determine the processing necessary to obtain and maintain the information
   ii) Design suitable data structure to record the information
   iii) Determine processing necessary to perform task
   iv) Identify the information necessary to perform task
   a) i-iii-iv-ii
   b) iv-ii-i-iii
   c) i-ii-iv-iii
   d) iii-iv-ii-i

P.T.O.

9) Consider the following assembly code

```
        START 201
        READ  N
        PRINT N
      N DS    01
```

What is equivalent variant II for this ?

a) (AD, 02) (C, 201)
(IS, 09) N
(IS, 10) N
(DL, 02) (C, 1)

b) (AD, 01) (C, 201)
(IS, 09) N
(IS, 09) N
(DL, 02) (C, 1)

c) (AD, 01) (C, 201)
(IS, 09) N
(IS, 10) N
(DL, 09) (C, 1)

d) (AD, 01) (C, 201)
(IS, 09) N
(IS, 10) N
(DL, 02) (C, 1)

10) For efficiency reason, which table should remain in main memory ?
a) SYMTAB b) LITTAB c) OPTAB d) POOLTAB

11) Consider the macro definition

```
        MACRO
        CONTANTS
        LCL     &A
&A      SET     1
        DB      &A
&A      SET     &A + 1
        DB      &A
        MEND
```

In above macro definition, which instruction is used for defining local expansion variable ?
a) SET b) LCL c) DB d) MACRO

12) A macro definition consist of
a) A macro prototype statement
b) One or more model statement
c) Macro pre-processor statement
d) All of the above

13) Resolution of externally defined symbols is performed by
a) Linker b) Loader c) Compiler d) Assembler

14) The register descriptor has the fields
a) Status
b) Operand descriptor entry number
c) Both (a) and (b)
d) None of the above

_____

SLR-TJ – 248

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
SYSTEM PROGRAMMING

Day and Date : Saturday, 2-12-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Answer **any three** : **(4×3=12)**
   a) Discuss macro definition, call and expansion in detail with example.
   b) Explain the tables generated by two pass assembler with example.
   c) Explain symbol table, FRT and CRT of single pass assembler in detail.
   d) Explain different types of grammar with example.
   e) How does LEX works ? Give illustration.

3. Answer **any one** : **8**
   a) Given the following source program

```
        START    100
A       DS       3
L1      MOVER    AREG, B
        ADD      AREG, C
        MOVEM    AREG, D
D       EQU      A + 1
L2      PRINTD
        ORIGIN   A – 1
C       DC       '5'
        ORIGIN   L2 + 1
        STOP
B       DC       '19'
        END      L1
```

      i) Show the content of symbol table at the end of Pass – I.
      ii) Explain the significance of EQU and ORIGIN statements in program. Explain how they are processed by assembler.
      iii) Show the intermediate code generated for the program (Variant – II)
      iv) Show the target program generated for the program.

   b) Discuss different kind of parameter in macros.

4. Explain in detail front end and back end of toy compiler with the help of examples. **8**

SECTION – II

5. Answer **any three** : **(4×3=12)**

a) Explain memory allocation in block structured languages.

b) Explain operand descriptor and register descriptor.

c) Explain interpreters with pure and impure interpreters.

d) Explain overlay structured program with example.

e) List and explain diff. types of cards in direct linking loader.

6. Answer **any one** : **8**

a) Define basic block. Explain local optimization with value numbers concept.

b) Define Linking. Write and explain program linking algorithm with example.

7. Explain following loader.

a) Absolute loader

b) Compile and go loader. **8**

SLR-TJ – 249

Seat No.	

Set P

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER NETWORKS

Day and Date : Tuesday, 5-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **14**

1) Which layers are absent in TCP/IP protocol suite ?
   a) Transport b) Session
   c) Presentation d) Both b) and c)

2) _____ is a suitable transport protocol for multicasting.
   a) UDP b) TCP c) SMTP d) POP3

3) In SCTP, the packet carrying INIT-Chunk _____ carry any other chunks.
   a) can b) cannot c) may d) may not

4) Which of the following is an Application layer service ?
   a) NVT
   b) File transfer, access and management
   c) Mail service
   d) All of these

5) In TCP _____ timer is used during termination.
   a) Keep alive b) TIME-WAIT
   c) RTT d) Persistence

6) _____ is a technology that creates and handles dynamic documents.
   a) CGI b) SNMP
   c) SMTP d) www

7) In DHCP, client remains in requesting state unless and until it receives _____ message from server.
   a) DHCPPACK b) DHCPDISCOVER
   c) DHCPREQUEST d) None of above

8) Which of the following well-known TCP ports are used by FTP ?
   a) 20, 21 b) 19, 20 c) 80, 80 d) 20, 80

9) In DNS, each node in the tree has a label, which is a string with a maximum of _____ characters.
   a) 46 b) 63 c) 65 d) 16

10) Which modes are available with the POP3 protocol for email access ?
   a) Keep mode b) Delete mode
   c) Both a) and b) d) None of these

11) A socket system call returns an integer called _____ which uniquely defines the created socket.
   a) Socket number b) Socket descriptor
   c) Socket address d) All of these

12) The datagram socket is used by _____ processes.
   a) UDP b) TCP
   c) SCTP d) None of these

13) Which domain section is used for mapping IP address to domain name ?
   a) Inverse domain b) Country domains
   c) Generic domains d) None of these

14) In TFTP block of less than _____ signals the end of file.
   a) 256 bytes b) 512 bytes
   c) Error d) FIN packet

_____

SLR-TJ – 249

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER NETWORKS

Day and Date : Tuesday, 5-12-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

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

SECTION – I

2. Attempt **any three** : **(3×4=12)**

A) Differentiate between OSI model and TCP/IP protocol suite.

B) Explain in short types of addresses at different layers of TCP/IP protocol suite.

C) What is UDP ? Explain the services provided by UDP.

D) Explain multiple streams and multihoming services of SCTP.

E) Explain the following system calls with their syntax :

i) socket ( )

ii) bind ( )

iii) connect ( )

iv) listen( ).

3. Attempt **any two** : **16**

A) What is TCP ? Sketch and explain the format of TCP segment header. List the services provided by TCP.

B) Explain the steps to implement connection-oriented concurrent client-server applications with the help of suitable diagram.

C) Explain with diagram the Congestion control policies in TCP.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

   A) Draw and explain DHCP client state transition diagram.

   B) Explain dynamic and active web documents.

   C) Explain the types of resolution in DNS.

   D) What is SSH ? Explain the port forwarding service of SSH.

   E) Write a short note on TFTP.

5. Attempt **any two** : **16**

   A) Draw and explain basic model of FTP. Explain how to create control connection and data connection in FTP.

   B) Draw and explain DHCP packet format in detail.

   C) Explain the E-mail architecture with its four scenarios.

SLR-TJ – 249

Seat No.	

Set Q

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER NETWORKS

Day and Date : Tuesday, 5-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **14**

1) Which of the following well-known TCP ports are used by FTP ?
a) 20, 21 b) 19, 20 c) 80, 80 d) 20, 80

2) In DNS, each node in the tree has a label, which is a string with a maximum of _____ characters.
a) 46 b) 63 c) 65 d) 16

3) Which modes are available with the POP3 protocol for email access ?
a) Keep mode b) Delete mode
c) Both a) and b) d) None of these

4) A socket system call returns an integer called _____ which uniquely defines the created socket.
a) Socket number b) Socket descriptor
c) Socket address d) All of these

5) The datagram socket is used by _____ processes.
a) UDP b) TCP
c) SCTP d) None of these

6) Which domain section is used for mapping IP address to domain name ?
a) Inverse domain b) Country domains
c) Generic domains d) None of these

7) In TFTP block of less than _____ signals the end of file.
   a) 256 bytes
   b) 512 bytes
   c) Error
   d) FIN packet

8) Which layers are absent in TCP/IP protocol suite ?
   a) Transport
   b) Session
   c) Presentation
   d) Both b) and c)

9) _____ is a suitable transport protocol for multicasting.
   a) UDP
   b) TCP
   c) SMTP
   d) POP3

10) In SCTP, the packet carrying INIT-Chunk _____ carry any other chunks.
   a) can
   b) cannot
   c) may
   d) may not

11) Which of the following is an Application layer service ?
   a) NVT
   b) File transfer, access and management
   c) Mail service
   d) All of these

12) In TCP _____ timer is used during termination.
   a) Keep alive
   b) TIME-WAIT
   c) RTT
   d) Persistence

13) _____ is a technology that creates and handles dynamic documents.
   a) CGI
   b) SNMP
   c) SMTP
   d) www

14) In DHCP, client remains in requesting state unless and until it receives _____ message from server.
   a) DHCPPACK
   b) DHCPDISCOVER
   c) DHCPREQUEST
   d) None of above

_____

SLR-TJ – 249

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER NETWORKS

Day and Date : Tuesday, 5-12-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

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

SECTION – I

2. Attempt **any three** : **(3×4=12)**

A) Differentiate between OSI model and TCP/IP protocol suite.

B) Explain in short types of addresses at different layers of TCP/IP protocol suite.

C) What is UDP ? Explain the services provided by UDP.

D) Explain multiple streams and multihoming services of SCTP.

E) Explain the following system calls with their syntax :

i) socket ( )

ii) bind ( )

iii) connect ( )

iv) listen( ).

3. Attempt **any two** : **16**

A) What is TCP ? Sketch and explain the format of TCP segment header. List the services provided by TCP.

B) Explain the steps to implement connection-oriented concurrent client-server applications with the help of suitable diagram.

C) Explain with diagram the Congestion control policies in TCP.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

   A) Draw and explain DHCP client state transition diagram.

   B) Explain dynamic and active web documents.

   C) Explain the types of resolution in DNS.

   D) What is SSH ? Explain the port forwarding service of SSH.

   E) Write a short note on TFTP.

5. Attempt **any two** : **16**

   A) Draw and explain basic model of FTP. Explain how to create control connection and data connection in FTP.

   B) Draw and explain DHCP packet format in detail.

   C) Explain the E-mail architecture with its four scenarios.

SLR-TJ – 249

Seat No.	

Set R

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER NETWORKS

Day and Date : Tuesday, 5-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **14**

1) In TCP _____ timer is used during termination.
   a) Keep alive b) TIME-WAIT
   c) RTT d) Persistence

2) _____ is a technology that creates and handles dynamic documents.
   a) CGI b) SNMP
   c) SMTP d) www

3) In DHCP, client remains in requesting state unless and until it receives _____ message from server.
   a) DHCPPACK b) DHCPDISCOVER
   c) DHCPREQUEST d) None of above

4) Which of the following well-known TCP ports are used by FTP ?
   a) 20, 21 b) 19, 20 c) 80, 80 d) 20, 80

5) In DNS, each node in the tree has a label, which is a string with a maximum of _____ characters.
   a) 46 b) 63 c) 65 d) 16

6) Which modes are available with the POP3 protocol for email access ?
   a) Keep mode b) Delete mode
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7) A socket system call returns an integer called _____ which uniquely defines the created socket.
   a) Socket number
   b) Socket descriptor
   c) Socket address
   d) All of these

8) The datagram socket is used by _____ processes.
   a) UDP
   b) TCP
   c) SCTP
   d) None of these

9) Which domain section is used for mapping IP address to domain name ?
   a) Inverse domain
   b) Country domains
   c) Generic domains
   d) None of these

10) In TFTP block of less than _____ signals the end of file.
   a) 256 bytes
   b) 512 bytes
   c) Error
   d) FIN packet

11) Which layers are absent in TCP/IP protocol suite ?
   a) Transport
   b) Session
   c) Presentation
   d) Both b) and c)

12) _____ is a suitable transport protocol for multicasting.
   a) UDP
   b) TCP
   c) SMTP
   d) POP3

13) In SCTP, the packet carrying INIT-Chunk _____ carry any other chunks.
   a) can
   b) cannot
   c) may
   d) may not

14) Which of the following is an Application layer service ?
   a) NVT
   b) File transfer, access and management
   c) Mail service
   d) All of these

_____

SLR-TJ – 249

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER NETWORKS

Day and Date : Tuesday, 5-12-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

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

SECTION – I

2. Attempt **any three** : **(3×4=12)**

A) Differentiate between OSI model and TCP/IP protocol suite.

B) Explain in short types of addresses at different layers of TCP/IP protocol suite.

C) What is UDP ? Explain the services provided by UDP.

D) Explain multiple streams and multihoming services of SCTP.

E) Explain the following system calls with their syntax :

i) socket ( )

ii) bind ( )

iii) connect ( )

iv) listen( ).

3. Attempt **any two** : **16**

A) What is TCP ? Sketch and explain the format of TCP segment header. List the services provided by TCP.

B) Explain the steps to implement connection-oriented concurrent client-server applications with the help of suitable diagram.

C) Explain with diagram the Congestion control policies in TCP.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

A) Draw and explain DHCP client state transition diagram.

B) Explain dynamic and active web documents.

C) Explain the types of resolution in DNS.

D) What is SSH ? Explain the port forwarding service of SSH.

E) Write a short note on TFTP.

5. Attempt **any two** : **16**

A) Draw and explain basic model of FTP. Explain how to create control connection and data connection in FTP.

B) Draw and explain DHCP packet format in detail.

C) Explain the E-mail architecture with its four scenarios.

SLR-TJ – 249

Seat No.	

Set S

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER NETWORKS

Day and Date : Tuesday, 5-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option : **14**

1) Which modes are available with the POP3 protocol for email access ?
   a) Keep mode b) Delete mode
   c) Both a) and b) d) None of these

2) A socket system call returns an integer called _____ which uniquely defines the created socket.
   a) Socket number b) Socket descriptor
   c) Socket address d) All of these

3) The datagram socket is used by _____ processes.
   a) UDP b) TCP
   c) SCTP d) None of these

4) Which domain section is used for mapping IP address to domain name ?
   a) Inverse domain b) Country domains
   c) Generic domains d) None of these

5) In TFTP block of less than _____ signals the end of file.
   a) 256 bytes b) 512 bytes
   c) Error d) FIN packet

6) Which layers are absent in TCP/IP protocol suite ?
   a) Transport b) Session
   c) Presentation d) Both b) and c)

7) _____ is a suitable transport protocol for multicasting.
   a) UDP b) TCP c) SMTP d) POP3

8) In SCTP, the packet carrying INIT-Chunk _____ carry any other chunks.
   a) can b) cannot c) may d) may not

9) Which of the following is an Application layer service ?
   a) NVT
   b) File transfer, access and management
   c) Mail service
   d) All of these

10) In TCP _____ timer is used during termination.
   a) Keep alive b) TIME-WAIT
   c) RTT d) Persistence

11) _____ is a technology that creates and handles dynamic documents.
   a) CGI b) SNMP
   c) SMTP d) www

12) In DHCP, client remains in requesting state unless and until it receives _____ message from server.
   a) DHCPPACK b) DHCPDISCOVER
   c) DHCPREQUEST d) None of above

13) Which of the following well-known TCP ports are used by FTP ?
   a) 20, 21 b) 19, 20 c) 80, 80 d) 20, 80

14) In DNS, each node in the tree has a label, which is a string with a maximum of _____ characters.
   a) 46 b) 63 c) 65 d) 16

_____

SLR-TJ – 249

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER NETWORKS

Day and Date : Tuesday, 5-12-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

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

SECTION – I

2. Attempt **any three** : **(3×4=12)**

A) Differentiate between OSI model and TCP/IP protocol suite.

B) Explain in short types of addresses at different layers of TCP/IP protocol suite.

C) What is UDP ? Explain the services provided by UDP.

D) Explain multiple streams and multihoming services of SCTP.

E) Explain the following system calls with their syntax :

i) socket ( )

ii) bind ( )

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3. Attempt **any two** : **16**

A) What is TCP ? Sketch and explain the format of TCP segment header. List the services provided by TCP.

B) Explain the steps to implement connection-oriented concurrent client-server applications with the help of suitable diagram.

C) Explain with diagram the Congestion control policies in TCP.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

A) Draw and explain DHCP client state transition diagram.

B) Explain dynamic and active web documents.

C) Explain the types of resolution in DNS.

D) What is SSH ? Explain the port forwarding service of SSH.

E) Write a short note on TFTP.

5. Attempt **any two** : **16**

A) Draw and explain basic model of FTP. Explain how to create control connection and data connection in FTP.

B) Draw and explain DHCP packet format in detail.

C) Explain the E-mail architecture with its four scenarios.

SLR-TJ – 250

Seat No.	

Set P

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Thursday, 7-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) A problem is NP-Complete if the problem is
   a) NP-Hard b) P only
   c) NP Hard and In NP d) NP Hard but not in NP

2) The minimum integer m to color a particular graph is called as
   a) M + 1 colorability b) n-colorability optimization
   c) Chromatic number d) None

3) For Knapsack problem where n = 3, m = 20 (p1, p2, p3) = (24, 25, 15) and (w1, w2, w3) = (18, 15, 10). The feasible solution is
   a) 24.25 b) 25.25 c) 28.5 d) 31.5

4) Which one of the following algorithm design techniques is used in finding all pairs of shortest distance in graph ?
   a) Dynamic programming b) Backtracking
   c) Greedy method d) Divide and conquer

5) The application of reliability design is
   a) Switching circuits b) Electric Circuits
   c) Kirchhoff's circuits d) Linear circuits

6) The tree organization of solution space is
   a) Answer Tree b) Dynamic tree
   c) State space tree d) Dead tree

7) 0/1 Knapsack problem states that to
   a) Maximize profit
   b) Maximize profit subjected to condition for weight
   c) Maximize weight
   d) None of these

8) Algorithm A is said to be _____ recursive if it call another algorithm which in turn calls A.
   a) Indirect b) Direct c) Pointed d) Related

9) _____ method is used for solving recurrence relation.
   a) Division b) Substitution c) Replacement d) None of these

10) The best average behavior is given by
   a) Quick sort b) Merge sort c) Heap sort d) Insertion sort

11) The flowing strategies complexity function generally is in the form of recurrence relation
   a) Dynamic b) Divide and conquer
   c) a) and b) d) None of these

12) For job sequencing with deadline problem, the execution time required for job with deadline 3 is
   a) 3 b) < = 3 c) 1 d) 2

13) Huffman code is an application of
   a) Optimal storage b) Optimal merge
   c) Optimal retrieval d) None of these

14) Dijkstra's algorithm used _____ method.
   a) Backtracking b) Dynamic programming
   c) Divide and conquer d) Greedy method

_____

SLR-TJ – 250

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Thursday, 7-12-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**

   1) Plot graph of function log n, n, nlogn, n^2 and 2^n.

   2) Explain time and space complexity with suitable example.

   3) Apply binary search on –15, – 6, 0, 7, 9, 23, 54, 82, 101, 112, 125, 131, 142, 151 for searching 151, –14, 9.

   4) Find an optimal placement for 3 tapes T0, T1, T2 where the program lengths are 12, 5, 8, 32, 7, 5, 18, 26, 4, 3, 11, 10, 6.

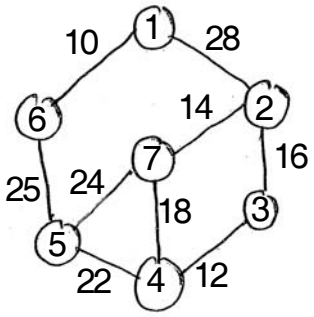
   5) What is greedy approach ? Explain with suitable example.

   6) Write a short note on Huffman codes.

3. Find an optimal solution to the Knapsack instance n = 7, m = 15, (p1,....p7) = (10, 5, 15, 7, 6, 18, 3) and (w1,.....w7) = (2, 3, 5, 7, 1, 4, 1). **8**

OR

Find minimum cost spanning tree using prim's algorithm. **8**



Set P

SECTION – II

4. Attempt **any four** : **(5×4=20)**

   1) Write note on principal of optimality.

   2) Explain OBST.

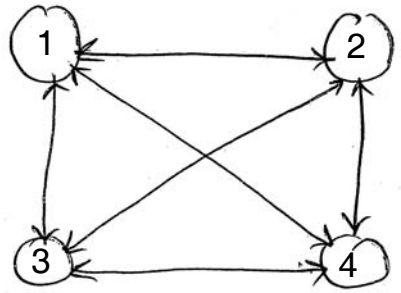
   3) What is meant by Backtracking ? Explain graph coloring problem.

   4) Given = 4, (w1, w2, w3, w4) = (7, 11, 13, 24) using sum of subset algorithm.

   5) Define Hamilton cycle with one example.

   6) Write note on P, NP, NP-Complete, NP-Hard.

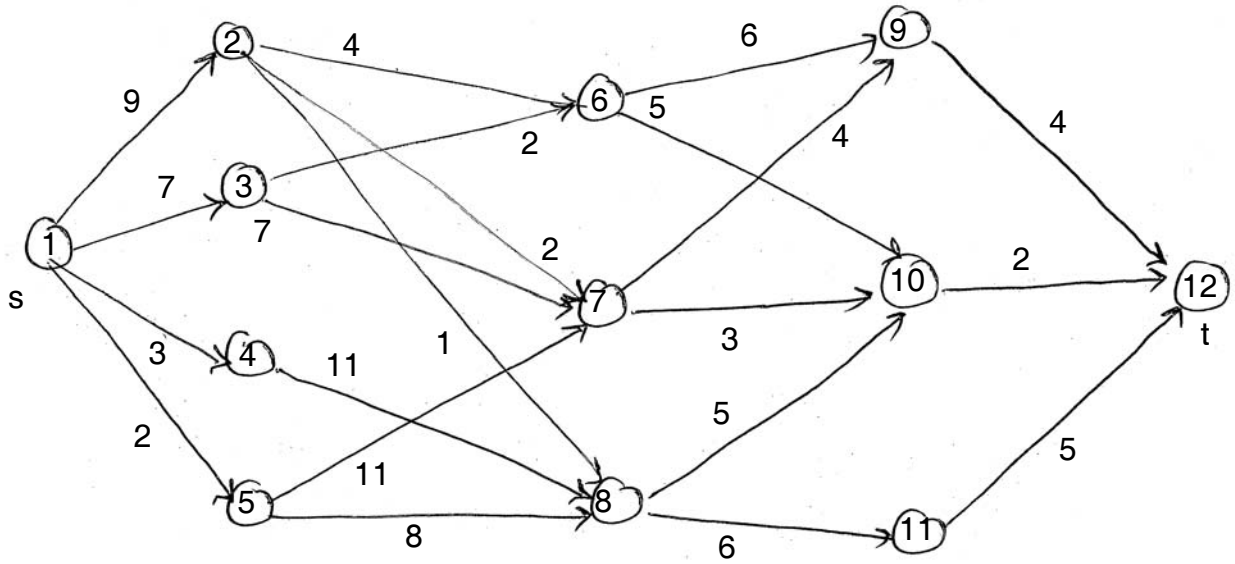
5. Consider the following directed graph and edge length are given by matrix. Find optimal tour length of travelling sales person problem. **8**



$$\begin{bmatrix} 0 & 10 & 15 & 20 \\ 5 & 0 & 9 & 10 \\ 6 & 13 & 0 & 12 \\ 8 & 8 & 9 & 0 \end{bmatrix}$$

OR

Find minimum cost path from s to t of multistage graph using forward approach. **8**



Set P

SLR-TJ – 250

Seat No.	

Set Q

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Thursday, 7-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) Algorithm A is said to be _____ recursive if it call another algorithm which in turn calls A.

a) Indirect b) Direct c) Pointed d) Related

2) _____ method is used for solving recurrence relation.

a) Division b) Substitution c) Replacement d) None of these

3) The best average behavior is given by

a) Quick sort b) Merge sort c) Heap sort d) Insertion sort

4) The flowing strategies complexity function generally is in the form of recurrence relation

a) Dynamic b) Divide and conquer
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   a) M + 1 colorability
   b) n-colorability optimization
   c) Chromatic number
   d) None

10) For Knapsack problem where n = 3, m = 20 (p1, p2, p3) = (24, 25, 15) and (w1, w2, w3) = (18, 15, 10). The feasible solution is
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   b) 25.25
   c) 28.5
   d) 31.5

11) Which one of the following algorithm design techniques is used in finding all pairs of shortest distance in graph ?
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13) The tree organization of solution space is
   a) Answer Tree
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   d) Dead tree

14) 0/1 Knapsack problem states that to
   a) Maximize profit
   b) Maximize profit subjected to condition for weight
   c) Maximize weight
   d) None of these

_____

SLR-TJ – 250

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Thursday, 7-12-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**

   1) Plot graph of function log n, n, nlogn, n^2 and 2^n.

   2) Explain time and space complexity with suitable example.

   3) Apply binary search on –15, – 6, 0, 7, 9, 23, 54, 82, 101, 112, 125, 131, 142, 151 for searching 151, –14, 9.

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OR

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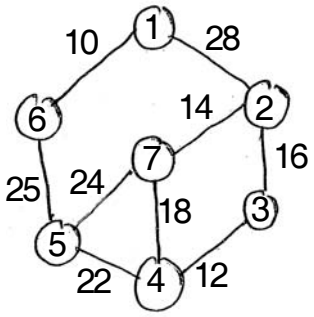

Set Q

SECTION – II

4. Attempt **any four** : **(5×4=20)**

   1) Write note on principal of optimality.

   2) Explain OBST.

   3) What is meant by Backtracking ? Explain graph coloring problem.

   4) Given = 4, (w1, w2, w3, w4) = (7, 11, 13, 24) using sum of subset algorithm.

   5) Define Hamilton cycle with one example.

   6) Write note on P, NP, NP-Complete, NP-Hard.

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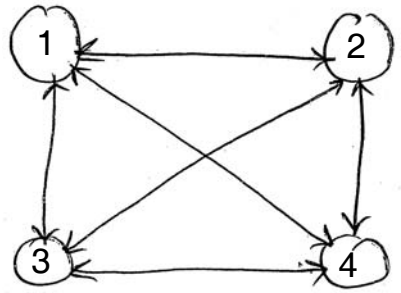
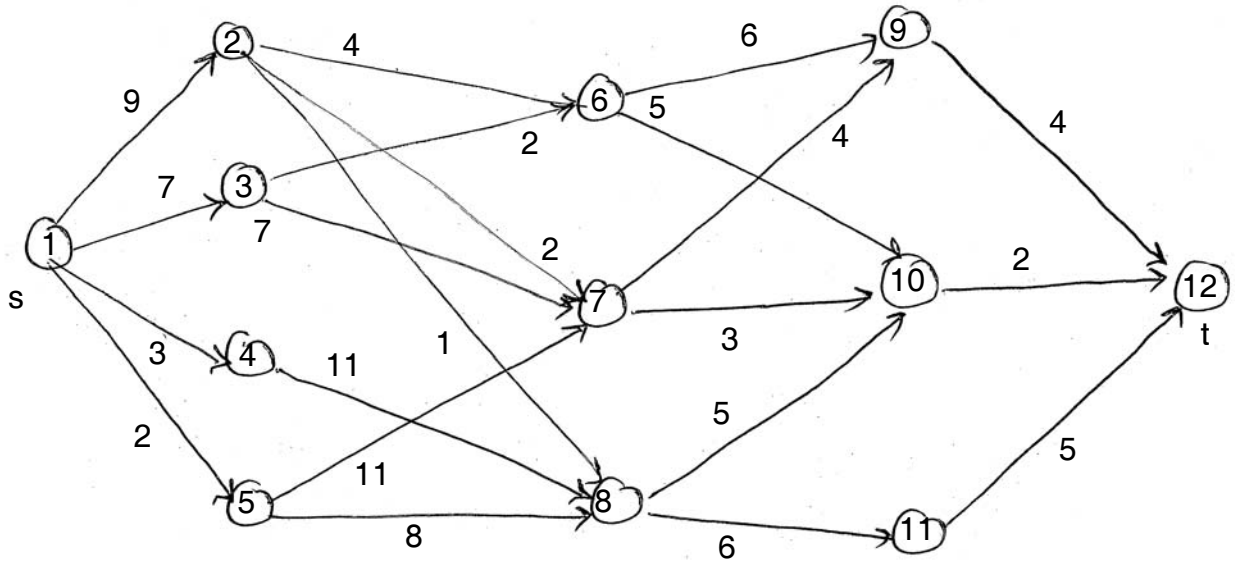


$$\begin{bmatrix} 0 & 10 & 15 & 20 \\ 5 & 0 & 9 & 10 \\ 6 & 13 & 0 & 12 \\ 8 & 8 & 9 & 0 \end{bmatrix}$$

OR

Find minimum cost path from s to t of multistage graph using forward approach. **8**



Set Q

SLR-TJ – 250

Seat No.	

Set R

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Thursday, 7-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) The application of reliability design is
   a) Switching circuits b) Electric Circuits
   c) Kirchhoff's circuits d) Linear circuits

2) The tree organization of solution space is
   a) Answer Tree b) Dynamic tree
   c) State space tree d) Dead tree

3) 0/1 Knapsack problem states that to
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8) For job sequencing with deadline problem, the execution time required for job with deadline 3 is
   a) 3
   b) < = 3
   c) 1
   d) 2

9) Huffman code is an application of
   a) Optimal storage
   b) Optimal merge
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10) Dijkstra's algorithm used _____ method.
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   a) NP-Hard
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_____

SLR-TJ – 250

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Thursday, 7-12-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**

   1) Plot graph of function log n, n, nlogn, n^2 and 2^n.

   2) Explain time and space complexity with suitable example.

   3) Apply binary search on –15, – 6, 0, 7, 9, 23, 54, 82, 101, 112, 125, 131, 142, 151 for searching 151, –14, 9.

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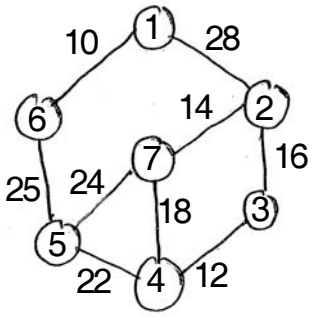
OR

Find minimum cost spanning tree using prim's algorithm. **8**



SECTION – II

4. Attempt **any four** : **(5×4=20)**

   1) Write note on principal of optimality.

   2) Explain OBST.

   3) What is meant by Backtracking ? Explain graph coloring problem.

   4) Given = 4, (w1, w2, w3, w4) = (7, 11, 13, 24) using sum of subset algorithm.

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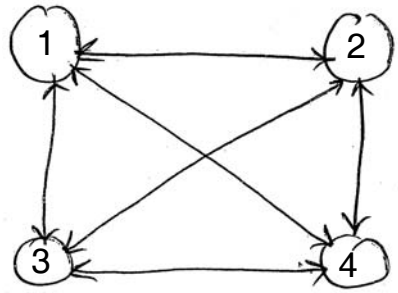

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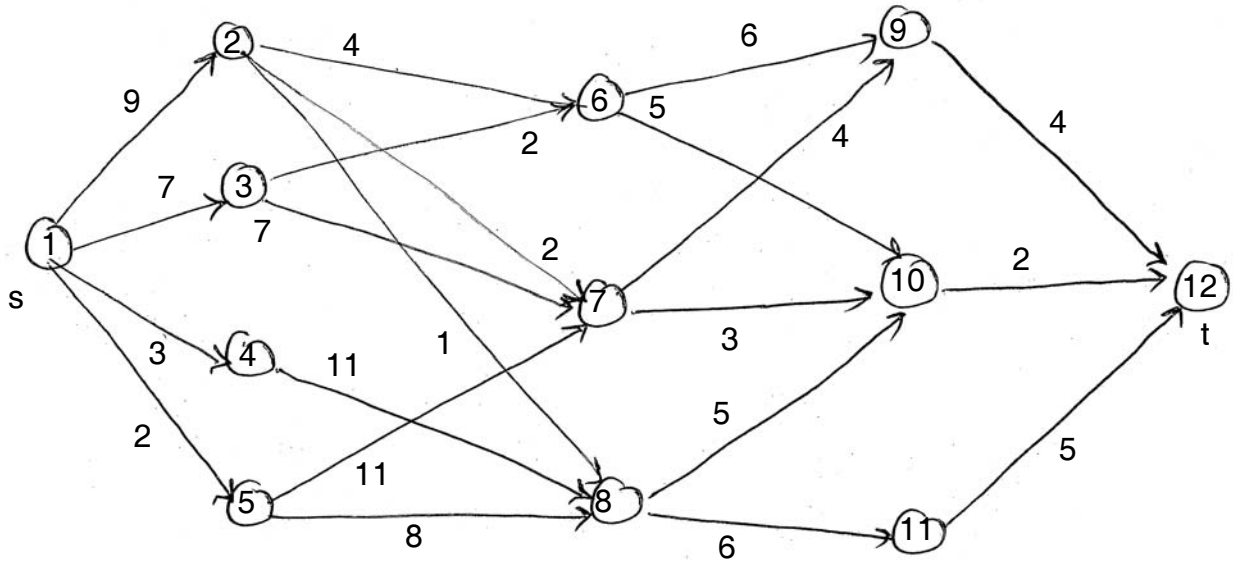

Set R

SLR-TJ – 250

Seat No.	

Set S

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Thursday, 7-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) The best average behavior is given by
   a) Quick sort b) Merge sort c) Heap sort d) Insertion sort

2) The flowing strategies complexity function generally is in the form of recurrence relation
   a) Dynamic b) Divide and conquer
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12) 0/1 Knapsack problem states that to
   a) Maximize profit
   b) Maximize profit subjected to condition for weight
   c) Maximize weight
   d) None of these

13) Algorithm A is said to be _____ recursive if it call another algorithm which in turn calls A.
   a) Indirect
   b) Direct
   c) Pointed
   d) Related

14) _____ method is used for solving recurrence relation.
   a) Division
   b) Substitution
   c) Replacement
   d) None of these

_____

SLR-TJ – 250

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
DESIGN AND ANALYSIS OF ALGORITHM

Day and Date : Thursday, 7-12-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**

   1) Plot graph of function log n, n, nlogn, n^2 and 2^n.

   2) Explain time and space complexity with suitable example.

   3) Apply binary search on –15, – 6, 0, 7, 9, 23, 54, 82, 101, 112, 125, 131, 142, 151 for searching 151, –14, 9.

   4) Find an optimal placement for 3 tapes T0, T1, T2 where the program lengths are 12, 5, 8, 32, 7, 5, 18, 26, 4, 3, 11, 10, 6.

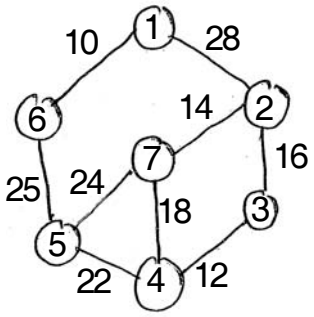
   5) What is greedy approach ? Explain with suitable example.

   6) Write a short note on Huffman codes.

3. Find an optimal solution to the Knapsack instance n = 7, m = 15, (p1,....p7) = (10, 5, 15, 7, 6, 18, 3) and (w1,.....w7) = (2, 3, 5, 7, 1, 4, 1). **8**

OR

Find minimum cost spanning tree using prim's algorithm. **8**



Set S

SECTION – II

4. Attempt **any four** : **(5×4=20)**

   1) Write note on principal of optimality.

   2) Explain OBST.

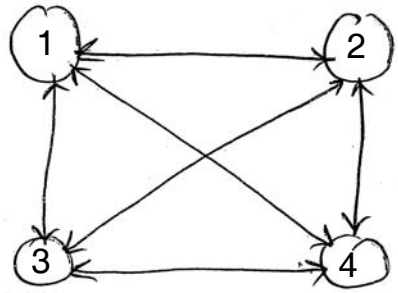
   3) What is meant by Backtracking ? Explain graph coloring problem.

   4) Given = 4, (w1, w2, w3, w4) = (7, 11, 13, 24) using sum of subset algorithm.

   5) Define Hamilton cycle with one example.

   6) Write note on P, NP, NP-Complete, NP-Hard.

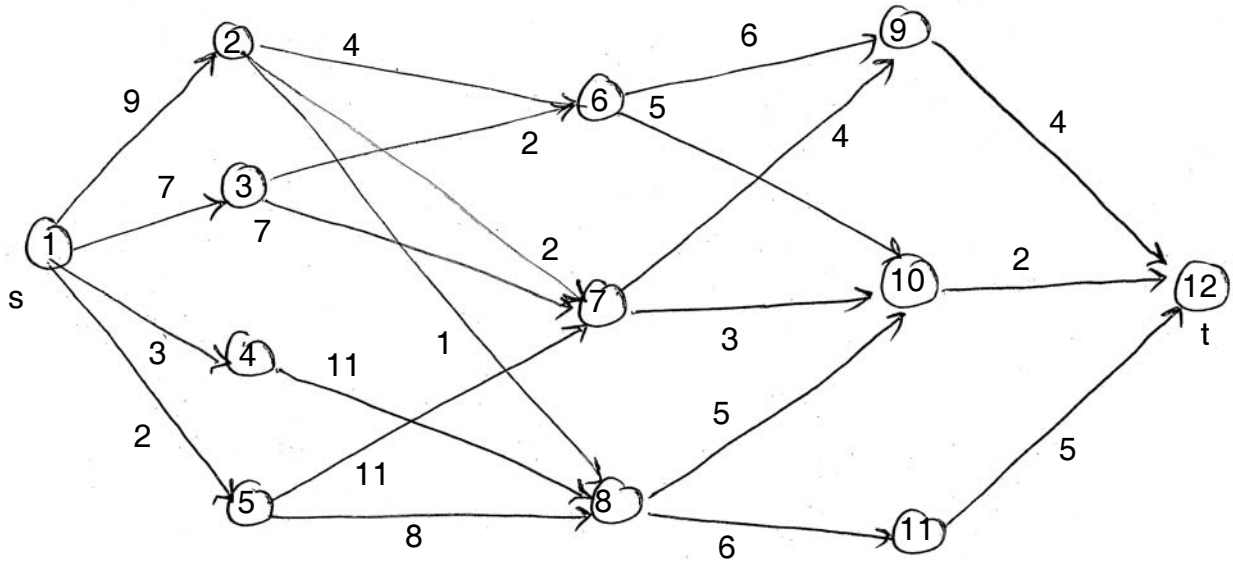
5. Consider the following directed graph and edge length are given by matrix. Find optimal tour length of travelling sales person problem. **8**



$$\begin{bmatrix} 0 & 10 & 15 & 20 \\ 5 & 0 & 9 & 10 \\ 6 & 13 & 0 & 12 \\ 8 & 8 & 9 & 0 \end{bmatrix}$$

OR

Find minimum cost path from s to t of multistage graph using forward approach. **8**



Set S

SLR-TJ – 251

Seat No.	

Set P

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER ORGANIZATION

Day and Date : Saturday, 9-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Figure to the **right** indicates **full** marks.*
*2) **Assume** data **wherever** necessary.*
*3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.*
*4) **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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) Common Business Oriented Language was developed in _____ generation.
a) Fourth b) Second c) Third d) First

2) Advantage of IC technology is
a) Smaller size b) Higher speed
c) Lower hardware cost d) All of the above

3) MOVE X,C is a
a) Three address machine instruction
b) Two address machine instruction
c) One address machine instruction
d) None of the options

4) _____ architecture supports for large set of instructions with variable formats.
a) CISC b) RISC
c) Both RISC and CISC d) None of the options

5) ADD (R1), R0 is _____type of addressing mode.
a) Register b) Immediate
c) Indirect d) Relative

6) Which of the following function is performed by C4 control signal of two's complement multiplier ?
   a) Transfer adder output to A
   b) Transfer A to left input of adder
   c) Transfer M to right input of adder
   d) Transfer A to OUTBUS

7) _____ are the different type/s of generating control signals.
   a) Micro-programmed
   b) Hardwired
   c) Micro-instruction
   d) Both a) and b)

8) The avg time t_A for the CPU to access a word in the two level memories is given by
   a) $t_A = (1+H)t_{A1} + Ht_{A2}$
   b) $t_A = (1-H)t_{A1} + Ht_{A2}$
   c) $t_A = Ht_{A1} - (1+H)t_{A2}$
   d) $t_A = Ht_{A1} + (1-H)t_{A2}$

9) Access time is less for
   a) Static RAM
   b) Dynamic RAM
   c) Magnetic Tape
   d) Magnetic disk

10) Write through technique is used in which memory for updating the data ?
   a) Virtual memory
   b) Main memory
   c) Auxiliary memory
   d) Cache memory

11) Which list contains the address of block that is available ?
   a) Occupied
   b) Directory
   c) Available
   d) None of above

12) The routine executed in response to an interrupt request is called as
   a) Interrupt service routine
   b) Interrupt request
   c) Interrupt acknowledge
   d) None

13) When I/O devices and memory share the same address space, the management is called as
   a) Memory mapped I/O
   b) I/O mapped I/O
   c) I/O interface
   d) I/O device

14) The hazard arises when an instruction depends on results of previous instruction is called
   a) Control hazard
   b) Data hazard
   c) Structural hazard
   d) None

_____

SLR-TJ – 251

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER ORGANIZATION

Day and Date : Saturday, 9-12-2017 Max. Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Answer **all** the questions from Section **I** and **II**.*
*2) Figure to the **right** indicates **full** marks.*
*3) **Assume** data **wherever** necessary.*

SECTION – I

2. Answer **any three** questions : **(3×4=12)**

   1) Write a note on ENIAC and EDVAC.

   2) Multiply 2 and – 5 using Booth multiplication algorithm.

   3) Represent +12.375 into single precision format.

   4) What are the functions of internal control signals for the two's complement multiplier ?

3. Answer **any two** questions : **(2×8=16)**

   1) Write a note on third generation of computer.

   2) Perform 29/3 using non-restoring division method.

   3) Explain multiplier control unit using a sequence counter.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

   1) Explain two stage address translation using segment and pages.

   2) Differentiate between linear and non-linear pipelining.

   3) Explain the concept of interrupts.

   4) With neat diagram, explain any one shared memory multiprocessor model.

5. Attempt **any two** : **(2×8=16)**

   1) With neat diagram, explain architecture of vector computer. Explain types of vector instructions.

   2) With neat diagram, explain the cache execution of read and write operation.

   3) What are hazards ? Write a note on control hazards.

SLR-TJ – 251

Seat No.	

Set Q

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER ORGANIZATION

Day and Date : Saturday, 9-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Figure to the **right** indicates **full** marks.*
*2) **Assume** data **wherever** necessary.*
*3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.*
*4) **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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) The avg time t_A for the CPU to access a word in the two level memories is given by
   a) $t_A = (1+H)t_{A1} + Ht_{A2}$ b) $t_A = (1–H)t_{A1} + Ht_{A2}$
   c) $t_A = Ht_{A1} – (1+H)t_{A2}$ d) $t_A = Ht_{A1} + (1– H)t_{A2}$

2) Access time is less for
   a) Static RAM b) Dynamic RAM
   c) Magnetic Tape d) Magnetic disk

3) Write through technique is used in which memory for updating the data ?
   a) Virtual memory b) Main memory
   c) Auxiliary memory d) Cache memory

4) Which list contains the address of block that is available ?
   a) Occupied b) Directory c) Available d) None of above

5) The routine executed in response to an interrupt request is called as
   a) Interrupt service routine b) Interrupt request
   c) Interrupt acknowledge d) None

6) When I/O devices and memory share the same address space, the management is called as
   a) Memory mapped I/O b) I/O mapped I/O
   c) I/O interface d) I/O device

P.T.O.

7) The hazard arises when an instruction depends on results of previous instruction is called
   a) Control hazard
   b) Data hazard
   c) Structural hazard
   d) None

8) Common Business Oriented Language was developed in _____ generation.
   a) Fourth
   b) Second
   c) Third
   d) First

9) Advantage of IC technology is
   a) Smaller size
   b) Higher speed
   c) Lower hardware cost
   d) All of the above

10) MOVE X,C is a
   a) Three address machine instruction
   b) Two address machine instruction
   c) One address machine instruction
   d) None of the options

11) _____ architecture supports for large set of instructions with variable formats.
   a) CISC
   b) RISC
   c) Both RISC and CISC
   d) None of the options

12) ADD (R1), R0 is _____type of addressing mode.
   a) Register
   b) Immediate
   c) Indirect
   d) Relative

13) Which of the following function is performed by C4 control signal of two's complement multiplier ?
   a) Transfer adder output to A
   b) Transfer A to left input of adder
   c) Transfer M to right input of adder
   d) Transfer A to OUTBUS

14) _____ are the different type/s of generating control signals.
   a) Micro-programmed
   b) Hardwired
   c) Micro-instruction
   d) Both a) and b)

_____

SLR-TJ – 251

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER ORGANIZATION

Day and Date : Saturday, 9-12-2017 Max. Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Answer **all** the questions from Section **I** and **II**.*
*2) Figure to the **right** indicates **full** marks.*
*3) **Assume** data **wherever** necessary.*

SECTION – I

2. Answer **any three** questions : **(3×4=12)**

1) Write a note on ENIAC and EDVAC.

2) Multiply 2 and – 5 using Booth multiplication algorithm.

3) Represent +12.375 into single precision format.

4) What are the functions of internal control signals for the two's complement multiplier ?

3. Answer **any two** questions : **(2×8=16)**

1) Write a note on third generation of computer.

2) Perform 29/3 using non-restoring division method.

3) Explain multiplier control unit using a sequence counter.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

   1) Explain two stage address translation using segment and pages.

   2) Differentiate between linear and non-linear pipelining.

   3) Explain the concept of interrupts.

   4) With neat diagram, explain any one shared memory multiprocessor model.

5. Attempt **any two** : **(2×8=16)**

   1) With neat diagram, explain architecture of vector computer. Explain types of vector instructions.

   2) With neat diagram, explain the cache execution of read and write operation.

   3) What are hazards ? Write a note on control hazards.

_____

SLR-TJ – 251

Seat No.	

Set R

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER ORGANIZATION

Day and Date : Saturday, 9-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Figure to the **right** indicates **full** marks.*
*2) **Assume** data **wherever** necessary.*
*3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.*
*4) **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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) ADD (R1), R0 is _____type of addressing mode.
   a) Register b) Immediate
   c) Indirect d) Relative

2) Which of the following function is performed by C4 control signal of two's complement multiplier ?
   a) Transfer adder output to A
   b) Transfer A to left input of adder
   c) Transfer M to right input of adder
   d) Transfer A to OUTBUS

3) _____ are the different type/s of generating control signals.
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   c) Micro-instruction d) Both a) and b)

4) The avg time t_A for the CPU to access a word in the two level memories is given by
   a) $t_A = (1+H)t_{A1} + Ht_{A2}$ b) $t_A = (1-H)t_{A1} + Ht_{A2}$
   c) $t_A = Ht_{A1} - (1+H)t_{A2}$ d) $t_A = Ht_{A1} + (1-H)t_{A2}$

5) Access time is less for
   a) Static RAM b) Dynamic RAM
   c) Magnetic Tape d) Magnetic disk

P.T.O.

6) Write through technique is used in which memory for updating the data ?
   a) Virtual memory b) Main memory
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7) Which list contains the address of block that is available ?
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8) The routine executed in response to an interrupt request is called as
   a) Interrupt service routine b) Interrupt request
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9) When I/O devices and memory share the same address space, the management is called as
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   c) I/O interface d) I/O device

10) The hazard arises when an instruction depends on results of previous instruction is called
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   c) Structural hazard d) None

11) Common Business Oriented Language was developed in _____ generation.
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12) Advantage of IC technology is
   a) Smaller size b) Higher speed
   c) Lower hardware cost d) All of the above

13) MOVE X,C is a
   a) Three address machine instruction
   b) Two address machine instruction
   c) One address machine instruction
   d) None of the options

14) _____ architecture supports for large set of instructions with variable formats.
   a) CISC b) RISC
   c) Both RISC and CISC d) None of the options

_____

SLR-TJ – 251

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER ORGANIZATION

Day and Date : Saturday, 9-12-2017 Max. Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Answer **all** the questions from Section **I** and **II**.*
*2) Figure to the **right** indicates **full** marks.*
*3) **Assume** data **wherever** necessary.*

SECTION – I

2. Answer **any three** questions : **(3×4=12)**

   1) Write a note on ENIAC and EDVAC.

   2) Multiply 2 and – 5 using Booth multiplication algorithm.

   3) Represent +12.375 into single precision format.

   4) What are the functions of internal control signals for the two's complement multiplier ?

3. Answer **any two** questions : **(2×8=16)**

   1) Write a note on third generation of computer.

   2) Perform 29/3 using non-restoring division method.

   3) Explain multiplier control unit using a sequence counter.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

   1) Explain two stage address translation using segment and pages.

   2) Differentiate between linear and non-linear pipelining.

   3) Explain the concept of interrupts.

   4) With neat diagram, explain any one shared memory multiprocessor model.

5. Attempt **any two** : **(2×8=16)**

   1) With neat diagram, explain architecture of vector computer. Explain types of vector instructions.

   2) With neat diagram, explain the cache execution of read and write operation.

   3) What are hazards ? Write a note on control hazards.

SLR-TJ – 251

Seat No.	

Set S

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER ORGANIZATION

Day and Date : Saturday, 9-12-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Figure to the **right** indicates **full** marks.*
*2) **Assume** data **wherever** necessary.*
*3) Q. No. **1** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.*
*4) **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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) Write through technique is used in which memory for updating the data ?
a) Virtual memory b) Main memory
c) Auxiliary memory d) Cache memory

2) Which list contains the address of block that is available ?
a) Occupied b) Directory c) Available d) None of above

3) The routine executed in response to an interrupt request is called as
a) Interrupt service routine b) Interrupt request
c) Interrupt acknowledge d) None

4) When I/O devices and memory share the same address space, the management is called as
a) Memory mapped I/O b) I/O mapped I/O
c) I/O interface d) I/O device

5) The hazard arises when an instruction depends on results of previous instruction is called
a) Control hazard b) Data hazard
c) Structural hazard d) None

6) Common Business Oriented Language was developed in _____ generation.
a) Fourth b) Second c) Third d) First

7) Advantage of IC technology is
   a) Smaller size
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   c) Lower hardware cost
   d) All of the above

8) MOVE X,C is a
   a) Three address machine instruction
   b) Two address machine instruction
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   d) None of the options

9) _____ architecture supports for large set of instructions with variable formats.
   a) CISC
   b) RISC
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10) ADD (R1), R0 is _____type of addressing mode.
   a) Register
   b) Immediate
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11) Which of the following function is performed by C4 control signal of two's complement multiplier ?
   a) Transfer adder output to A
   b) Transfer A to left input of adder
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   b) Hardwired
   c) Micro-instruction
   d) Both a) and b)

13) The avg time t_A for the CPU to access a word in the two level memories is given by
   a) $t_A = (1+H)t_{A1} + Ht_{A2}$
   b) $t_A = (1-H)t_{A1} + Ht_{A2}$
   c) $t_A = Ht_{A1} - (1+H)t_{A2}$
   d) $t_A = Ht_{A1} + (1-H)t_{A2}$

14) Access time is less for
   a) Static RAM
   b) Dynamic RAM
   c) Magnetic Tape
   d) Magnetic disk

_____

SLR-TJ – 251

Seat No.	

T.E. (CSE) (Part – I) (CGPA) Examination, 2017
COMPUTER ORGANIZATION

Day and Date : Saturday, 9-12-2017 Max. Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Answer **all** the questions from Section **I** and **II**.*
*2) Figure to the **right** indicates **full** marks.*
*3) **Assume** data **wherever** necessary.*

SECTION – I

2. Answer **any three** questions : **(3×4=12)**

   1) Write a note on ENIAC and EDVAC.

   2) Multiply 2 and – 5 using Booth multiplication algorithm.

   3) Represent +12.375 into single precision format.

   4) What are the functions of internal control signals for the two's complement multiplier ?

3. Answer **any two** questions : **(2×8=16)**

   1) Write a note on third generation of computer.

   2) Perform 29/3 using non-restoring division method.

   3) Explain multiplier control unit using a sequence counter.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

   1) Explain two stage address translation using segment and pages.

   2) Differentiate between linear and non-linear pipelining.

   3) Explain the concept of interrupts.

   4) With neat diagram, explain any one shared memory multiprocessor model.

5. Attempt **any two** : **(2×8=16)**

   1) With neat diagram, explain architecture of vector computer. Explain types of vector instructions.

   2) With neat diagram, explain the cache execution of read and write operation.

   3) What are hazards ? Write a note on control hazards.

_____

SLR-TJ – 253

Seat No.	

Set P

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATABASE ENGINEERING

Day and Date : Tuesday, 21-11-2017 Max. Marks : 70

Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer. **(1×14=14)**

1) Select _____ from instructor where dept name = 'Comp. Sci.'; which of the following should be used to find the mean of the salary ?
   A) Mean(salary) B) Avg(salary)
   C) Sum(salary) D) Count(salary)

2) All aggregate functions except _____ ignore null values in their input collection.
   A) Count(attribute) B) Count(*)
   C) Avg D) Sum

3) An _____ on an attribute of a relation is a data structure that allows the database system to find those tuples in the relation that have a specified value for that attribute efficiently, without scanning through all the tuples of the relation.
   A) Index B) Reference C) Assertion D) Timestamp

4) Consider attributes ID, CITY and NAME. Which one of this can be considered as a super key ?
   A) NAME B) ID C) CITY D) CITY, ID

5) A _____ is a property of the entire relation, rather than of the individual tuples in which each tuple is unique.
   A) Rows B) Key C) Attribute D) Fields

6) 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

7) Functional dependencies are the types of constraints that are based on
   A) Key
   B) Key revisited
   C) Superset key
   D) None of these

8) 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

9) 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

10) Which of the join operations do not preserve non matched tuples ?
   A) Left outer join
   B) Right outer join
   C) Inner join
   D) None of these

11) Data that can be modeled as dimension attributes and measure attributes are called _____ data.
   A) Multi dimensional
   B) Single dimensional
   C) Measured
   D) Dimensional

12) For a transaction to be durable, its changes need to be written to _____ storage.
   A) Volatile storage
   B) Non-volatile storage
   C) Stable storage
   D) Dynamic storage

13) In case of any shut down during transaction before commit which of the following statement is done automatically ?
   A) View
   B) Commit
   C) Rollback
   D) Flashback

14) How many types of indexes are there in sql server ?
   A) 1
   B) 2
   C) 3
   D) 4

_____

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATABASE ENGINEERING

Day and Date : Tuesday, 21-11-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any three** : **(3×4=12)**

   a) Explain 3 level architecture of DBMS.

   b) Differentiate between tuple relational calculus and domain relational calculus.

   c) Explain SELECT and PROJECT operation with suitable example.

   d) Explain BCNF with suitable example.

3. Explain relational schema and E-R schema. Discuss precisely reduction process of E-R schema to relational schema. (Assume suitable data).

   OR

   Explain with suitable example DDL and DML. **8**

4. A University Registrar's Office maintains data about the following entities : **8**

   i) courses, including number, title, credits, syllabus and prerequisites;

   ii) course offerings, including course number, year, semester, section number, instructor(s), timings and classroom;

   iii) students, including student-id, name and program;

   iv) instructors, including identification number, name, department and title.

   Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the Registrar's office. Document all assumptions that you make about the mapping constraints.

SECTION – II

5. Attempt **any 3** : **(3×4=12)**

   a) Explain cascaded rollback with example.

   b) Explain generation of update and commit record in log file.

   c) Explain shadow paging.

   d) Give and explain the good reasons for allowing concurrency in detail.

6. Explain insertion and deletion in B+ tree used in file organisation. **8**

   OR

   List and explain ACID properties with suitable example.

7. Write a C++/Java program to simulate any one concurrency control protocol. **8**

SLR-TJ – 253

Seat No.	

Set Q

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATABASE ENGINEERING

Day and Date : Tuesday, 21-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer. **(1×14=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) 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

3) Which of the join operations do not preserve non matched tuples ?
A) Left outer join B) Right outer join
C) Inner join D) None of these

4) Data that can be modeled as dimension attributes and measure attributes are called _____ data.
A) Multi dimensional B) Single dimensional
C) Measured D) Dimensional

5) For a transaction to be durable, its changes need to be written to _____ storage.
A) Volatile storage B) Non-volatile storage
C) Stable storage D) Dynamic storage

6) In case of any shut down during transaction before commit which of the following statement is done automatically ?
A) View B) Commit C) Rollback D) Flashback

7) How many types of indexes are there in sql server ?
   A) 1 B) 2 C) 3 D) 4

8) Select _____ from instructor where dept name = 'Comp. Sci.'; which of the following should be used to find the mean of the salary ?
   A) Mean(salary) B) Avg(salary)
   C) Sum(salary) D) Count(salary)

9) All aggregate functions except _____ ignore null values in their input collection.
   A) Count(attribute) B) Count(*)
   C) Avg D) Sum

10) An _____ on an attribute of a relation is a data structure that allows the database system to find those tuples in the relation that have a specified value for that attribute efficiently, without scanning through all the tuples of the relation.
   A) Index B) Reference C) Assertion D) Timestamp

11) Consider attributes ID, CITY and NAME. Which one of this can be considered as a super key ?
   A) NAME B) ID C) CITY D) CITY, ID

12) A _____ is a property of the entire relation, rather than of the individual tuples in which each tuple is unique.
   A) Rows B) Key C) Attribute D) Fields

13) 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

14) Functional dependencies are the types of constraints that are based on
   A) Key B) Key revisited
   C) Superset key D) None of these

_____

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATABASE ENGINEERING

Day and Date : Tuesday, 21-11-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any three** : **(3×4=12)**

   a) Explain 3 level architecture of DBMS.

   b) Differentiate between tuple relational calculus and domain relational calculus.

   c) Explain SELECT and PROJECT operation with suitable example.

   d) Explain BCNF with suitable example.

3. Explain relational schema and E-R schema. Discuss precisely reduction process of E-R schema to relational schema. (Assume suitable data).

   OR

   Explain with suitable example DDL and DML. **8**

4. A University Registrar's Office maintains data about the following entities : **8**

   i) courses, including number, title, credits, syllabus and prerequisites;

   ii) course offerings, including course number, year, semester, section number, instructor(s), timings and classroom;

   iii) students, including student-id, name and program;

   iv) instructors, including identification number, name, department and title.

   Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the Registrar's office. Document all assumptions that you make about the mapping constraints.

SECTION – II

5. Attempt **any 3** : **(3×4=12)**

   a) Explain cascaded rollback with example.

   b) Explain generation of update and commit record in log file.

   c) Explain shadow paging.

   d) Give and explain the good reasons for allowing concurrency in detail.

6. Explain insertion and deletion in B+ tree used in file organisation. **8**

   OR

   List and explain ACID properties with suitable example.

7. Write a C++/Java program to simulate any one concurrency control protocol. **8**

SLR-TJ – 253

Seat No.	

Set R

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATABASE ENGINEERING

Day and Date : Tuesday, 21-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer. **(1×14=14)**

1) A _____ is a property of the entire relation, rather than of the individual tuples in which each tuple is unique.
   A) Rows B) Key C) Attribute D) Fields

2) 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

3) Functional dependencies are the types of constraints that are based on
   A) Key B) Key revisited
   C) Superset key D) None of these

4) 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

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) Which of the join operations do not preserve non matched tuples ?
   A) Left outer join B) Right outer join
   C) Inner join D) None of these

7) Data that can be modeled as dimension attributes and measure attributes are called _____ data.
   A) Multi dimensional B) Single dimensional
   C) Measured D) Dimensional

8) For a transaction to be durable, its changes need to be written to _____ storage.
   A) Volatile storage B) Non-volatile storage
   C) Stable storage D) Dynamic storage

9) In case of any shut down during transaction before commit which of the following statement is done automatically ?
   A) View B) Commit C) Rollback D) Flashback

10) How many types of indexes are there in sql server ?
   A) 1 B) 2 C) 3 D) 4

11) Select _____ from instructor where dept name = 'Comp. Sci.'; which of the following should be used to find the mean of the salary ?
   A) Mean(salary) B) Avg(salary)
   C) Sum(salary) D) Count(salary)

12) All aggregate functions except _____ ignore null values in their input collection.
   A) Count(attribute) B) Count(*)
   C) Avg D) Sum

13) An _____ on an attribute of a relation is a data structure that allows the database system to find those tuples in the relation that have a specified value for that attribute efficiently, without scanning through all the tuples of the relation.
   A) Index B) Reference C) Assertion D) Timestamp

14) Consider attributes ID, CITY and NAME. Which one of this can be considered as a super key ?
   A) NAME B) ID C) CITY D) CITY, ID

_____

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATABASE ENGINEERING

Day and Date : Tuesday, 21-11-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any three** : **(3×4=12)**

   a) Explain 3 level architecture of DBMS.

   b) Differentiate between tuple relational calculus and domain relational calculus.

   c) Explain SELECT and PROJECT operation with suitable example.

   d) Explain BCNF with suitable example.

3. Explain relational schema and E-R schema. Discuss precisely reduction process of E-R schema to relational schema. (Assume suitable data).

   OR

   Explain with suitable example DDL and DML. **8**

4. A University Registrar's Office maintains data about the following entities : **8**

   i) courses, including number, title, credits, syllabus and prerequisites;

   ii) course offerings, including course number, year, semester, section number, instructor(s), timings and classroom;

   iii) students, including student-id, name and program;

   iv) instructors, including identification number, name, department and title.

   Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the Registrar's office. Document all assumptions that you make about the mapping constraints.

SECTION – II

5. Attempt **any 3** : **(3×4=12)**

   a) Explain cascaded rollback with example.

   b) Explain generation of update and commit record in log file.

   c) Explain shadow paging.

   d) Give and explain the good reasons for allowing concurrency in detail.

6. Explain insertion and deletion in B+ tree used in file organisation. **8**

   OR

   List and explain ACID properties with suitable example.

7. Write a C++/Java program to simulate any one concurrency control protocol. **8**

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SLR-TJ – 253

Seat No.	

Set S

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATABASE ENGINEERING

Day and Date : Tuesday, 21-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer. **(1×14=14)**

1) Which of the join operations do not preserve non matched tuples ?
   A) Left outer join B) Right outer join
   C) Inner join D) None of these

2) Data that can be modeled as dimension attributes and measure attributes are called _____ data.
   A) Multi dimensional B) Single dimensional
   C) Measured D) Dimensional

3) For a transaction to be durable, its changes need to be written to _____ storage.
   A) Volatile storage B) Non-volatile storage
   C) Stable storage D) Dynamic storage

4) In case of any shut down during transaction before commit which of the following statement is done automatically ?
   A) View B) Commit C) Rollback D) Flashback

5) How many types of indexes are there in sql server ?
   A) 1 B) 2 C) 3 D) 4

6) Select _____ from instructor where dept name = 'Comp. Sci.'; which of the following should be used to find the mean of the salary ?
   A) Mean(salary) B) Avg(salary)
   C) Sum(salary) D) Count(salary)

7) All aggregate functions except _____ ignore null values in their input collection.
   A) Count(attribute) B) Count(*)
   C) Avg D) Sum

8) An _____ on an attribute of a relation is a data structure that allows the database system to find those tuples in the relation that have a specified value for that attribute efficiently, without scanning through all the tuples of the relation.
   A) Index B) Reference C) Assertion D) Timestamp

9) Consider attributes ID, CITY and NAME. Which one of this can be considered as a super key ?
   A) NAME B) ID C) CITY D) CITY, ID

10) A _____ is a property of the entire relation, rather than of the individual tuples in which each tuple is unique.
   A) Rows B) Key C) Attribute D) Fields

11) 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

12) Functional dependencies are the types of constraints that are based on
   A) Key B) Key revisited
   C) Superset key D) None of these

13) 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

14) 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

_____

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
DATABASE ENGINEERING

Day and Date : Tuesday, 21-11-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any three** : **(3×4=12)**

   a) Explain 3 level architecture of DBMS.

   b) Differentiate between tuple relational calculus and domain relational calculus.

   c) Explain SELECT and PROJECT operation with suitable example.

   d) Explain BCNF with suitable example.

3. Explain relational schema and E-R schema. Discuss precisely reduction process of E-R schema to relational schema. (Assume suitable data).

   OR

   Explain with suitable example DDL and DML. **8**

4. A University Registrar's Office maintains data about the following entities : **8**

   i) courses, including number, title, credits, syllabus and prerequisites;

   ii) course offerings, including course number, year, semester, section number, instructor(s), timings and classroom;

   iii) students, including student-id, name and program;

   iv) instructors, including identification number, name, department and title.

   Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the Registrar's office. Document all assumptions that you make about the mapping constraints.

SECTION – II

5. Attempt **any 3** : **(3×4=12)**

   a) Explain cascaded rollback with example.

   b) Explain generation of update and commit record in log file.

   c) Explain shadow paging.

   d) Give and explain the good reasons for allowing concurrency in detail.

6. Explain insertion and deletion in B+ tree used in file organisation. **8**

   OR

   List and explain ACID properties with suitable example.

7. Write a C++/Java program to simulate any one concurrency control protocol. **8**

SLR-TJ – 254

Seat No.	

Set P

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
COMPILER CONSTRUCTION

Day and Date : Wednesday, 22-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***Each*** *question carries* ***one*** *mark.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

I. Choose the correct answer : **14**

1) Which of the following is/are phases of analysis
   a) Code generation b) Lexical analysis
   c) Code optimization d) None of the above
2) The specification given to scanner generators are in the form of
   a) Context sensitive grammar b) Context free grammar
   c) Regular expression d) Ambiguous grammar
3) Parser discards input symbols one at a time until a synchronize token is found
   a) Phrase level b) Panic Mode
   c) Error production d) Global correction
4) If 'x' is terminal then FIRST (x) is
   a) $ b) x c) Both a) and b) d) Can't find
5) The most powerful parser is
   a) LALR b) Canonical LR
   c) SLR d) Operator precedence
6) To maximize the utilization of space at run time, the two memory areas used are called
   a) Stack and heap b) Static and heap
   c) Code and static d) None of the above

7) A grammar G is said to be operator precedence if it possess
   a) No production on right side is ε
   b) No production on right side has two adjacent nonterminals
   c) Both a) and b)
   d) None

8) A parse tree showing the value of attributes at each node
   a) Syntax tree
   b) Semantic tree
   c) Annotated parse tree
   d) All of the above

9) An SDD that involves only synthesized attributes is called
   a) L-Attributed
   b) S-Attributed
   c) Both a) and b)
   d) None of the above

10) Which field is not present in activation record ?
   a) Access Link
   b) Saved machine status
   c) Status link
   d) Temporaries

11) In which storage allocation strategy size is required at complier time ?
   a) Static allocation
   b) Dynamic allocation
   c) Stack allocation
   d) All

12) A transformation of a program is called _____ if it can be performed by looking only at statements in basic block.
   a) Local
   b) Global
   c) Both a) and b)
   d) None of the above

13) Modification in the code which decreases the amount of a code in a loop is/ are called
   a) Copy propagation
   b) Code motion
   c) Both a) and b)
   d) None of the above

14) Peephole optimization is an effective technique for _____ improving the target code.
   a) Locally
   b) Globally
   c) Both a) and b)
   d) None of the above

_____

SLR-TJ – 254

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
COMPILER CONSTRUCTION

Day and Date : Wednesday, 22-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *question are* ***compulsory****.*
2) Assume suitable data if ***necessary****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

II. Answer **any three** : **(4×3=12)**

a) Explain input Buffering in Lexical analysis with sentinels.

b) What is Left Recursion in the grammar ? Write the algorithm for elimination of left recursion from a grammar.

c) Compute the first and follow of below given grammar

$E \rightarrow TE'$

$E' \rightarrow +TE' \mid \varepsilon$

$T \rightarrow FT'$

$T' \rightarrow *FT' \mid \varepsilon$

$F \rightarrow (E) \mid id$

d) Explain the subset construction algorithm for obtaining DFA from an NFA.

III. Elaborate the phases of a compiler with a simple assignment statement given below position = initial + rate * 60. **(8×1=8)**

OR

Explain shift-reduce parser with suitable example. **(8×1=8)**

IV. What is Syntax Directed Definition (SDD) ? Explain it with an arithmetic expression example. **(8×1=8)**

Set P

SECTION – II

V. Answer **any three** : **(4×3=12)**

a) Explain Activation record with its contents.

b) Write any one application of Syntax directed translation.

c) Explain Triples, Quadruples and Indirect triples with any example.

d) Explain redundant instruction elimination and Eliminating Unreachable code transformations used in Peephole optimization.

VI. Explain Directed Acyclic Graph (DAG) for expressions and the value number method for constructing DAG's. **(8×1=8)**

OR

List and explain different issues in the design of code generator. **(8×1=8)**

VII. What is basic block ? Explain the algorithm for partitioning three-address statements into basic block with example. **(8×1=8)**

SLR-TJ – 254

Seat No.	

Set Q

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
COMPILER CONSTRUCTION

Day and Date : Wednesday, 22-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***Each*** *question carries* ***one*** *mark.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

I. Choose the correct answer : **14**

1) A parse tree showing the value of attributes at each node
   a) Syntax tree b) Semantic tree
   c) Annotated parse tree d) All of the above

2) An SDD that involves only synthesized attributes is called
   a) L-Attributed b) S-Attributed
   c) Both a) and b) d) None of the above

3) Which field is not present in activation record ?
   a) Access Link b) Saved machine status
   c) Status link d) Temporaries

4) In which storage allocation strategy size is required at complier time ?
   a) Static allocation b) Dynamic allocation
   c) Stack allocation d) All

5) A transformation of a program is called _____ if it can be performed by looking only at statements in basic block.
   a) Local b) Global
   c) Both a) and b) d) None of the above

6) Modification in the code which decreases the amount of a code in a loop is/ are called
   a) Copy propagation
   b) Code motion
   c) Both a) and b)
   d) None of the above
7) Peephole optimization is an effective technique for _____ improving the target code.
   a) Locally
   b) Globally
   c) Both a) and b)
   d) None of the above
8) Which of the following is/are phases of analysis
   a) Code generation
   b) Lexical analysis
   c) Code optimization
   d) None of the above
9) The specification given to scanner generators are in the form of
   a) Context sensitive grammar
   b) Context free grammar
   c) Regular expression
   d) Ambiguous grammar
10) Parser discards input symbols one at a time until a synchronize token is found
   a) Phrase level
   b) Panic Mode
   c) Error production
   d) Global correction
11) If 'x' is terminal then FIRST (x) is
   a) $
   b) x
   c) Both a) and b)
   d) Can't find
12) The most powerful parser is
   a) LALR
   b) Canonical LR
   c) SLR
   d) Operator precedence
13) To maximize the utilization of space at run time, the two memory areas used are called
   a) Stack and heap
   b) Static and heap
   c) Code and static
   d) None of the above
14) A grammar G is said to be operator precedence if it possess
   a) No production on right side is ε
   b) No production on right side has two adjacent nonterminals
   c) Both a) and b)
   d) None

_____

SLR-TJ – 254

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
COMPILER CONSTRUCTION

Day and Date : Wednesday, 22-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *question are* ***compulsory****.*
2) Assume suitable data if ***necessary****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

II. Answer **any three** : **(4×3=12)**

a) Explain input Buffering in Lexical analysis with sentinels.

b) What is Left Recursion in the grammar ? Write the algorithm for elimination of left recursion from a grammar.

c) Compute the first and follow of below given grammar

$E \rightarrow TE'$

$E' \rightarrow +TE' \mid \varepsilon$

$T \rightarrow FT'$

$T' \rightarrow *FT' \mid \varepsilon$

$F \rightarrow (E) \mid id$

d) Explain the subset construction algorithm for obtaining DFA from an NFA.

III. Elaborate the phases of a compiler with a simple assignment statement given below position = initial + rate * 60. **(8×1=8)**

OR

Explain shift-reduce parser with suitable example. **(8×1=8)**

IV. What is Syntax Directed Definition (SDD) ? Explain it with an arithmetic expression example. **(8×1=8)**

Set Q

SECTION – II

V. Answer **any three** : **(4×3=12)**

a) Explain Activation record with its contents.

b) Write any one application of Syntax directed translation.

c) Explain Triples, Quadruples and Indirect triples with any example.

d) Explain redundant instruction elimination and Eliminating Unreachable code transformations used in Peephole optimization.

VI. Explain Directed Acyclic Graph (DAG) for expressions and the value number method for constructing DAG's. **(8×1=8)**

OR

List and explain different issues in the design of code generator. **(8×1=8)**

VII. What is basic block ? Explain the algorithm for partitioning three-address statements into basic block with example. **(8×1=8)**

SLR-TJ – 254

Seat No.	

Set R

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
COMPILER CONSTRUCTION

Day and Date : Wednesday, 22-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***Each*** *question carries* ***one*** *mark.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

I. Choose the correct answer : **14**

1) The most powerful parser is
   a) LALR b) Canonical LR
   c) SLR d) Operator precedence

2) To maximize the utilization of space at run time, the two memory areas used are called
   a) Stack and heap b) Static and heap
   c) Code and static d) None of the above

3) A grammar G is said to be operator precedence if it possess
   a) No production on right side is ε
   b) No production on right side has two adjacent nonterminals
   c) Both a) and b)
   d) None

4) A parse tree showing the value of attributes at each node
   a) Syntax tree b) Semantic tree
   c) Annotated parse tree d) All of the above

5) An SDD that involves only synthesized attributes is called
   a) L-Attributed b) S-Attributed
   c) Both a) and b) d) None of the above

6) Which field is not present in activation record ?
   a) Access Link
   b) Saved machine status
   c) Status link
   d) Temporaries

7) In which storage allocation strategy size is required at complier time ?
   a) Static allocation
   b) Dynamic allocation
   c) Stack allocation
   d) All

8) A transformation of a program is called _____ if it can be performed by looking only at statements in basic block.
   a) Local
   b) Global
   c) Both a) and b)
   d) None of the above

9) Modification in the code which decreases the amount of a code in a loop is/ are called
   a) Copy propagation
   b) Code motion
   c) Both a) and b)
   d) None of the above

10) Peephole optimization is an effective technique for _____ improving the target code.
   a) Locally
   b) Globally
   c) Both a) and b)
   d) None of the above

11) Which of the following is/are phases of analysis
   a) Code generation
   b) Lexical analysis
   c) Code optimization
   d) None of the above

12) The specification given to scanner generators are in the form of
   a) Context sensitive grammar
   b) Context free grammar
   c) Regular expression
   d) Ambiguous grammar

13) Parser discards input symbols one at a time until a synchronize token is found
   a) Phrase level
   b) Panic Mode
   c) Error production
   d) Global correction

14) If ‘x’ is terminal then FIRST (x) is
   a) $
   b) x
   c) Both a) and b)
   d) Can’t find

_____

SLR-TJ – 254

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
COMPILER CONSTRUCTION

Day and Date : Wednesday, 22-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *question are* ***compulsory****.*
2) Assume suitable data if ***necessary****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

II. Answer **any three** : **(4×3=12)**

a) Explain input Buffering in Lexical analysis with sentinels.

b) What is Left Recursion in the grammar ? Write the algorithm for elimination of left recursion from a grammar.

c) Compute the first and follow of below given grammar

$E \rightarrow TE'$

$E' \rightarrow +TE' \mid \varepsilon$

$T \rightarrow FT'$

$T' \rightarrow *FT' \mid \varepsilon$

$F \rightarrow (E) \mid id$

d) Explain the subset construction algorithm for obtaining DFA from an NFA.

III. Elaborate the phases of a compiler with a simple assignment statement given below position = initial + rate * 60. **(8×1=8)**

OR

Explain shift-reduce parser with suitable example. **(8×1=8)**

IV. What is Syntax Directed Definition (SDD) ? Explain it with an arithmetic expression example. **(8×1=8)**

Set R

SECTION – II

V. Answer **any three** : **(4×3=12)**

a) Explain Activation record with its contents.

b) Write any one application of Syntax directed translation.

c) Explain Triples, Quadruples and Indirect triples with any example.

d) Explain redundant instruction elimination and Eliminating Unreachable code transformations used in Peephole optimization.

VI. Explain Directed Acyclic Graph (DAG) for expressions and the value number method for constructing DAG's. **(8×1=8)**

OR

List and explain different issues in the design of code generator. **(8×1=8)**

VII. What is basic block ? Explain the algorithm for partitioning three-address statements into basic block with example. **(8×1=8)**

SLR-TJ – 254

Seat No.	

Set S

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
COMPILER CONSTRUCTION

Day and Date : Wednesday, 22-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book on Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***Each*** *question carries* ***one*** *mark.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

I. Choose the correct answer : **14**

1) Which field is not present in activation record ?
   a) Access Link b) Saved machine status
   c) Status link d) Temporaries

2) In which storage allocation strategy size is required at complier time ?
   a) Static allocation b) Dynamic allocation
   c) Stack allocation d) All

3) A transformation of a program is called _____ if it can be performed by looking only at statements in basic block.
   a) Local b) Global
   c) Both a) and b) d) None of the above

4) Modification in the code which decreases the amount of a code in a loop is/ are called
   a) Copy propagation b) Code motion
   c) Both a) and b) d) None of the above

5) Peephole optimization is an effective technique for _____ improving the target code.
   a) Locally b) Globally
   c) Both a) and b) d) None of the above

6) Which of the following is/are phases of analysis
   a) Code generation
   b) Lexical analysis
   c) Code optimization
   d) None of the above
7) The specification given to scanner generators are in the form of
   a) Context sensitive grammar
   b) Context free grammar
   c) Regular expression
   d) Ambiguous grammar
8) Parser discards input symbols one at a time until a synchronize token is found
   a) Phrase level
   b) Panic Mode
   c) Error production
   d) Global correction
9) If 'x' is terminal then FIRST (x) is
   a) $
   b) x
   c) Both a) and b)
   d) Can't find
10) The most powerful parser is
   a) LALR
   b) Canonical LR
   c) SLR
   d) Operator precedence
11) To maximize the utilization of space at run time, the two memory areas used are called
   a) Stack and heap
   b) Static and heap
   c) Code and static
   d) None of the above
12) A grammar G is said to be operator precedence if it possess
   a) No production on right side is ε
   b) No production on right side has two adjacent nonterminals
   c) Both a) and b)
   d) None
13) A parse tree showing the value of attributes at each node
   a) Syntax tree
   b) Semantic tree
   c) Annotated parse tree
   d) All of the above
14) An SDD that involves only synthesized attributes is called
   a) L-Attributed
   b) S-Attributed
   c) Both a) and b)
   d) None of the above

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
COMPILER CONSTRUCTION

Day and Date : Wednesday, 22-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *question are* ***compulsory****.*
2) Assume suitable data if ***necessary****.*
3) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

II. Answer **any three** : **(4×3=12)**

a) Explain input Buffering in Lexical analysis with sentinels.

b) What is Left Recursion in the grammar ? Write the algorithm for elimination of left recursion from a grammar.

c) Compute the first and follow of below given grammar

$E \rightarrow TE'$

$E' \rightarrow +TE' \mid \varepsilon$

$T \rightarrow FT'$

$T' \rightarrow *FT' \mid \varepsilon$

$F \rightarrow (E) \mid id$

d) Explain the subset construction algorithm for obtaining DFA from an NFA.

III. Elaborate the phases of a compiler with a simple assignment statement given below position = initial + rate * 60. **(8×1=8)**

OR

Explain shift-reduce parser with suitable example. **(8×1=8)**

IV. What is Syntax Directed Definition (SDD) ? Explain it with an arithmetic expression example. **(8×1=8)**

Set S

SECTION – II

V. Answer **any three** : **(4×3=12)**

a) Explain Activation record with its contents.

b) Write any one application of Syntax directed translation.

c) Explain Triples, Quadruples and Indirect triples with any example.

d) Explain redundant instruction elimination and Eliminating Unreachable code transformations used in Peephole optimization.

VI. Explain Directed Acyclic Graph (DAG) for expressions and the value number method for constructing DAG's. **(8×1=8)**

OR

List and explain different issues in the design of code generator. **(8×1=8)**

VII. What is basic block ? Explain the algorithm for partitioning three-address statements into basic block with example. **(8×1=8)**

SLR-TJ – 255

Seat No.	

Set **P**

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
UNIX OPERATING SYSTEMS

Day and Date : Thursday, 23-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(1×14=14)**

1) _____ sequence is normally used to take system from inactive to running state.

a) Init b) Sleep
c) Bootstrap d) Wake up

2) Shell interprets the first word of command line as a

a) Parameter b) Command name
c) Library call d) System call

3) _____ and _____ extends the file system tree visible to users.

a) Chown and chroot b) Link and Unlink
c) Stat and Fstat d) Mount and Unmount

4) For redirecting the output to file we can use _____ symbol.

a) < b) >> c) ” d) 2>

5) Unix kernel caches the data in buffer pool according to a _____ algorithm.

a) Most recently used b) Last in first out
c) Most significantly used d) Least recently used

6) Iseek system call in UNIX is used for
   a) Positioning the IO and allowing random access
   b) Seeking the last position in inode table
   c) Adjusting the position of file
   d) Providing last accessed file descriptor

7) Following system call is used to create new process
   a) fork() b) child () c) create () d) exec ()

8) Which is not the function of clock interrupt handler ?
   a) Restart the clock b) Keep the track of time
   c) Control process scheduling d) Set a global kernel variable

9) Zombie state is
   a) Executing state b) Terminated State
   c) Waiting state d) None of the above

10) CPU usage is calculated by _____ function.
   a) R-Usage b) Usage c) Time d) Decay

11) "Profil" system call has following syntax
   a) profil(buff,bufsize,offset,scale) b) profil(fileptr,buf,offset, mode)
   c) profil(inode,buf,buffsize,scale) d) profil(buff,scale,baseptr)

12) The kernel adjust the priority of the process that returns from
   a) Kernel to user mode b) User to kernel mode
   c) Kernel to kernel d) User to user

13) _____ algorithm is used to detach the region from a process.
   a) detachreg b) detach c) Both a) and b) d) None

14) _____ algorithm is used for validity fault handler.
   a) fault b) vfault c) bfault d) mfault

_____

SLR-TJ – 255

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
UNIX OPERATING SYSTEMS

Day and Date : Thursday, 23-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   1) Explain buffer header.
   2) Explain link() and unlink() system call in detail.
   3) Write a note on Kernel's data structure for process.
   4) Write a note on redirection of I/O.

3. Attempt **any two** : **(2×8=16)**
   1) Explain conversion from pathname to inode (algorithm namei).
   2) Explain fourth scenario and fifth scenario for allocation of buffer by getblk algorithm.
   3) Explain the architecture of UNIX Operating System with the help of block diagram.

SECTION – II

4. Attempt **any three** : **(3×4=12)**
   1) List the function of clock interrupt handler.
   2) What is U area ? Describe with memory map of U area in Kernel.
   3) Describe page stealer process.
   4) Write a note on Clist.

5. Attempt **any two** : **(2×8=16)**
   1) Explain process state transition diagram in detail.
   2) Explain context of a process.
   3) Explain Signal () and its classification. Explain psig algorithm in detail.

Set P

SLR-TJ – 255

Seat No.	

Set **Q**

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
UNIX OPERATING SYSTEMS

Day and Date : Thursday, 23-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(1×14=14)**

1) Which is not the function of clock interrupt handler ?
   a) Restart the clock b) Keep the track of time
   c) Control process scheduling d) Set a global kernel variable

2) Zombie state is
   a) Executing state b) Terminated State
   c) Waiting state d) None of the above

3) CPU usage is calculated by _____ function.
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4) "Profil" system call has following syntax
   a) profil(buff,bufsize,offset,scale) b) profil(fileptr,buf,offset, mode)
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   a) detachreg b) detach c) Both a) and b) d) None

P.T.O.

7) _____ algorithm is used for validity fault handler.

a) fault b) vfault c) bfault d) mfault

8) _____ sequence is normally used to take system from inactive to running state.

a) Init b) Sleep

c) Bootstrap d) Wake up

9) Shell interprets the first word of command line as a

a) Parameter b) Command name

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10) _____ and _____ extends the file system tree visible to users.

a) Chown and chroot b) Link and Unlink

c) Stat and Fstat d) Mount and Unmount

11) For redirecting the output to file we can use _____ symbol.

a) < b) >> c) ” d) 2>

12) Unix kernel caches the data in buffer pool according to a _____ algorithm.

a) Most recently used b) Last in first out

c) Most significantly used d) Least recently used

13) Iseek system call in UNIX is used for

a) Positioning the IO and allowing random access

b) Seeking the last position in inode table

c) Adjusting the position of file

d) Providing last accessed file descriptor

14) Following system call is used to create new process

a) fork() b) child () c) create () d) exec ()

_____

SLR-TJ – 255

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
UNIX OPERATING SYSTEMS

Day and Date : Thursday, 23-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   1) Explain buffer header.
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   3) Write a note on Kernel's data structure for process.
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3. Attempt **any two** : **(2×8=16)**
   1) Explain conversion from pathname to inode (algorithm namei).
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SECTION – II

4. Attempt **any three** : **(3×4=12)**
   1) List the function of clock interrupt handler.
   2) What is U area ? Describe with memory map of U area in Kernel.
   3) Describe page stealer process.
   4) Write a note on Clist.

5. Attempt **any two** : **(2×8=16)**
   1) Explain process state transition diagram in detail.
   2) Explain context of a process.
   3) Explain Signal () and its classification. Explain psig algorithm in detail.

Set Q

SLR-TJ – 255

Seat No.	

Set **R**

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
UNIX OPERATING SYSTEMS

Day and Date : Thursday, 23-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(1×14=14)**

1) Unix kernel caches the data in buffer pool according to a _____ algorithm.

a) Most recently used b) Last in first out

c) Most significantly used d) Least recently used

2) Iseek system call in UNIX is used for

a) Positioning the IO and allowing random access

b) Seeking the last position in inode table

c) Adjusting the position of file

d) Providing last accessed file descriptor

3) Following system call is used to create new process

a) fork() b) child () c) create () d) exec ()

4) Which is not the function of clock interrupt handler ?

a) Restart the clock b) Keep the track of time

c) Control process scheduling d) Set a global kernel variable

5) Zombie state is

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c) Waiting state d) None of the above

6) CPU usage is calculated by _____ function.

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7) “Profil” system call has following syntax

a) profil(buff,bufsize,offset,scale) b) profil(fileptr,buf,offset, mode)

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13) _____ and _____ extends the file system tree visible to users.

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14) For redirecting the output to file we can use _____ symbol.

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_____

SLR-TJ – 255

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
UNIX OPERATING SYSTEMS

Day and Date : Thursday, 23-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   1) Explain buffer header.
   2) Explain link() and unlink() system call in detail.
   3) Write a note on Kernel's data structure for process.
   4) Write a note on redirection of I/O.

3. Attempt **any two** : **(2×8=16)**
   1) Explain conversion from pathname to inode (algorithm namei).
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   3) Explain the architecture of UNIX Operating System with the help of block diagram.

SECTION – II

4. Attempt **any three** : **(3×4=12)**
   1) List the function of clock interrupt handler.
   2) What is U area ? Describe with memory map of U area in Kernel.
   3) Describe page stealer process.
   4) Write a note on Clist.

5. Attempt **any two** : **(2×8=16)**
   1) Explain process state transition diagram in detail.
   2) Explain context of a process.
   3) Explain Signal () and its classification. Explain psig algorithm in detail.

Set R

Set R

SLR-TJ – 255

Seat No.	

Set **S**

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
UNIX OPERATING SYSTEMS

Day and Date : Thursday, 23-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternative : **(1×14=14)**

1) CPU usage is calculated by _____ function.

a) R-Usage b) Usage c) Time d) Decay

2) "Profil" system call has following syntax

a) profil(buff,bufsize,offset,scale) b) profil(fileptr,buf,offset, mode)

c) profil(inode,buf,buffsize,scale) d) profil(buff,scale,baseptr)

3) The kernel adjust the priority of the process that returns from

a) Kernel to user mode b) User to kernel mode

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4) _____ algorithm is used to detach the region from a process.

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13) Which is not the function of clock interrupt handler ?

a) Restart the clock b) Keep the track of time

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14) Zombie state is

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c) Waiting state d) None of the above

_____

SLR-TJ – 255

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
UNIX OPERATING SYSTEMS

Day and Date : Thursday, 23-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   1) Explain buffer header.
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   3) Write a note on Kernel's data structure for process.
   4) Write a note on redirection of I/O.

3. Attempt **any two** : **(2×8=16)**
   1) Explain conversion from pathname to inode (algorithm namei).
   2) Explain fourth scenario and fifth scenario for allocation of buffer by getblk algorithm.
   3) Explain the architecture of UNIX Operating System with the help of block diagram.

SECTION – II

4. Attempt **any three** : **(3×4=12)**
   1) List the function of clock interrupt handler.
   2) What is U area ? Describe with memory map of U area in Kernel.
   3) Describe page stealer process.
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5. Attempt **any two** : **(2×8=16)**
   1) Explain process state transition diagram in detail.
   2) Explain context of a process.
   3) Explain Signal () and its classification. Explain psig algorithm in detail.

Set S

SLR-TJ – 256

Seat No.	

Set P

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SOFTWARE ENGINEERING

Day and Date : Friday, 24-11-2017 Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer :

1) _____ model is good for well understood problems, short duration project, automation of existing manual systems.
   a) Waterfall b) Iterative enhancement
   c) Prototyping d) Spiral

2) The basic objective of the _____ process is to systematically handle the change that take place during project development.
   a) Project management
   b) Software development
   c) Process management
   d) Software configuration management

3) The output of requirement process is
   a) Validated SRS b) Validation
   c) Problem analysis d) Verification

4) The _____ data elements are most removed from the actual outputs but can still be considered outgoing.
   a) MAO b) MAI c) MOA d) MOI

5) In COCOMO, the initial estimate also called nominal estimate is determined by an equation
   a) Ei* EAF b) $a*(KLOC)^b$
   c) $4.1*E^{0.36}$ d) $2.5*E^{0.38}$

P.T.O.

6) The _____ relationship models the “whole/part-of” relationship.
   a) Generalization specialization b) Aggregation
   c) Association d) None of the above

7) UML stands for
   a) Union Modeling Language b) Unified Monitoring Language
   c) Unified Modeling Language d) Union Monitoring Language

8) Checklists are usually of two types-activity checklist and
   a) Defect checklist b) Review checklist
   c) Process checklist d) None of the above

9) The objective of a _____ is “to determine what went right, what went wrong, what worked, what did not and how it could be made better the next time.”
   a) Project analysis b) Activity level analysis
   c) Closure analysis d) Fish-bone analysis

10) CMM provides a general roadmap to _____
   a) Test the software b) Develop the software
   c) Improve the software process d) All of these

11) Pareto analysis is one of the primary tool for _____
   a) Quality management b) Reviews
   c) Milestone analysis d) None of the above

12) Cause-effect diagram is also called as
   a) Structured diagram b) Fish-bone diagram
   c) Functional diagram d) OO diagram

13) A white-box testing examines the _____ of the program or module being tested.
   a) External logic b) Internal logic
   c) Software quality d) None of the above

14) SPC stands for
   a) Statistical Project Control b) Statistical Process Control
   c) Status Process Control d) Status Project Control

SLR-TJ – 256

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SOFTWARE ENGINEERING

Day and Date : Friday, 24-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicates* ***full*** *marks.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

   a) Explain requirement process.

   b) What is SRS ? Define characteristics of SRS.

   c) Write a short note on UML.

   d) Explain process database, process capability baseline and process assets.

3. Attempt **any two** : **(2×8=16)**

   a) Explain COCOMO model in detail.

   b) Explain object-oriented design concepts : coupling, cohesion and open-closed principle.

   c) Explain prototyping model. Give its strength and weaknesses.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

   a) Write a short note on CMM.

   b) Explain adaptive project management life cycle.

   c) Explain review process.

   d) Write a short note on quality concepts and quality plan.

5. Attempt **any two** : **(2×8=16)**

   a) What is risk management ? Explain in detail risk management activities.

   b) Explain in detail white-box testing.

   c) Explain defect analysis and prevention.

SLR-TJ – 256

Seat No.	

Set Q

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SOFTWARE ENGINEERING

Day and Date : Friday, 24-11-2017 Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer :

1) Checklists are usually of two types-activity checklist and
   a) Defect checklist b) Review checklist
   c) Process checklist d) None of the above

2) The objective of a _____ is "to determine what went right, what went wrong, what worked, what did not and how it could be made better the next time."
   a) Project analysis b) Activity level analysis
   c) Closure analysis d) Fish-bone analysis

3) CMM provides a general roadmap to _____
   a) Test the software b) Develop the software
   c) Improve the software process d) All of these

4) Pareto analysis is one of the primary tool for _____
   a) Quality management b) Reviews
   c) Milestone analysis d) None of the above

5) Cause-effect diagram is also called as
   a) Structured diagram b) Fish-bone diagram
   c) Functional diagram d) OO diagram

6) A white-box testing examines the _____ of the program or module being tested.
   a) External logic
   b) Internal logic
   c) Software quality
   d) None of the above

7) SPC stands for
   a) Statistical Project Control
   b) Statistical Process Control
   c) Status Process Control
   d) Status Project Control

8) _____ model is good for well understood problems, short duration project, automation of existing manual systems.
   a) Waterfall
   b) Iterative enhancement
   c) Prototyping
   d) Spiral

9) The basic objective of the _____ process is to systematically handle the change that take place during project development.
   a) Project management
   b) Software development
   c) Process management
   d) Software configuration management

10) The output of requirement process is
   a) Validated SRS
   b) Validation
   c) Problem analysis
   d) Verification

11) The _____ data elements are most removed from the actual outputs but can still be considered outgoing.
   a) MAO
   b) MAI
   c) MOA
   d) MOI

12) In COCOMO, the initial estimate also called nominal estimate is determined by an equation
   a) Ei* EAF
   b) $a*(KLOC)^b$
   c) $4.1*E^{0.36}$
   d) $2.5*E^{0.38}$

13) The _____ relationship models the “whole/part-of” relationship.
   a) Generalization specialization
   b) Aggregation
   c) Association
   d) None of the above

14) UML stands for
   a) Union Modeling Language
   b) Unified Monitoring Language
   c) Unified Modeling Language
   d) Union Monitoring Language

SLR-TJ – 256

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SOFTWARE ENGINEERING

Day and Date : Friday, 24-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicates* ***full*** *marks.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

   a) Explain requirement process.

   b) What is SRS ? Define characteristics of SRS.

   c) Write a short note on UML.

   d) Explain process database, process capability baseline and process assets.

3. Attempt **any two** : **(2×8=16)**

   a) Explain COCOMO model in detail.

   b) Explain object-oriented design concepts : coupling, cohesion and open-closed principle.

   c) Explain prototyping model. Give its strength and weaknesses.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

   a) Write a short note on CMM.

   b) Explain adaptive project management life cycle.

   c) Explain review process.

   d) Write a short note on quality concepts and quality plan.

5. Attempt **any two** : **(2×8=16)**

   a) What is risk management ? Explain in detail risk management activities.

   b) Explain in detail white-box testing.

   c) Explain defect analysis and prevention.

SLR-TJ – 256

Seat No.	

Set R

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SOFTWARE ENGINEERING

Day and Date : Friday, 24-11-2017 Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer :

1) In COCOMO, the initial estimate also called nominal estimate is determined by an equation
   a) Ei* EAF
   b) $a*(KLOC)^b$
   c) $4.1*E^{0.36}$
   d) $2.5*E^{0.38}$

2) The _____ relationship models the "whole/part-of" relationship.
   a) Generalization specialization
   b) Aggregation
   c) Association
   d) None of the above

3) UML stands for
   a) Union Modeling Language
   b) Unified Monitoring Language
   c) Unified Modeling Language
   d) Union Monitoring Language

4) Checklists are usually of two types-activity checklist and
   a) Defect checklist
   b) Review checklist
   c) Process checklist
   d) None of the above

5) The objective of a _____ is "to determine what went right, what went wrong, what worked, what did not and how it could be made better the next time."
   a) Project analysis
   b) Activity level analysis
   c) Closure analysis
   d) Fish-bone analysis

P.T.O.

6) CMM provides a general roadmap to _____
   a) Test the software
   b) Develop the software
   c) Improve the software process
   d) All of these

7) Pareto analysis is one of the primary tool for _____
   a) Quality management
   b) Reviews
   c) Milestone analysis
   d) None of the above

8) Cause-effect diagram is also called as
   a) Structured diagram
   b) Fish-bone diagram
   c) Functional diagram
   d) OO diagram

9) A white-box testing examines the _____ of the program or module being tested.
   a) External logic
   b) Internal logic
   c) Software quality
   d) None of the above

10) SPC stands for
   a) Statistical Project Control
   b) Statistical Process Control
   c) Status Process Control
   d) Status Project Control

11) _____ model is good for well understood problems, short duration project, automation of existing manual systems.
   a) Waterfall
   b) Iterative enhancement
   c) Prototyping
   d) Spiral

12) The basic objective of the _____ process is to systematically handle the change that take place during project development.
   a) Project management
   b) Software development
   c) Process management
   d) Software configuration management

13) The output of requirement process is
   a) Validated SRS
   b) Validation
   c) Problem analysis
   d) Verification

14) The _____ data elements are most removed from the actual outputs but can still be considered outgoing.
   a) MAO
   b) MAI
   c) MOA
   d) MOI

_____

SLR-TJ – 256

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SOFTWARE ENGINEERING

Day and Date : Friday, 24-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicates* ***full*** *marks.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

   a) Explain requirement process.

   b) What is SRS ? Define characteristics of SRS.

   c) Write a short note on UML.

   d) Explain process database, process capability baseline and process assets.

3. Attempt **any two** : **(2×8=16)**

   a) Explain COCOMO model in detail.

   b) Explain object-oriented design concepts : coupling, cohesion and open-closed principle.

   c) Explain prototyping model. Give its strength and weaknesses.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

   a) Write a short note on CMM.

   b) Explain adaptive project management life cycle.

   c) Explain review process.

   d) Write a short note on quality concepts and quality plan.

5. Attempt **any two** : **(2×8=16)**

   a) What is risk management ? Explain in detail risk management activities.

   b) Explain in detail white-box testing.

   c) Explain defect analysis and prevention.

SLR-TJ – 256

Seat No.	

Set S

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SOFTWARE ENGINEERING

Day and Date : Friday, 24-11-2017 Total Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer :

1) CMM provides a general roadmap to _____
   a) Test the software b) Develop the software
   c) Improve the software process d) All of these

2) Pareto analysis is one of the primary tool for _____
   a) Quality management b) Reviews
   c) Milestone analysis d) None of the above

3) Cause-effect diagram is also called as
   a) Structured diagram b) Fish-bone diagram
   c) Functional diagram d) OO diagram

4) A white-box testing examines the _____ of the program or module being tested.
   a) External logic b) Internal logic
   c) Software quality d) None of the above

5) SPC stands for
   a) Statistical Project Control b) Statistical Process Control
   c) Status Process Control d) Status Project Control

6) _____ model is good for well understood problems, short duration project, automation of existing manual systems.
   a) Waterfall
   b) Iterative enhancement
   c) Prototyping
   d) Spiral

7) The basic objective of the _____ process is to systematically handle the change that take place during project development.
   a) Project management
   b) Software development
   c) Process management
   d) Software configuration management

8) The output of requirement process is
   a) Validated SRS
   b) Validation
   c) Problem analysis
   d) Verification

9) The _____ data elements are most removed from the actual outputs but can still be considered outgoing.
   a) MAO
   b) MAI
   c) MOA
   d) MOI

10) In COCOMO, the initial estimate also called nominal estimate is determined by an equation
   a) Ei* EAF
   b) $a*(KLOC)^b$
   c) $4.1*E^{0.36}$
   d) $2.5*E^{0.38}$

11) The _____ relationship models the “whole/part-of” relationship.
   a) Generalization specialization
   b) Aggregation
   c) Association
   d) None of the above

12) UML stands for
   a) Union Modeling Language
   b) Unified Monitoring Language
   c) Unified Modeling Language
   d) Union Monitoring Language

13) Checklists are usually of two types-activity checklist and
   a) Defect checklist
   b) Review checklist
   c) Process checklist
   d) None of the above

14) The objective of a _____ is “to determine what went right, what went wrong, what worked, what did not and how it could be made better the next time.”
   a) Project analysis
   b) Activity level analysis
   c) Closure analysis
   d) Fish-bone analysis

SLR-TJ – 256

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SOFTWARE ENGINEERING

Day and Date : Friday, 24-11-2017 Marks : 56
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to ***right*** *indicates* ***full*** *marks.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**

   a) Explain requirement process.

   b) What is SRS ? Define characteristics of SRS.

   c) Write a short note on UML.

   d) Explain process database, process capability baseline and process assets.

3. Attempt **any two** : **(2×8=16)**

   a) Explain COCOMO model in detail.

   b) Explain object-oriented design concepts : coupling, cohesion and open-closed principle.

   c) Explain prototyping model. Give its strength and weaknesses.

SECTION – II

4. Attempt **any three** : **(3×4=12)**

   a) Write a short note on CMM.

   b) Explain adaptive project management life cycle.

   c) Explain review process.

   d) Write a short note on quality concepts and quality plan.

5. Attempt **any two** : **(2×8=16)**

   a) What is risk management ? Explain in detail risk management activities.

   b) Explain in detail white-box testing.

   c) Explain defect analysis and prevention.

SLR-TJ – 257

Seat No.	

Set P

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
MOBILE COMPUTING

Day and Date : Saturday, 25-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) Directly coupled to the frequency is the wavelength λ via the equation
   a) λ = c/f b) λ = f /c
   c) λ = 1/t d) None of these

2) In which CSMA version if the medium is busy, the station pauses random amount of time before sensing the medium again.
   a) P-Persistent b) Non-Persistent
   c) 1-Persistent d) All of these

3) Classical Aloha provides maximum of _____ of throughput.
   a) 19% b) 36% c) 18% d) 100%

4) Algorithm _____ is used for encryption.
   a) A5 b) A9 c) A3 d) A8

5) Emergency number is which type of service provided by GSM
   a) Bearer b) Tele c) Supplementary d) None of these

6) PMD in IEEE 802.11 stands for
   a) Physical Module Dependent b) Physical Medium Dependent
   c) Primary Module Dependent d) Primary Medium Dependent

7) Number of devices can be connected in one piconet is _____
   a) 6 b) 8 c) 10 d) 4

8) I-TCP stands for _____.
   a) Indirect TCP b) Interrelated TCP
   c) Inactive TCP d) Indicated TCP

P.T.O.

9) End to End semantic is preserved by _____ in mobile network.
   a) I-TCP
   b) Traditional TCP
   c) S-TCP
   d) None of these

10) _____ is used to specify the installation and maintenance of networked companies.
   a) TCP
   b) DHCP
   c) IP
   d) MAAC

11) Following is not the type of encapsulation
   a) IP in IP
   b) Minimal
   c) Generic routing
   d) Optimization

12) Android must have at least _____ MB for storing user data.
   a) 1000
   b) 50
   c) 200
   d) 150

13) CDD stands for _____
   a) Compliance Definition Document
   b) Computer Definition Document
   c) Component Definition Document
   d) Connection Definition Document

14) NFC is developed by _____
   a) Sony
   b) Philips
   c) Both a and b
   d) Motorola

_____

SLR-TJ – 257

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
MOBILE COMPUTING

Day and Date : Saturday, 25-11-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Answer **any three** : **12**

   1) Compare AM, FM, PM.

   2) Explain Mobile Originated Call (MOC)

   3) What are advantages of cellular structure ?

   4) Write a short note on Piconet.

   5) What is spread spectrum ? Explain with neat diagram.

3. Answer **any one** : **8**

   1) What is signal propagation ? Explain in details the different signal propagation effects.

   2) Illustrate MSK generation with signal diagram for given data : 1011010.

4. What is Handover in GSM ? What are different types of handover ? Explain handover mechanism with sequence diagram. **8**

SECTION – II

5. Attempt **any three** : **12**

   a) What is mobile IP ? Explain with suitable example.

   b) Explain IP-in-IP encapsulation.

   c) Compare RFID and NFC.

   d) Explain with suitable example transaction oriented TCP.

   e) Write a short note on android history.

6. Explain overall architecture of android system with suitable diagram. **8**

   OR

   Explain registration request and registration reply in mobile IP.

7. Explain general architecture of NFC enabled mobile phones. **8**

SLR-TJ – 257

Seat No.	

Set Q

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
MOBILE COMPUTING

Day and Date : Saturday, 25-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) I-TCP stands for _____.
   a) Indirect TCP b) Interrelated TCP
   c) Inactive TCP d) Indicated TCP

2) End to End semantic is preserved by _____ in mobile network.
   a) I-TCP b) Traditional TCP
   c) S-TCP d) None of these

3) _____ is used to specify the installation and maintenance of networked companies.
   a) TCP b) DHCP c) IP d) MAAC

4) Following is not the type of encapsulation
   a) IP in IP b) Minimal
   c) Generic routing d) Optimization

5) Android must have at least _____ MB for storing user data.
   a) 1000 b) 50 c) 200 d) 150

6) CDD stands for _____
   a) Compliance Definition Document b) Computer Definition Document
   c) Component Definition Document d) Connection Definition Document

7) NFC is developed by _____
   a) Sony b) Philips
   c) Both a and b d) Motorola

P.T.O.

8) Directly coupled to the frequency is the wavelength λ via the equation
   a) $\lambda = c/f$ b) $\lambda = f/c$
   c) $\lambda = 1/t$ d) None of these

9) In which CSMA version if the medium is busy, the station pauses random amount of time before sensing the medium again.
   a) P-Persistent b) Non-Persistent
   c) 1-Persistent d) All of these

10) Classical Aloha provides maximum of _____ of throughput.
   a) 19% b) 36% c) 18% d) 100%

11) Algorithm _____ is used for encryption.
   a) A5 b) A9 c) A3 d) A8

12) Emergency number is which type of service provided by GSM
   a) Bearer b) Tele c) Supplementary d) None of these

13) PMD in IEEE 802.11 stands for
   a) Physical Module Dependent b) Physical Medium Dependent
   c) Primary Module Dependent d) Primary Medium Dependent

14) Number of devices can be connected in one piconet is _____
   a) 6 b) 8 c) 10 d) 4

_____

SLR-TJ – 257

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
MOBILE COMPUTING

Day and Date : Saturday, 25-11-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Answer **any three** : **12**

   1) Compare AM, FM, PM.

   2) Explain Mobile Originated Call (MOC)

   3) What are advantages of cellular structure ?

   4) Write a short note on Piconet.

   5) What is spread spectrum ? Explain with neat diagram.

3. Answer **any one** : **8**

   1) What is signal propagation ? Explain in details the different signal propagation effects.

   2) Illustrate MSK generation with signal diagram for given data : 1011010.

4. What is Handover in GSM ? What are different types of handover ? Explain handover mechanism with sequence diagram. **8**

SECTION – II

5. Attempt **any three** : **12**

   a) What is mobile IP ? Explain with suitable example.

   b) Explain IP-in-IP encapsulation.

   c) Compare RFID and NFC.

   d) Explain with suitable example transaction oriented TCP.

   e) Write a short note on android history.

6. Explain overall architecture of android system with suitable diagram. **8**

   OR

   Explain registration request and registration reply in mobile IP.

7. Explain general architecture of NFC enabled mobile phones. **8**

SLR-TJ – 257

Seat No.	

Set R

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
MOBILE COMPUTING

Day and Date : Saturday, 25-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) Emergency number is which type of service provided by GSM
a) Bearer b) Tele c) Supplementary d) None of these

2) PMD in IEEE 802.11 stands for
a) Physical Module Dependent b) Physical Medium Dependent
c) Primary Module Dependent d) Primary Medium Dependent

3) Number of devices can be connected in one piconet is _____
a) 6 b) 8 c) 10 d) 4

4) I-TCP stands for _____.
a) Indirect TCP b) Interrelated TCP
c) Inactive TCP d) Indicated TCP

5) End to End semantic is preserved by _____ in mobile network.
a) I-TCP b) Traditional TCP
c) S-TCP d) None of these

6) _____ is used to specify the installation and maintenance of networked companies.
a) TCP b) DHCP c) IP d) MAAC

7) Following is not the type of encapsulation
a) IP in IP b) Minimal
c) Generic routing d) Optimization

8) Android must have at least _____ MB for storing user data.
a) 1000 b) 50 c) 200 d) 150

9) CDD stands for _____
   a) Compliance Definition Document b) Computer Definition Document
   c) Component Definition Document d) Connection Definition Document

10) NFC is developed by _____
   a) Sony b) Philips
   c) Both a and b d) Motorola

11) Directly coupled to the frequency is the wavelength λ via the equation
   a) $\lambda = c/f$ b) $\lambda = f/c$
   c) $\lambda = 1/t$ d) None of these

12) In which CSMA version if the medium is busy, the station pauses random amount of time before sensing the medium again.
   a) P-Persistent b) Non-Persistent
   c) 1-Persistent d) All of these

13) Classical Aloha provides maximum of _____ of throughput.
   a) 19% b) 36% c) 18% d) 100%

14) Algorithm _____ is used for encryption.
   a) A5 b) A9 c) A3 d) A8

_____

SLR-TJ – 257

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
MOBILE COMPUTING

Day and Date : Saturday, 25-11-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Answer **any three** : **12**

   1) Compare AM, FM, PM.

   2) Explain Mobile Originated Call (MOC)

   3) What are advantages of cellular structure ?

   4) Write a short note on Piconet.

   5) What is spread spectrum ? Explain with neat diagram.

3. Answer **any one** : **8**

   1) What is signal propagation ? Explain in details the different signal propagation effects.

   2) Illustrate MSK generation with signal diagram for given data : 1011010.

4. What is Handover in GSM ? What are different types of handover ? Explain handover mechanism with sequence diagram. **8**

SECTION – II

5. Attempt **any three** : **12**

   a) What is mobile IP ? Explain with suitable example.

   b) Explain IP-in-IP encapsulation.

   c) Compare RFID and NFC.

   d) Explain with suitable example transaction oriented TCP.

   e) Write a short note on android history.

6. Explain overall architecture of android system with suitable diagram. **8**

   OR

   Explain registration request and registration reply in mobile IP.

7. Explain general architecture of NFC enabled mobile phones. **8**

SLR-TJ – 257

Seat No.	

Set S

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
MOBILE COMPUTING

Day and Date : Saturday, 25-11-2017 Max. Marks : 70
Time : 10.00 a.m. to 1.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) _____ is used to specify the installation and maintenance of networked companies.
a) TCP b) DHCP c) IP d) MAAC

2) Following is not the type of encapsulation
a) IP in IP b) Minimal
c) Generic routing d) Optimization

3) Android must have at least _____ MB for storing user data.
a) 1000 b) 50 c) 200 d) 150

4) CDD stands for _____
a) Compliance Definition Document b) Computer Definition Document
c) Component Definition Document d) Connection Definition Document

5) NFC is developed by _____
a) Sony b) Philips
c) Both a and b d) Motorola

6) Directly coupled to the frequency is the wavelength λ via the equation
a) $\lambda = c/f$ b) $\lambda = f/c$
c) $\lambda = 1/t$ d) None of these

7) In which CSMA version if the medium is busy, the station pauses random amount of time before sensing the medium again.
a) P-Persistent b) Non-Persistent
c) 1-Persistent d) All of these

8) Classical Aloha provides maximum of _____ of throughput.
   a) 19% b) 36% c) 18% d) 100%

9) Algorithm _____ is used for encryption.
   a) A5 b) A9 c) A3 d) A8

10) Emergency number is which type of service provided by GSM
   a) Bearer b) Tele c) Supplementary d) None of these

11) PMD in IEEE 802.11 stands for
   a) Physical Module Dependent b) Physical Medium Dependent
   c) Primary Module Dependent d) Primary Medium Dependent

12) Number of devices can be connected in one piconet is _____
   a) 6 b) 8 c) 10 d) 4

13) I-TCP stands for _____.
   a) Indirect TCP b) Interrelated TCP
   c) Inactive TCP d) Indicated TCP

14) End to End semantic is preserved by _____ in mobile network.
   a) I-TCP b) Traditional TCP
   c) S-TCP d) None of these

_____

SLR-TJ – 257

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
MOBILE COMPUTING

Day and Date : Saturday, 25-11-2017 Marks : 56

Time : 10.00 a.m. to 1.00 p.m.

SECTION – I

2. Answer **any three** : **12**

   1) Compare AM, FM, PM.

   2) Explain Mobile Originated Call (MOC)

   3) What are advantages of cellular structure ?

   4) Write a short note on Piconet.

   5) What is spread spectrum ? Explain with neat diagram.

3. Answer **any one** : **8**

   1) What is signal propagation ? Explain in details the different signal propagation effects.

   2) Illustrate MSK generation with signal diagram for given data : 1011010.

4. What is Handover in GSM ? What are different types of handover ? Explain handover mechanism with sequence diagram. **8**

SECTION – II

5. Attempt **any three** : **12**

   a) What is mobile IP ? Explain with suitable example.

   b) Explain IP-in-IP encapsulation.

   c) Compare RFID and NFC.

   d) Explain with suitable example transaction oriented TCP.

   e) Write a short note on android history.

6. Explain overall architecture of android system with suitable diagram. **8**

   OR

   Explain registration request and registration reply in mobile IP.

7. Explain general architecture of NFC enabled mobile phones. **8**

SLR-TJ – 258

Seat No.	

Set P

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SELF-LEARNING (TECHNICAL) – NETWORK SETUP AND MANAGEMENT TOOLS

Day and Date : Monday, 27-11-2017 Total Marks : 50
Time : 10.00 a.m. to 12.00 noon

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

1. Choose the correct answers : **(1×10=10)**

1) OSPF is used for
A) Routing of packets B) Shortest path routing of packets
C) Simulation of packets D) None of these

2) A robust routing protocol provides the ability to _____ build and manage the information in the IP routing table.
A) Dynamically B) Statically
C) Hierarchically D) All of the above

3) Performance management, is closely related to
A) Risk Management B) Fault Management
C) Security Management D) Configuration Management

4) How long is an IPv6 address ?
A) 32 bits B) 128 bytes
C) 64 bits D) 128 bits

5) Which protocol does Ping use ?
A) TCP B) ARP
C) ICMP D) BootP

6) Which of the following describe router functions ?
A) Packet switching
B) Packet filtering
C) Internetwork communication
D) None of the above

7) Which is the fastest port for data transfer ?
   A) USB
   B) Serial
   C) Parallel
   D) FireWire

8) In network management system _____ is responsible for controlling Access to network based on predefined policy.
   A) Fault management
   B) Security management
   C) Active management
   D) Secured management

9) Which switching technology reduces the size of a broadcast domain ?
   A) ISL
   B) 802.1Q
   C) VLANs
   D) STP

10) A _____ regenerates a signal, connects segments of a LAN and has no filtering capability.
   A) Repeater
   B) Bridge
   C) HUB
   D) None of above

_____

SLR-TJ – 258

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SELF-LEARNING (TECHNICAL) – NETWORK SETUP AND MANAGEMENT TOOLS

Day and Date : Monday, 27-11-2017 Marks : 40
Time : 10.00 a.m. to 12.00 noon

Attempt **any four** : **(4×10=40)**

2. What is the function of repeater ? Explain with figures how we can use repeater to form a network.

3. Explain Abstract syntax notation one (ASN.1) with the help of Terminology, symbols, conventions.

4. Explain network management models.

5. What is called fault management ? Explain fault tolerance, fault detection and fault location.

6. Write short note on :

   a) Firewall

   b) OSPF.

7. Differentiate between Hub and Router.

8. Explain event correlation techniques.

Set P

SLR-TJ – 258

Seat No.	

Set Q

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SELF-LEARNING (TECHNICAL) – NETWORK SETUP AND MANAGEMENT TOOLS

Day and Date : Monday, 27-11-2017 Total Marks : 50
Time : 10.00 a.m. to 12.00 noon

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

1. Choose the correct answers : **(1×10=10)**

1) Which switching technology reduces the size of a broadcast domain ?
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   C) Internetwork communication
   D) None of the above

SLR-TJ – 258

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SELF-LEARNING (TECHNICAL) – NETWORK SETUP AND MANAGEMENT TOOLS

Day and Date : Monday, 27-11-2017 Marks : 40
Time : 10.00 a.m. to 12.00 noon

Attempt **any four** : **(4×10=40)**

2. What is the function of repeater ? Explain with figures how we can use repeater to form a network.

3. Explain Abstract syntax notation one (ASN.1) with the help of Terminology, symbols, conventions.

4. Explain network management models.

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6. Write short note on :

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   b) OSPF.

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8. Explain event correlation techniques.

Set Q

SLR-TJ – 258

Seat No.	

Set R

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SELF-LEARNING (TECHNICAL) – NETWORK SETUP AND MANAGEMENT TOOLS

Day and Date : Monday, 27-11-2017 Total Marks : 50
Time : 10.00 a.m. to 12.00 noon

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

1. Choose the correct answers : **(1×10=10)**

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A) TCP B) ARP
C) ICMP D) BootP

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B) Packet filtering
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D) None of the above

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C) VLANs D) STP

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C) HUB D) None of above

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C) Security Management D) Configuration Management

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   B) Shortest path routing of packets
   C) Simulation of packets
   D) None of these

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   A) USB
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   C) Parallel
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   B) Security management
   C) Active management
   D) Secured management

_____

SLR-TJ – 258

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SELF-LEARNING (TECHNICAL) – NETWORK SETUP AND MANAGEMENT TOOLS

Day and Date : Monday, 27-11-2017 Marks : 40
Time : 10.00 a.m. to 12.00 noon

Attempt **any four** : **(4×10=40)**

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4. Explain network management models.

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   a) Firewall

   b) OSPF.

7. Differentiate between Hub and Router.

8. Explain event correlation techniques.

Set R

SLR-TJ – 258

Seat No.	

Set S

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SELF-LEARNING (TECHNICAL) – NETWORK SETUP AND MANAGEMENT TOOLS

Day and Date : Monday, 27-11-2017 Total Marks : 50
Time : 10.00 a.m. to 12.00 noon

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

1. Choose the correct answers : **(1×10=10)**

1) Performance management, is closely related to
A) Risk Management B) Fault Management
C) Security Management D) Configuration Management

2) How long is an IPv6 address ?
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D) None of the above

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   B) 802.1Q
   C) VLANs
   D) STP

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   B) Bridge
   C) HUB
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   A) Routing of packets
   B) Shortest path routing of packets
   C) Simulation of packets
   D) None of these

10) A robust routing protocol provides the ability to _____ build and manage the information in the IP routing table.
   A) Dynamically
   B) Statically
   C) Hierarchically
   D) All of the above

_____

SLR-TJ – 258

Seat No.	

T.E. (CSE) (Part – II) (CGPA) Examination, 2017
SELF-LEARNING (TECHNICAL) – NETWORK SETUP AND MANAGEMENT TOOLS

Day and Date : Monday, 27-11-2017 Marks : 40
Time : 10.00 a.m. to 12.00 noon

Attempt **any four** : **(4×10=40)**

2. What is the function of repeater ? Explain with figures how we can use repeater to form a network.

3. Explain Abstract syntax notation one (ASN.1) with the help of Terminology, symbols, conventions.

4. Explain network management models.

5. What is called fault management ? Explain fault tolerance, fault detection and fault location.

6. Write short note on :

   a) Firewall

   b) OSPF.

7. Differentiate between Hub and Router.

8. Explain event correlation techniques.

Set S

SLR-TJ – 259

Seat No.	

Set P

T.E. (Computer Science and Engineering) (Part – II) (CGPA) Examination, 2017
Self Learning (Technical) : SOFTWARE LICENSING AND PRACTICES

Day and Date : Monday, 27-11-2017 Max. Marks : 50
Time : 10.00 a.m. to 12.00 Noon

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Assume suitable data if ***necessary****.*

1. Attempt **any five** (**6** mark **each**) : **(5×6=30)**
   a) State and explain basic principles of copyright law.
   b) With help of examples explain issues with patents.
   c) Write a short note on MIT licensing.
   d) Comment on the Global Scope of Open Source and Free Software Licensing w.r.t. to enforcement of the related laws.
   e) What are the key differences between GPL and LGPL, give proper examples to explain the difference briefly.
   f) What are five key source code licensing attributes in Microsoft Shared Source Initiative ? Explain them briefly.

2. Attempt **any two** (**10** marks **each**) : **(2×10=20)**
   a) With indicative examples pointout differences between copyright and patent.
   b) Describe Open Source and Non Open Sources licensing methods and highlight the key differences.
   c) Briefly explain Creative Commons (CC) Licenses. Focus your explanation on types of CC licenses and usage.

SLR-TJ – 260

Seat No.	

Set P

T.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
Self-learning (HSS/Technical)
COMPUTER MODELING AND SIMULATION

Day and Date : Monday, 27-11-2017 Total Marks : 50
Time : 10.00 a.m. to 12.00 noon.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in Answer Book Page No.* ***3. Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct answer : **(10×1=10)**

1) _____ is the imitation of the operation of a real-world process or system over time.
A) Simulation B) Activity
C) Process D) None of these

2) The second rule says that simulation should not be used
A) If the resources or time is not available
B) If system behavior is too complex
C) If the costs exceed the savings
D) If the problem can be solved analytically

3) The term _____ is used to describe activities and events occurring within a system.
A) Exogenous B) Endogenous
C) Indogenous D) Extrogenous

4) There are two types of documentation
A) Static and Dynamic
B) Before and After
C) Program and progress
D) None of these

5) NS is basically an _____ interpreter with network simulation object libraries.
   A) JAVA Interpreter
   B) OTcl Interpreter
   C) C++ Interpreter
   D) All above

6) The simulator is _____ simulator.
   A) Real time
   B) Event driven
   C) Object oriented
   D) GUI

7) To generate an NS simulator object instance following command is used
   A) set ns
   B) define ns
   C) start ns
   D) ns

8) NS2 does not contain _____ language.
   A) C
   B) JAVA
   C) TCL
   D) None of these

9) A _____ tracks packet arrival/departure/drop statistics.
   A) Buffer monitor
   B) Priority monitor
   C) Queue monitor
   D) Flow monitor

10) Heap scheduler is implemented using
   A) Linked list
   B) Heap structure
   C) Stack
   D) All above

_____

SLR-TJ – 260

Seat No.	

T.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
Self-learning (HSS/Technical)
COMPUTER MODELING AND SIMULATION

Day and Date : Monday, 27-11-2017 Marks : 40
Time : 10.00 a.m. to 12.00 noon

2. Attempt **any four** : **(4×10=40)**

   1) Explain when simulation is not appropriate.

   2) Explain different types of models.

   3) Explain steps in simulation study.

   4) Write a note on OTcl interpreter.

   5) Explain scheduler and discuss different types of scheduler.

   6) Discuss advantages and drawbacks of simulation.

Set P

SLR-TJ – 260

Seat No.	

Set Q

T.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
Self-learning (HSS/Technical)
COMPUTER MODELING AND SIMULATION

Day and Date : Monday, 27-11-2017 Total Marks : 50
Time : 10.00 a.m. to 12.00 noon

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in Answer Book Page No.* ***3. Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct answer : **(10×1=10)**

1) A _____ tracks packet arrival/departure/drop statistics.
A) Buffer monitor B) Priority monitor
C) Queue monitor D) Flow monitor

2) Heap scheduler is implemented using
A) Linked list B) Heap structure
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4) NS2 does not contain _____ language.
A) C B) JAVA
C) TCL D) None of these

5) _____ is the imitation of the operation of a real-world process or system over time.
A) Simulation B) Activity
C) Process D) None of these

P.T.O.

6) The second rule says that simulation should not be used
   A) If the resources or time is not available
   B) If system behavior is too complex
   C) If the costs exceed the savings
   D) If the problem can be solved analytically

7) The term _____ is used to describe activities and events occurring within a system.
   A) Exogenous
   B) Endogenous
   C) Indogenous
   D) Extrogenous

8) There are two types of documentation
   A) Static and Dynamic
   B) Before and After
   C) Program and progress
   D) None of these

9) NS is basically an _____ interpreter with network simulation object libraries.
   A) JAVA Interpreter
   B) OTcl Interpreter
   C) C++ Interpreter
   D) All above

10) The simulator is _____ simulator.
   A) Real time
   B) Event driven
   C) Object oriented
   D) GUI

_____

SLR-TJ – 260

Seat No.	

T.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
Self-learning (HSS/Technical)
COMPUTER MODELING AND SIMULATION

Day and Date : Monday, 27-11-2017 Marks : 40
Time : 10.00 a.m. to 12.00 noon.

2. Attempt **any four** : **(4×10=40)**

   1) Explain when simulation is not appropriate.

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   3) Explain steps in simulation study.

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   5) Explain scheduler and discuss different types of scheduler.

   6) Discuss advantages and drawbacks of simulation.

Set Q

SLR-TJ – 260

Seat No.	

Set R

T.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
Self-learning (HSS/Technical)
COMPUTER MODELING AND SIMULATION

Day and Date : Monday, 27-11-2017 Total Marks : 50
Time : 10.00 a.m. to 12.00 noon

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct answer : **(10×1=10)**

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A) JAVA Interpreter B) OTcl Interpreter
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P.T.O.

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   A) set ns
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   D) ns

10) NS2 does not contain _____ language.
   A) C
   B) JAVA
   C) TCL
   D) None of these

_____

SLR-TJ – 260

Seat No.	

T.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
Self-learning (HSS/Technical)
COMPUTER MODELING AND SIMULATION

Day and Date : Monday, 27-11-2017 Marks : 40
Time : 10.00 a.m. to 12.00 noon

2. Attempt **any four** : **(4×10=40)**

   1) Explain when simulation is not appropriate.

   2) Explain different types of models.

   3) Explain steps in simulation study.

   4) Write a note on OTcl interpreter.

   5) Explain scheduler and discuss different types of scheduler.

   6) Discuss advantages and drawbacks of simulation.

Set R

SLR-TJ – 260

Seat No.	

Set **S**

T.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
Self-learning (HSS/Technical)
COMPUTER MODELING AND SIMULATION

Day and Date : Monday, 27-11-2017 Total Marks : 50
Time : 10.00 a.m. to 12.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Marks : 10

1. Choose the correct answer : **(10×1=10)**

1) The term _____ is used to describe activities and events occurring within a system.
A) Exogenous B) Endogenous
C) Indogenous D) Extrogenous

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   C) Process
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   A) If the resources or time is not available
   B) If system behavior is too complex
   C) If the costs exceed the savings
   D) If the problem can be solved analytically

_____

SLR-TJ – 260

Seat No.	

T.E. (C.S.E.) (Part – II) (CGPA) Examination, 2017
Self-learning (HSS/Technical)
COMPUTER MODELING AND SIMULATION

Day and Date : Monday, 27-11-2017 Marks : 40
Time : 10.00 a.m. to 12.00 noon.

2. Attempt **any four** : **(4×10=40)**

   1) Explain when simulation is not appropriate.

   2) Explain different types of models.

   3) Explain steps in simulation study.

   4) Write a note on OTcl interpreter.

   5) Explain scheduler and discuss different types of scheduler.

   6) Discuss advantages and drawbacks of simulation.

Set S

SLR-TJ – 261

Seat No.	

Set **P**

T.E. (CSE) (Part – II) (Old) Examination, 2017
ARTIFICIAL INTELLIGENCE

Day and Date : Wednesday, 13-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Multiple Choice Questions : **20**

1) _____ is one task domain of AI.
   a) Mundane Task b) Nonformal Task
   c) Conceptual Task d) All

2) _____ in which the goal is to discover some problem state that satisfies a given set of constraints.
   a) Constraint satisfaction b) Constraint allotment
   c) Constraint validation d) Constraint propagation

3) In AI technique, knowledge possesses one of the following property
   a) Integrity b) Isolation c) Voluminous d) Reusable

4) Define a _____ that contains all possible configurations of the relevant objects.
   a) State search b) State c) State region d) State space

5) Resolution produces proof by
   a) Refutation b) Refusion c) Refulation d) None of these

6) The forward reasoning, begins from the _____ state.
   a) Goal b) Start c) Intermediate d) None of these

7) Following is one of the logic of nonmonotonic reasoning
   a) Semantical b) Logical c) Monotonic d) Abduction

8) A simple kind of _____ reasoning is suggested by the Closed World Assumption.
   a) Default b) Nonmonotonic c) Minimalist d) All

9) MYCIN represents most of its diagnostic _____ as a set of rules.
a) Facts b) Information c) Knowledge d) Predicates

10) The _____ levels, at which facts and their current goals are described.
a) Knowledge b) Symbol
c) Domain d) Representation

11) _____ is a program that analyses organic compounds to determine their structure.
a) MYCIN b) DENDRAL c) LISP d) None of these

12) _____ is a very large knowledge base project aimed at capturing human commonsense.
a) MYSIN b) CD c) CYC d) LISP

13) _____ is used as a variable in Breadth-first search.
a) NODE-LIST b) SUCCESSOR LIST
c) CHILD LIST d) All

14) _____ is a general mechanism that can be used when no more direct method is known.
a) Sort b) Search c) Decompose d) None of these

15) Steepest-Ascent Hill climbing is also called as _____ search.
a) Gradient b) Heuristic c) Non-gradient d) None of these

16) _____ graphs are used in problem reduction.
a) NOT b) AND-NOT c) AND-OR d) Inverse

17) A _____ is an area of the search space that higher than surrounding areas and that itself has a slope.
a) Plateau b) Ridge
c) Local Maximum d) All

18) The knowledge level, at which _____ are described.
a) Events b) Facts c) Structure d) All

19) _____ can be represented in program in many way.
a) Declarative knowledge b) Procedural knowledge
c) Inferential knowledge d) Inheritable knowledge

20) An _____ attribute is used in predicate logic.
a) Instance and isa b) Object and is
c) Fact and isa d) None of these

_____

SLR-TJ – 261

Seat No.	

T.E. (CSE) (Part – II) (Old) Examination, 2017
ARTIFICIAL INTELLIGENCE

Day and Date : Wednesday, 13-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   a) Define Artificial Intelligence and explain all task domains in briefly.
   b) Explain about criteria for success in AI along with an example.
   c) Discuss the Heuristic Search Technique in AI.
   d) Write Depth-First-Search algorithm in detail and also explain its advantages.
   e) Explain Generate and Test Algorithm with an example.

3. Attempt **any one** : **10**
   a) Explain Water-Jug problem along its all production rules and its solutions in detail.
   b) What are the different approaches to knowledge representation ? Explain with detail, along with example of each approach.

4. Write short notes on (**any two**) : **(2×5=10)**
   a) Problem characteristics.
   b) Production system.
   c) Breadth-first-search.

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   a) Explain representation of simple facts in predicate logic along with examples in detail.
   b) Write a short note on Nonmonotonic Reasoning.
   c) Write short note on CYC.
   d) Write short note on Matching.
   e) Explain all the characteristic features of expert system.

6. Attempt **any one** : **10**
   a) Define and describe frames in slot and filter structure in detail with an example.
   b) What is conceptual dependency ? Explain in detail with example.

7. Explain in detail, probability and Bay's theorem in certainty factor and rule based system. **10**

Set P

Set P

SLR-TJ – 261

Seat No.	

Set **Q**

T.E. (CSE) (Part – II) (Old) Examination, 2017
ARTIFICIAL INTELLIGENCE

Day and Date : Wednesday, 13-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Multiple Choice Questions : **20**

1) _____ graphs are used in problem reduction.
a) NOT b) AND-NOT c) AND-OR d) Inverse

2) A _____ is an area of the search space that higher than surrounding areas and that itself has a slope.
a) Plateau b) Ridge
c) Local Maximum d) All

3) The knowledge level, at which _____ are described.
a) Events b) Facts c) Structure d) All

4) _____ can be represented in program in many way.
a) Declarative knowledge b) Procedural knowledge
c) Inferential knowledge d) Inheritable knowledge

5) An _____ attribute is used in predicate logic.
a) Instance and isa b) Object and is
c) Fact and isa d) None of these

6) _____ is one task domain of AI.
a) Mundane Task b) Nonformal Task
c) Conceptual Task d) All

7) _____ in which the goal is to discover some problem state that satisfies a given set of constraints.
a) Constraint satisfaction b) Constraint allotment
c) Constraint validation d) Constraint propagation

P.T.O.

8) In AI technique, knowledge possesses one of the following property
   a) Integrity b) Isolation c) Voluminous d) Reusable
9) Define a _____ that contains all possible configurations of the relevant objects.
   a) State search b) State c) State region d) State space
10) Resolution produces proof by
   a) Refutation b) Refusion c) Refulation d) None of these
11) The forward reasoning, begins from the _____ state.
   a) Goal b) Start c) Intermediate d) None of these
12) Following is one of the logic of nonmonotonic reasoning
   a) Semantical b) Logical c) Monotonic d) Abduction
13) A simple kind of _____ reasoning is suggested by the Closed World Assumption.
   a) Default b) Nonmonotonic c) Minimalist d) All
14) MYCIN represents most of its diagnostic _____ as a set of rules.
   a) Facts b) Information c) Knowledge d) Predicates
15) The _____ levels, at which facts and their current goals are described.
   a) Knowledge b) Symbol
   c) Domain d) Representation
16) _____ is a program that analyses organic compounds to determine their structure.
   a) MYCIN b) DENDRAL c) LISP d) None of these
17) _____ is a very large knowledge base project aimed at capturing human commonsense.
   a) MYSIN b) CD c) CYC d) LISP
18) _____ is used as a variable in Breadth-first search.
   a) NODE-LIST b) SUCCESSOR LIST
   c) CHILD LIST d) All
19) _____ is a general mechanism that can be used when no more direct method is known.
   a) Sort b) Search c) Decompose d) None of these
20) Steepest-Ascent Hill climbing is also called as _____ search.
   a) Gradient b) Heuristic c) Non-gradient d) None of these

_____

SLR-TJ – 261

Seat No.	

T.E. (CSE) (Part – II) (Old) Examination, 2017
ARTIFICIAL INTELLIGENCE

Day and Date : Wednesday, 13-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   a) Define Artificial Intelligence and explain all task domains in briefly.
   b) Explain about criteria for success in AI along with an example.
   c) Discuss the Heuristic Search Technique in AI.
   d) Write Depth-First-Search algorithm in detail and also explain its advantages.
   e) Explain Generate and Test Algorithm with an example.

3. Attempt **any one** : **10**
   a) Explain Water-Jug problem along its all production rules and its solutions in detail.
   b) What are the different approaches to knowledge representation ? Explain with detail, along with example of each approach.

4. Write short notes on (**any two**) : **(2×5=10)**
   a) Problem characteristics.
   b) Production system.
   c) Breadth-first-search.

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   a) Explain representation of simple facts in predicate logic along with examples in detail.
   b) Write a short note on Nonmonotonic Reasoning.
   c) Write short note on CYC.
   d) Write short note on Matching.
   e) Explain all the characteristic features of expert system.

6. Attempt **any one** : **10**
   a) Define and describe frames in slot and filter structure in detail with an example.
   b) What is conceptual dependency ? Explain in detail with example.

7. Explain in detail, probability and Bay's theorem in certainty factor and rule based system. **10**

Set Q

Set Q

SLR-TJ – 261

Seat No.	

Set **R**

T.E. (CSE) (Part – II) (Old) Examination, 2017
ARTIFICIAL INTELLIGENCE

Day and Date : Wednesday, 13-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Multiple Choice Questions : **20**

1) _____ is a program that analyses organic compounds to determine their structure.
a) MYCIN b) DENDRAL c) LISP d) None of these

2) _____ is a very large knowledge base project aimed at capturing human commonsense.
a) MYSIN b) CD c) CYC d) LISP

3) _____ is used as a variable in Breadth-first search.
a) NODE-LIST b) SUCCESSOR LIST
c) CHILD LIST d) All

4) _____ is a general mechanism that can be used when no more direct method is known.
a) Sort b) Search c) Decompose d) None of these

5) Steepest-Ascent Hill climbing is also called as _____ search.
a) Gradient b) Heuristic c) Non-gradient d) None of these

6) _____ graphs are used in problem reduction.
a) NOT b) AND-NOT c) AND-OR d) Inverse

7) A _____ is an area of the search space that higher than surrounding areas and that itself has a slope.
a) Plateau b) Ridge
c) Local Maximum d) All

8) The knowledge level, at which _____ are described.
   a) Events b) Facts c) Structure d) All

9) _____ can be represented in program in many way.
   a) Declarative knowledge b) Procedural knowledge
   c) Inferential knowledge d) Inheritable knowledge

10) An _____ attribute is used in predicate logic.
   a) Instance and isa b) Object and is
   c) Fact and isa d) None of these

11) _____ is one task domain of AI.
   a) Mundane Task b) Nonformal Task
   c) Conceptual Task d) All

12) _____ in which the goal is to discover some problem state that satisfies a given set of constraints.
   a) Constraint satisfaction b) Constraint allotment
   c) Constraint validation d) Constraint propagation

13) In AI technique, knowledge possesses one of the following property
   a) Integrity b) Isolation c) Voluminous d) Reusable

14) Define a _____ that contains all possible configurations of the relevant objects.
   a) State search b) State c) State region d) State space

15) Resolution produces proof by
   a) Refutation b) Refusion c) Refulation d) None of these

16) The forward reasoning, begins from the _____ state.
   a) Goal b) Start c) Intermediate d) None of these

17) Following is one of the logic of nonmonotonic reasoning
   a) Semantical b) Logical c) Monotonic d) Abduction

18) A simple kind of _____ reasoning is suggested by the Closed World Assumption.
   a) Default b) Nonmonotonic c) Minimalist d) All

19) MYCIN represents most of its diagnostic _____ as a set of rules.
   a) Facts b) Information c) Knowledge d) Predicates

20) The _____ levels, at which facts and their current goals are described.
   a) Knowledge b) Symbol
   c) Domain d) Representation

_____

Seat No.	

T.E. (CSE) (Part – II) (Old) Examination, 2017
ARTIFICIAL INTELLIGENCE

Day and Date : Wednesday, 13-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   a) Define Artificial Intelligence and explain all task domains in briefly.
   b) Explain about criteria for success in AI along with an example.
   c) Discuss the Heuristic Search Technique in AI.
   d) Write Depth-First-Search algorithm in detail and also explain its advantages.
   e) Explain Generate and Test Algorithm with an example.

3. Attempt **any one** : **10**
   a) Explain Water-Jug problem along its all production rules and its solutions in detail.
   b) What are the different approaches to knowledge representation ? Explain with detail, along with example of each approach.

4. Write short notes on (**any two**) : **(2×5=10)**
   a) Problem characteristics.
   b) Production system.
   c) Breadth-first-search.

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   a) Explain representation of simple facts in predicate logic along with examples in detail.
   b) Write a short note on Nonmonotonic Reasoning.
   c) Write short note on CYC.
   d) Write short note on Matching.
   e) Explain all the characteristic features of expert system.

6. Attempt **any one** : **10**
   a) Define and describe frames in slot and filter structure in detail with an example.
   b) What is conceptual dependency ? Explain in detail with example.

7. Explain in detail, probability and Bay's theorem in certainty factor and rule based system. **10**

Set R

Set R

SLR-TJ – 261

Seat No.	

Set **S**

T.E. (CSE) (Part – II) (Old) Examination, 2017
ARTIFICIAL INTELLIGENCE

Day and Date : Wednesday, 13-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Multiple Choice Questions : **20**

1) The forward reasoning, begins from the _____ state.
   a) Goal b) Start c) Intermediate d) None of these

2) Following is one of the logic of nonmonotonic reasoning
   a) Semantical b) Logical c) Monotonic d) Abduction

3) A simple kind of _____ reasoning is suggested by the Closed World Assumption.
   a) Default b) Nonmonotonic c) Minimalist d) All

4) MYCIN represents most of its diagnostic _____ as a set of rules.
   a) Facts b) Information c) Knowledge d) Predicates

5) The _____ levels, at which facts and their current goals are described.
   a) Knowledge b) Symbol
   c) Domain d) Representation

6) _____ is a program that analyses organic compounds to determine their structure.
   a) MYCIN b) DENDRAL c) LISP d) None of these

7) _____ is a very large knowledge base project aimed at capturing human commonsense.
   a) MYSIN b) CD c) CYC d) LISP

8) _____ is used as a variable in Breadth-first search.
   a) NODE-LIST b) SUCCESSOR LIST
   c) CHILD LIST d) All

P.T.O.

9) _____ is a general mechanism that can be used when no more direct method is known.
a) Sort b) Search c) Decompose d) None of these

10) Steepest-Ascent Hill climbing is also called as _____ search.
a) Gradient b) Heuristic c) Non-gradient d) None of these

11) _____ graphs are used in problem reduction.
a) NOT b) AND-NOT c) AND-OR d) Inverse

12) A _____ is an area of the search space that higher than surrounding areas and that itself has a slope.
a) Plateau b) Ridge
c) Local Maximum d) All

13) The knowledge level, at which _____ are described.
a) Events b) Facts c) Structure d) All

14) _____ can be represented in program in many way.
a) Declarative knowledge b) Procedural knowledge
c) Inferential knowledge d) Inheritable knowledge

15) An _____ attribute is used in predicate logic.
a) Instance and isa b) Object and is
c) Fact and isa d) None of these

16) _____ is one task domain of AI.
a) Mundane Task b) Nonformal Task
c) Conceptual Task d) All

17) _____ in which the goal is to discover some problem state that satisfies a given set of constraints.
a) Constraint satisfaction b) Constraint allotment
c) Constraint validation d) Constraint propagation

18) In AI technique, knowledge possesses one of the following property
a) Integrity b) Isolation c) Voluminous d) Reusable

19) Define a _____ that contains all possible configurations of the relevant objects.
a) State search b) State c) State region d) State space

20) Resolution produces proof by
a) Refutation b) Refusion c) Refulation d) None of these

_____

SLR-TJ – 261

Seat No.	

T.E. (CSE) (Part – II) (Old) Examination, 2017
ARTIFICIAL INTELLIGENCE

Day and Date : Wednesday, 13-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   a) Define Artificial Intelligence and explain all task domains in briefly.
   b) Explain about criteria for success in AI along with an example.
   c) Discuss the Heuristic Search Technique in AI.
   d) Write Depth-First-Search algorithm in detail and also explain its advantages.
   e) Explain Generate and Test Algorithm with an example.

3. Attempt **any one** : **10**
   a) Explain Water-Jug problem along its all production rules and its solutions in detail.
   b) What are the different approaches to knowledge representation ? Explain with detail, along with example of each approach.

4. Write short notes on (**any two**) : **(2×5=10)**
   a) Problem characteristics.
   b) Production system.
   c) Breadth-first-search.

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   a) Explain representation of simple facts in predicate logic along with examples in detail.
   b) Write a short note on Nonmonotonic Reasoning.
   c) Write short note on CYC.
   d) Write short note on Matching.
   e) Explain all the characteristic features of expert system.

6. Attempt **any one** : **10**
   a) Define and describe frames in slot and filter structure in detail with an example.
   b) What is conceptual dependency ? Explain in detail with example.

7. Explain in detail, probability and Bay's theorem in certainty factor and rule based system. **10**

Set S

Set S

SLR-TJ – 262

Seat No.	

Set P

B.E. (Computer Science and Engineering) (Part – I) (New CGPA) Examination, 2017
ADVANCED COMPUTER ARCHITECTURE

Day and Date : Tuesday, 28-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**
   1) From the programmer's perspective a program is an
      a) Order set of instructions
      b) Executable file stored in secondary memory
      c) Executable file stored on disk
      d) Quantum of work dealt with as an entity
   2) Process creation involves _____ actions.
      a) Setting up the process description, allocating an address space
      b) Loading the program into the allocated address space
      c) Passing the process description on the scheduler
      d) All of the options
   3) Process scheduling involves
      a) Declaration of distinct process states
      b) Specification of the state transition diagram
      c) Statement of a scheduling policy
      d) None of the options
   4) The value of the CPI for a pipelined processor is the
      a) Pipeline CPI = Ideal pipeline CPI
      b) Pipeline CPI = Ideal pipeline CPI + Structural Stalls
      c) Pipeline CPI = Ideal pipeline CPI + Structural Stalls + Data hazards stalls
      d) Pipeline CPI = Ideal pipeline CPI + Structural Stalls + Data hazards stalls + Control stalls

5) Consider two instructions i and j with i preceding j in program order. The possible data hazards is/are
   a) RAW b) WAW c) WAR d) All of the options
6) Vector architecture supports for
   a) Single instruction stream, multiple data stream
   b) Multiple instruction stream, multiple data stream
   c) Single instruction stream, single data stream
   d) Multiple instruction stream, single data stream
7) Vector architecture
   a) Reads set of data elements into vector registers
   b) Operates on vector register
   c) Disperse the result back into memory
   d) All of the option
8) Tagged tokens are used in
   a) Static Data Flow Model b) Dynamic Data Flow Model
   c) Both a) and b) d) None of above
9) Side effects are present in
   a) Static Data Flow Model b) Dynamic Data Flow Model
   c) Both a) and b) d) None of above
10) Special operators are used to achieve parallelism in
   a) Data flow computers b) Control flow computers
   c) Both a) and b) d) None
11) Data flow architecture selects next instruction to be executed
   a) Out of order b) Data independent
   c) Without program counter d) All above
12) In static data flow architecture on single arc _____ no of tokens can be pass.
   a) One b) Two c) Three d) Multiple
13) _____ SIMD M/C work for More than 1-bit Data.
   a) MasPar b) Solomon c) DAP d) NASA's MPP
14) Which is correct statement ?
   a) FORK/JOIN can be used to implement COBEGIN/COEND
   b) COBEGIN/COEND can be used to implement FORK/JOIN
   c) Both a) and b)
   d) None of above

_____

SLR-TJ – 262

Seat No.	

B.E. (Computer Science and Engineering) (Part – I)
(New CGPA) Examination, 2017
ADVANCED COMPUTER ARCHITECTURE

Day and Date : Tuesday, 28-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any three** questions : **(3×4=12)**
   1) Explain the four main actions involved in process creation.
   2) Mention the specification of parallelism and execution model of SIMD and ILP architecture.
   3) What is name dependencies ? Explain two types of dependences.
   4) What is vector length and vector stride ? Explain with an example.

3. Answer **any two** question : **(2×8=16)**
   1) Explain the three basic methods in concurrent language for creating and terminating threads.
   2) What are the high level concurrent execution model ? Explain each one.
   3) Explain basic vector architecture with neat diagram.

SECTION – II

4. Answer **any three** questions : **(3×4=12)**
   1) Explain NN interconnection network with its properties.
   2) Differentiate between Data Flow Model and Control Flow Model.
   3) What is granularity ? Explain coarse grained and fine grained systems.
   4) What are the advantages and disadvantages of distributed systems ?

5. Explain MPP System in detail. **(1×8=8)**

OR

5. List and explain local autonomy. **(1×8=8)**

6. Explain advantages and potential problems of data flow models. **(1×8=8)**

Set P

SLR-TJ – 262

Seat No.	

Set Q

B.E. (Computer Science and Engineering) (Part – I) (New CGPA) Examination, 2017
ADVANCED COMPUTER ARCHITECTURE

Day and Date : Tuesday, 28-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) Tagged tokens are used in
   a) Static Data Flow Model b) Dynamic Data Flow Model
   c) Both a) and b) d) None of above

2) Side effects are present in
   a) Static Data Flow Model b) Dynamic Data Flow Model
   c) Both a) and b) d) None of above

3) Special operators are used to achieve parallelism in
   a) Data flow computers b) Control flow computers
   c) Both a) and b) d) None

4) Data flow architecture selects next instruction to be executed
   a) Out of order b) Data independent
   c) Without program counter d) All above

5) In static data flow architecture on single arc _____ no of tokens can be pass.
   a) One b) Two c) Three d) Multiple

6) _____ SIMD M/C work for More than 1-bit Data.
   a) MasPar b) Solomon c) DAP d) NASA's MPP

P.T.O.

7) Which is correct statement ?
   a) FORK/JOIN can be used to implement COBEGIN/COEND
   b) COBEGIN/COEND can be used to implement FORK/JOIN
   c) Both a) and b)
   d) None of above

8) From the programmer's perspective a program is an
   a) Order set of instructions
   b) Executable file stored in secondary memory
   c) Executable file stored on disk
   d) Quantum of work dealt with as an entity

9) Process creation involves _____ actions.
   a) Setting up the process description, allocating an address space
   b) Loading the program into the allocated address space
   c) Passing the process description on the scheduler
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10) Process scheduling involves
   a) Declaration of distinct process states
   b) Specification of the state transition diagram
   c) Statement of a scheduling policy
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11) The value of the CPI for a pipelined processor is the
   a) Pipeline CPI = Ideal pipeline CPI
   b) Pipeline CPI = Ideal pipeline CPI + Structural Stalls
   c) Pipeline CPI = Ideal pipeline CPI + Structural Stalls + Data hazards stalls
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12) Consider two instructions i and j with i preceding j in program order. The possible data hazards is/are
   a) RAW b) WAW c) WAR d) All of the options

13) Vector architecture supports for
   a) Single instruction stream, multiple data stream
   b) Multiple instruction stream, multiple data stream
   c) Single instruction stream, single data stream
   d) Multiple instruction stream, single data stream

14) Vector architecture
   a) Reads set of data elements into vector registers
   b) Operates on vector register
   c) Disperse the result back into memory
   d) All of the option

_____

SLR-TJ – 262

Seat No.	

B.E. (Computer Science and Engineering) (Part – I)
(New CGPA) Examination, 2017
ADVANCED COMPUTER ARCHITECTURE

Day and Date : Tuesday, 28-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any three** questions : **(3×4=12)**
   1) Explain the four main actions involved in process creation.
   2) Mention the specification of parallelism and execution model of SIMD and ILP architecture.
   3) What is name dependencies ? Explain two types of dependences.
   4) What is vector length and vector stride ? Explain with an example.

3. Answer **any two** question : **(2×8=16)**
   1) Explain the three basic methods in concurrent language for creating and terminating threads.
   2) What are the high level concurrent execution model ? Explain each one.
   3) Explain basic vector architecture with neat diagram.

SECTION – II

4. Answer **any three** questions : **(3×4=12)**
   1) Explain NN interconnection network with its properties.
   2) Differentiate between Data Flow Model and Control Flow Model.
   3) What is granularity ? Explain coarse grained and fine grained systems.
   4) What are the advantages and disadvantages of distributed systems ?

5. Explain MPP System in detail. **(1×8=8)**

OR

5. List and explain local autonomy. **(1×8=8)**

6. Explain advantages and potential problems of data flow models. **(1×8=8)**

Set Q

SLR-TJ – 262

Seat No.	

Set R

B.E. (Computer Science and Engineering) (Part – I) (New CGPA) Examination, 2017
ADVANCED COMPUTER ARCHITECTURE

Day and Date : Tuesday, 28-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) Consider two instructions i and j with i preceding j in program order. The possible data hazards is/are
   a) RAW b) WAW c) WAR d) All of the options

2) Vector architecture supports for
   a) Single instruction stream, multiple data stream
   b) Multiple instruction stream, multiple data stream
   c) Single instruction stream, single data stream
   d) Multiple instruction stream, single data stream

3) Vector architecture
   a) Reads set of data elements into vector registers
   b) Operates on vector register
   c) Disperse the result back into memory
   d) All of the option

4) Tagged tokens are used in
   a) Static Data Flow Model b) Dynamic Data Flow Model
   c) Both a) and b) d) None of above

5) Side effects are present in
   a) Static Data Flow Model b) Dynamic Data Flow Model
   c) Both a) and b) d) None of above

6) Special operators are used to achieve parallelism in
   a) Data flow computers
   b) Control flow computers
   c) Both a) and b)
   d) None

7) Data flow architecture selects next instruction to be executed
   a) Out of order
   b) Data independent
   c) Without program counter
   d) All above

8) In static data flow architecture on single arc _____ no of tokens can be pass.
   a) One
   b) Two
   c) Three
   d) Multiple

9) _____ SIMD M/C work for More than 1-bit Data.
   a) MasPar
   b) Solomon
   c) DAP
   d) NASA's MPP

10) Which is correct statement ?
   a) FORK/JOIN can be used to implement COBEGIN/COEND
   b) COBEGIN/COEND can be used to implement FORK/JOIN
   c) Both a) and b)
   d) None of above

11) From the programmer's perspective a program is an
   a) Order set of instructions
   b) Executable file stored in secondary memory
   c) Executable file stored on disk
   d) Quantum of work dealt with as an entity

12) Process creation involves _____ actions.
   a) Setting up the process description, allocating an address space
   b) Loading the program into the allocated address space
   c) Passing the process description on the scheduler
   d) All of the options

13) Process scheduling involves
   a) Declaration of distinct process states
   b) Specification of the state transition diagram
   c) Statement of a scheduling policy
   d) None of the options

14) The value of the CPI for a pipelined processor is the
   a) Pipeline CPI = Ideal pipeline CPI
   b) Pipeline CPI = Ideal pipeline CPI + Structural Stalls
   c) Pipeline CPI = Ideal pipeline CPI + Structural Stalls + Data hazards stalls
   d) Pipeline CPI = Ideal pipeline CPI + Structural Stalls + Data hazards stalls + Control stalls

_____

SLR-TJ – 262

Seat No.	

B.E. (Computer Science and Engineering) (Part – I)
(New CGPA) Examination, 2017
ADVANCED COMPUTER ARCHITECTURE

Day and Date : Tuesday, 28-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any three** questions : **(3×4=12)**
   1) Explain the four main actions involved in process creation.
   2) Mention the specification of parallelism and execution model of SIMD and ILP architecture.
   3) What is name dependencies ? Explain two types of dependences.
   4) What is vector length and vector stride ? Explain with an example.

3. Answer **any two** question : **(2×8=16)**
   1) Explain the three basic methods in concurrent language for creating and terminating threads.
   2) What are the high level concurrent execution model ? Explain each one.
   3) Explain basic vector architecture with neat diagram.

SECTION – II

4. Answer **any three** questions : **(3×4=12)**
   1) Explain NN interconnection network with its properties.
   2) Differentiate between Data Flow Model and Control Flow Model.
   3) What is granularity ? Explain coarse grained and fine grained systems.
   4) What are the advantages and disadvantages of distributed systems ?

5. Explain MPP System in detail. **(1×8=8)**

OR

5. List and explain local autonomy. **(1×8=8)**

6. Explain advantages and potential problems of data flow models. **(1×8=8)**

Set R

SLR-TJ – 262

Seat No.	

Set S

B.E. (Computer Science and Engineering) (Part – I) (New CGPA) Examination, 2017
ADVANCED COMPUTER ARCHITECTURE

Day and Date : Tuesday, 28-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(1×14=14)**

1) Special operators are used to achieve parallelism in
   a) Data flow computers b) Control flow computers
   c) Both a) and b) d) None

2) Data flow architecture selects next instruction to be executed
   a) Out of order b) Data independent
   c) Without program counter d) All above

3) In static data flow architecture on single arc _____ no of tokens can be pass.
   a) One b) Two c) Three d) Multiple

4) _____ SIMD M/C work for More than 1-bit Data.
   a) MasPar b) Solomon c) DAP d) NASA's MPP

5) Which is correct statement ?
   a) FORK/JOIN can be used to implement COBEGIN/COEND
   b) COBEGIN/COEND can be used to implement FORK/JOIN
   c) Both a) and b)
   d) None of above

6) From the programmer's perspective a program is an
   a) Order set of instructions
   b) Executable file stored in secondary memory
   c) Executable file stored on disk
   d) Quantum of work dealt with as an entity

7) Process creation involves _____ actions.
   a) Setting up the process description, allocating an address space
   b) Loading the program into the allocated address space
   c) Passing the process description on the scheduler
   d) All of the options

8) Process scheduling involves
   a) Declaration of distinct process states
   b) Specification of the state transition diagram
   c) Statement of a scheduling policy
   d) None of the options

9) The value of the CPI for a pipelined processor is the
   a) Pipeline CPI = Ideal pipeline CPI
   b) Pipeline CPI = Ideal pipeline CPI + Structural Stalls
   c) Pipeline CPI = Ideal pipeline CPI + Structural Stalls + Data hazards stalls
   d) Pipeline CPI = Ideal pipeline CPI + Structural Stalls + Data hazards stalls + Control stalls

10) Consider two instructions i and j with i preceding j in program order. The possible data hazards is/are
   a) RAW b) WAW c) WAR d) All of the options

11) Vector architecture supports for
   a) Single instruction stream, multiple data stream
   b) Multiple instruction stream, multiple data stream
   c) Single instruction stream, single data stream
   d) Multiple instruction stream, single data stream

12) Vector architecture
   a) Reads set of data elements into vector registers
   b) Operates on vector register
   c) Disperse the result back into memory
   d) All of the option

13) Tagged tokens are used in
   a) Static Data Flow Model b) Dynamic Data Flow Model
   c) Both a) and b) d) None of above

14) Side effects are present in
   a) Static Data Flow Model b) Dynamic Data Flow Model
   c) Both a) and b) d) None of above

_____

SLR-TJ – 262

Seat No.	

B.E. (Computer Science and Engineering) (Part – I)
(New CGPA) Examination, 2017
ADVANCED COMPUTER ARCHITECTURE

Day and Date : Tuesday, 28-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any three** questions : **(3×4=12)**
   1) Explain the four main actions involved in process creation.
   2) Mention the specification of parallelism and execution model of SIMD and ILP architecture.
   3) What is name dependencies ? Explain two types of dependences.
   4) What is vector length and vector stride ? Explain with an example.

3. Answer **any two** question : **(2×8=16)**
   1) Explain the three basic methods in concurrent language for creating and terminating threads.
   2) What are the high level concurrent execution model ? Explain each one.
   3) Explain basic vector architecture with neat diagram.

SECTION – II

4. Answer **any three** questions : **(3×4=12)**
   1) Explain NN interconnection network with its properties.
   2) Differentiate between Data Flow Model and Control Flow Model.
   3) What is granularity ? Explain coarse grained and fine grained systems.
   4) What are the advantages and disadvantages of distributed systems ?

5. Explain MPP System in detail. **(1×8=8)**

OR

5. List and explain local autonomy. **(1×8=8)**

6. Explain advantages and potential problems of data flow models. **(1×8=8)**

Set S

SLR-TJ – 263

Seat No.	

Set P

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
DISTRIBUTED SYSTEMS

Day and Date : Thursday, 30-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternatives : **(1×14=14)**

1) For computer clocks based on quartz crystals, the drift rate is approximately equal to
   a) 10^{-6} b) 10^{-8} c) 10^{-4} d) 10^{6}

2) Condition variables are used in _____ techniques.
   a) Process migration b) Clock synchronization
   c) Deadlock avoidance d) Mutual Exclusion

3) _____ ensures that every message sent to a group of receivers will be delivered to either all of them or none of them.
   a) Consistency b) Isolation c) Automicity d) Reliability

4) An efficient mechanism used to cope with the problem of lost and out-of-sequence packets in multidatagram messages is
   a) Stop-and-wait b) BLAST protocol
   c) Selective repeat d) CBCAST protocol

5) Indirect call method is used in
   a) Binding at compile time b) Binding at link time
   c) Binding at call time d) None of the above

6) In VMTP, protocol the maximum size of segment data is
   a) 32K bytes b) 16K bytes c) 512K bytes d) 256K bytes

7) In distributed system each processor has its own ?
   a) local memory b) clock
   c) both a and b d) none of the above

P.T.O.

8) Suzuki-Kasami algorithm requires _____ message per CS invocation.
   a) 0 b) N c) A or B d) (n – 1)

9) The detection of false deadlock is called as
   a) Phantom deadlock b) Error deadlock
   c) Falsie deadlock d) All of the above

10) The process of mapping name of file to an object is referred as
   a) Name mapping b) Object mapping
   c) Name resolution d) Resource mapping

11) _____ is not an layer of grid protocol architecture.
   a) Fabric b) Connectivity
   c) Resource d) Middleware

12) Resources grid can be divided into
   a) Computational grid b) Data grid
   c) Both a and b d) None of the above

13) _____ is component of load distributing algorithm.
   a) Transfer policy b) Location policy
   c) Selection policy d) All of the above

14) _____ maps the shared memory address to the physical memory.
   a) Mapping manager b) Data manager
   c) Memory manager d) Shared manager

_____

SLR-TJ – 263

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
DISTRIBUTED SYSTEMS

Day and Date : Thursday, 30-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Answer **any three**. **(4×3=12)**
   a) Discuss three design principles used for better performance in distributed system.
   b) Explain the two methods of dealing with buffer overflow problem in finite bounded buffer.
   c) What are the different degrees of reliability used in one-to-many communication ? Give application for each.
   d) Draw and explain the format of RPC reply messages.

3. Answer **any one**. **(8×1=8)**
   a) Explain the communication protocols of RPC.
   b) What is process migration ? List the advantages of process migration.

4. Explain the different types of Transparency in distributed operating system. **(8×1=8)**

SECTION – II

5. Answer **any three**. **(4×3=12)**
   a) Explain Suzuki Kasami's broadcast algorithm.
   b) What is grid computing ? List the functions of grid middleware.
   c) Explain centralized-server algorithm for Distributed shared memory.
   d) Explain any two design issues of distributed file system.

6. Answer **any one**. **(8×1=8)**
   a) Explain typical data access action in distributed file system with flowchart.
   b) Explain HO-Ramamoorthy centralized deadlock detection algorithm.

7. Explain sender-Initiated load distributing algorithm. **(8×1=8)**

Set P

Set P

SLR-TJ – 263

Seat No.	

Set Q

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
DISTRIBUTED SYSTEMS

Day and Date : Thursday, 30-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternatives : **(1×14=14)**

1) Suzuki-Kasami algorithm requires _____ message per CS invocation.
   a) 0 b) N c) A or B d) (n – 1)

2) The detection of false deadlock is called as
   a) Phantom deadlock b) Error deadlock
   c) Falsie deadlock d) All of the above

3) The process of mapping name of file to an object is referred as
   a) Name mapping b) Object mapping
   c) Name resolution d) Resource mapping

4) _____ is not an layer of grid protocol architecture.
   a) Fabric b) Connectivity
   c) Resource d) Middleware

5) Resources grid can be divided into
   a) Computational grid b) Data grid
   c) Both a and b d) None of the above

6) _____ is component of load distributing algorithm.
   a) Transfer policy b) Location policy
   c) Selection policy d) All of the above

7) _____ maps the shared memory address to the physical memory.
   a) Mapping manager b) Data manager
   c) Memory manager d) Shared manager

P.T.O.

8) For computer clocks based on quartz crystals, the drift rate is approximately equal to
   a) 10^{-6} b) 10^{-8} c) 10^{-4} d) 10^{6}
9) Condition variables are used in _____ techniques.
   a) Process migration b) Clock synchronization
   c) Deadlock avoidance d) Mutual Exclusion
10) _____ ensures that every message sent to a group of receivers will be delivered to either all of them or none of them.
   a) Consistency b) Isolation c) Automicity d) Reliability
11) An efficient mechanism used to cope with the problem of lost and out-of-sequence packets in multidatagram messages is
   a) Stop-and-wait b) BLAST protocol
   c) Selective repeat d) CBCAST protocol
12) Indirect call method is used in
   a) Binding at compile time b) Binding at link time
   c) Binding at call time d) None of the above
13) In VMTP, protocol the maximum size of segment data is
   a) 32K bytes b) 16K bytes c) 512K bytes d) 256K bytes
14) In distributed system each processor has its own ?
   a) local memory b) clock
   c) both a and b d) none of the above

_____

SLR-TJ – 263

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
DISTRIBUTED SYSTEMS

Day and Date : Thursday, 30-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Answer **any three**. **(4×3=12)**
   a) Discuss three design principles used for better performance in distributed system.
   b) Explain the two methods of dealing with buffer overflow problem in finite bounded buffer.
   c) What are the different degrees of reliability used in one-to-many communication ? Give application for each.
   d) Draw and explain the format of RPC reply messages.

3. Answer **any one**. **(8×1=8)**
   a) Explain the communication protocols of RPC.
   b) What is process migration ? List the advantages of process migration.

4. Explain the different types of Transparency in distributed operating system. **(8×1=8)**

SECTION – II

5. Answer **any three**. **(4×3=12)**
   a) Explain Suzuki Kasami's broadcast algorithm.
   b) What is grid computing ? List the functions of grid middleware.
   c) Explain centralized-server algorithm for Distributed shared memory.
   d) Explain any two design issues of distributed file system.

6. Answer **any one**. **(8×1=8)**
   a) Explain typical data access action in distributed file system with flowchart.
   b) Explain HO-Ramamoorthy centralized deadlock detection algorithm.

7. Explain sender-Initiated load distributing algorithm. **(8×1=8)**

Set Q

Set Q

SLR-TJ – 263

Seat No.	

Set R

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
DISTRIBUTED SYSTEMS

Day and Date : Thursday, 30-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternatives : **(1×14=14)**

1) Indirect call method is used in
   a) Binding at compile time b) Binding at link time
   c) Binding at call time d) None of the above

2) In VMTP, protocol the maximum size of segment data is
   a) 32K bytes b) 16K bytes c) 512K bytes d) 256K bytes

3) In distributed system each processor has its own ?
   a) local memory b) clock
   c) both a and b d) none of the above

4) Suzuki-Kasami algorithm requires _____ message per CS invocation.
   a) 0 b) N c) A or B d) (n – 1)

5) The detection of false deadlock is called as
   a) Phantom deadlock b) Error deadlock
   c) Falsie deadlock d) All of the above

6) The process of mapping name of file to an object is referred as
   a) Name mapping b) Object mapping
   c) Name resolution d) Resource mapping

7) _____ is not an layer of grid protocol architecture.
   a) Fabric b) Connectivity
   c) Resource d) Middleware

P.T.O.

8) Resources grid can be divided into
   a) Computational grid
   b) Data grid
   c) Both a and b
   d) None of the above

9) _____ is component of load distributing algorithm.
   a) Transfer policy
   b) Location policy
   c) Selection policy
   d) All of the above

10) _____ maps the shared memory address to the physical memory.
   a) Mapping manager
   b) Data manager
   c) Memory manager
   d) Shared manager

11) For computer clocks based on quartz crystals, the drift rate is approximately equal to
   a) 10^{-6}
   b) 10^{-8}
   c) 10^{-4}
   d) 10^{6}

12) Condition variables are used in _____ techniques.
   a) Process migration
   b) Clock synchronization
   c) Deadlock avoidance
   d) Mutual Exclusion

13) _____ ensures that every message sent to a group of receivers will be delivered to either all of them or none of them.
   a) Consistency
   b) Isolation
   c) Automicity
   d) Reliability

14) An efficient mechanism used to cope with the problem of lost and out-of-sequence packets in multidatagram messages is
   a) Stop-and-wait
   b) BLAST protocol
   c) Selective repeat
   d) CBCAST protocol

_____

SLR-TJ – 263

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
DISTRIBUTED SYSTEMS

Day and Date : Thursday, 30-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Answer **any three**. **(4×3=12)**
   a) Discuss three design principles used for better performance in distributed system.
   b) Explain the two methods of dealing with buffer overflow problem in finite bounded buffer.
   c) What are the different degrees of reliability used in one-to-many communication ? Give application for each.
   d) Draw and explain the format of RPC reply messages.

3. Answer **any one**. **(8×1=8)**
   a) Explain the communication protocols of RPC.
   b) What is process migration ? List the advantages of process migration.

4. Explain the different types of Transparency in distributed operating system. **(8×1=8)**

SECTION – II

5. Answer **any three**. **(4×3=12)**
   a) Explain Suzuki Kasami's broadcast algorithm.
   b) What is grid computing ? List the functions of grid middleware.
   c) Explain centralized-server algorithm for Distributed shared memory.
   d) Explain any two design issues of distributed file system.

6. Answer **any one**. **(8×1=8)**
   a) Explain typical data access action in distributed file system with flowchart.
   b) Explain HO-Ramamoorthy centralized deadlock detection algorithm.

7. Explain sender-Initiated load distributing algorithm. **(8×1=8)**

Set R

Set R

SLR-TJ – 263

Seat No.	

Set S

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
DISTRIBUTED SYSTEMS

Day and Date : Thursday, 30-11-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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****.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct alternatives : **(1×14=14)**

1) The process of mapping name of file to an object is referred as
   a) Name mapping b) Object mapping
   c) Name resolution d) Resource mapping

2) _____ is not an layer of grid protocol architecture.
   a) Fabric b) Connectivity
   c) Resource d) Middleware

3) Resources grid can be divided into
   a) Computational grid b) Data grid
   c) Both a and b d) None of the above

4) _____ is component of load distributing algorithm.
   a) Transfer policy b) Location policy
   c) Selection policy d) All of the above

5) _____ maps the shared memory address to the physical memory.
   a) Mapping manager b) Data manager
   c) Memory manager d) Shared manager

6) For computer clocks based on quartz crystals, the drift rate is approximately equal to
   a) 10^{-6} b) 10^{-8} c) 10^{-4} d) 10^{6}

P.T.O.

7) Condition variables are used in _____ techniques.
   a) Process migration
   b) Clock synchronization
   c) Deadlock avoidance
   d) Mutual Exclusion

8) _____ ensures that every message sent to a group of receivers will be delivered to either all of them or none of them.
   a) Consistency
   b) Isolation
   c) Automicity
   d) Reliability

9) An efficient mechanism used to cope with the problem of lost and out-of-sequence packets in multidatagram messages is
   a) Stop-and-wait
   b) BLAST protocol
   c) Selective repeat
   d) CBCAST protocol

10) Indirect call method is used in
   a) Binding at compile time
   b) Binding at link time
   c) Binding at call time
   d) None of the above

11) In VMTP, protocol the maximum size of segment data is
   a) 32K bytes
   b) 16K bytes
   c) 512K bytes
   d) 256K bytes

12) In distributed system each processor has its own ?
   a) local memory
   b) clock
   c) both a and b
   d) none of the above

13) Suzuki-Kasami algorithm requires _____ message per CS invocation.
   a) 0
   b) N
   c) A or B
   d) (n – 1)

14) The detection of false deadlock is called as
   a) Phantom deadlock
   b) Error deadlock
   c) Falsie deadlock
   d) All of the above

_____

SLR-TJ – 263

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
DISTRIBUTED SYSTEMS

Day and Date : Thursday, 30-11-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Answer **any three**. **(4×3=12)**
   a) Discuss three design principles used for better performance in distributed system.
   b) Explain the two methods of dealing with buffer overflow problem in finite bounded buffer.
   c) What are the different degrees of reliability used in one-to-many communication ? Give application for each.
   d) Draw and explain the format of RPC reply messages.

3. Answer **any one**. **(8×1=8)**
   a) Explain the communication protocols of RPC.
   b) What is process migration ? List the advantages of process migration.

4. Explain the different types of Transparency in distributed operating system. **(8×1=8)**

SECTION – II

5. Answer **any three**. **(4×3=12)**
   a) Explain Suzuki Kasami's broadcast algorithm.
   b) What is grid computing ? List the functions of grid middleware.
   c) Explain centralized-server algorithm for Distributed shared memory.
   d) Explain any two design issues of distributed file system.

6. Answer **any one**. **(8×1=8)**
   a) Explain typical data access action in distributed file system with flowchart.
   b) Explain HO-Ramamoorthy centralized deadlock detection algorithm.

7. Explain sender-Initiated load distributing algorithm. **(8×1=8)**

Set S

Set S

SLR-TJ – 264

Seat No.	

Set **P**

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
MODERN DATABASE SYSTEM

Day and Date : Monday, 4-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) The architecture of distributed database system is greatly influenced by
   A) Networking B) Parallelism
   C) Distribution of Data D) All of the above

2) In transaction server
   A) Client machines ship transaction to server systems
   B) Requests are made by clients to servers using SQL
   C) Server ships the information to clients
   D) All of the above

3) _____ protocol provides less overhead on READ operation.
   A) Majority Protocol B) Quorum Consensus Protocol
   C) Primary Copy Protocol D) Biased Protocol

4) Which of the following is not a characteristic of a data warehouse ?
   A) Contains historical data
   B) Designed for decision support
   C) Stores data in normalized tables
   D) Promotes data redundancy

5) _____ fragmentation splits the relation by assigning each tuple of relation R into one or more fragments.
   A) Horizontal B) Vertical
   C) Mixed D) Data

P.T.O.

6) A heterogeneous distributed database is
   A) The same DBMS is used at different location and data are not distributed across all nodes
   B) The same DBMS is used at different location and data are distributed across all nodes
   C) A different DBMS is used at different location and data are not distributed across all nodes
   D) A different DBMS is used at different location and data are distributed across all nodes

7) In object oriented databases, nesting can be done using function _____ to create a multiset of particular attribute.
   A) Aggregate B) Group by C) Order by D) Collect

8) Data mining is best described as the process of
   A) Identifying patterns in data B) Deducing relationships in data
   C) Representing data D) Simulating trends in data

9) Which of the following is not a NoSQL database ?
   A) SQL Server B) MongoDB C) Cassandra D) None

10) A global locking system is required in
   A) Shared disk architecture B) Shared nothing architecture
   C) Shared-memory architecture D) None of the above

11) MongoDB has been adopted as _____ software by a number of major websites and services.
   A) Frontend B) Backend
   C) Proprietary D) All of the mentioned

12) Schema which has more than one fact table is called as
   A) Star schema B) Star-snowflake schema
   C) Constellation D) None of these

13) Point out the wrong statement
   A) Hadoop's processing capabilities are huge and its real advantage lies in the ability to process terabytes and petabytes of data
   B) Hadoop uses a programming model called "MapReduce", all the programs should confirms to this model in order to work on Hadoop platform
   C) The programming model, MapReduce, used by Hadoop is difficult to write and test
   D) All of the mentioned

14) MongoDB uses a _____ lock that allows concurrent read access to a database but exclusive write access to a single write operation.
   A) Readers B) Readers-writer
   C) Writer D) None of the mentioned

_____

SLR-TJ – 264

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
MODERN DATABASE SYSTEM

Day and Date : Monday, 4-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four**. **(4×4=16)**
   1) Explain pipelined parallelism with its limitations.
   2) What are different Data Cube operations ?
   3) Explain majority protocol for distributed lock manager.
   4) How ranking operation can be performed on database ?
   5) List and explain 4 methods of OLAP implementation.

3. Answer **any two**. **(6×2=12)**
   1) Explain Brewer's CAP Theorem in detail.
   2) In distributed transaction which protocol is used to ensure automocity ? Explain the protocol in detail.
   3) Explain association rule used in data mining.

SECTION – II

4. Answer **any four**. **(4×4=16)**
   1) Write short note on MongoDB.
   2) Explain Hash-join algorithm.
   3) Explain table inheritance in object oriented database.
   4) How object identity and reference types applied in SQL ?
   5) Write features of PostgreSQL.

5. Answer **any two**. **(6×2=12)**
   1) List Hadoop Core component. Also explain how Mapreduce framework works ?
   2) Explain nested loop join in detail.
   3) List characteristics of NoSql. Also define Key-value store and document database.

Set P

Set P

SLR-TJ – 264

Seat No.	

Set **Q**

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
MODERN DATABASE SYSTEM

Day and Date : Monday, 4-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) Data mining is best described as the process of
   A) Identifying patterns in data B) Deducing relationships in data
   C) Representing data D) Simulating trends in data

2) Which of the following is not a NoSQL database ?
   A) SQL Server B) MongoDB C) Cassandra D) None

3) A global locking system is required in
   A) Shared disk architecture B) Shared nothing architecture
   C) Shared-memory architecture D) None of the above

4) MongoDB has been adopted as _____ software by a number of major websites and services.
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   C) Proprietary D) All of the mentioned

5) Schema which has more than one fact table is called as
   A) Star schema B) Star-snowflake schema
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6) Point out the wrong statement
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   C) The programming model, MapReduce, used by Hadoop is difficult to write and test
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7) MongoDB uses a _____ lock that allows concurrent read access to a database but exclusive write access to a single write operation.
   A) Readers B) Readers-writer
   C) Writer D) None of the mentioned

8) The architecture of distributed database system is greatly influenced by
   A) Networking B) Parallelism
   C) Distribution of Data D) All of the above

9) In transaction server
   A) Client machines ship transaction to server systems
   B) Requests are made by clients to servers using SQL
   C) Server ships the information to clients
   D) All of the above

10) _____ protocol provides less overhead on READ operation.
   A) Majority Protocol B) Quorum Consensus Protocol
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11) Which of the following is not a characteristic of a data warehouse ?
   A) Contains historical data
   B) Designed for decision support
   C) Stores data in normalized tables
   D) Promotes data redundancy

12) _____ fragmentation splits the relation by assigning each tuple of relation R into one or more fragments.
   A) Horizontal B) Vertical
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13) A heterogeneous distributed database is
   A) The same DBMS is used at different location and data are not distributed across all nodes
   B) The same DBMS is used at different location and data are distributed across all nodes
   C) A different DBMS is used at different location and data are not distributed across all nodes
   D) A different DBMS is used at different location and data are distributed across all nodes

14) In object oriented databases, nesting can be done using function _____ to create a multiset of particular attribute.
   A) Aggregate B) Group by C) Order by D) Collect

_____

SLR-TJ – 264

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
MODERN DATABASE SYSTEM

Day and Date : Monday, 4-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four**. **(4×4=16)**
   1) Explain pipelined parallelism with its limitations.
   2) What are different Data Cube operations ?
   3) Explain majority protocol for distributed lock manager.
   4) How ranking operation can be performed on database ?
   5) List and explain 4 methods of OLAP implementation.

3. Answer **any two**. **(6×2=12)**
   1) Explain Brewer's CAP Theorem in detail.
   2) In distributed transaction which protocol is used to ensure automocity ? Explain the protocol in detail.
   3) Explain association rule used in data mining.

SECTION – II

4. Answer **any four**. **(4×4=16)**
   1) Write short note on MongoDB.
   2) Explain Hash-join algorithm.
   3) Explain table inheritance in object oriented database.
   4) How object identity and reference types applied in SQL ?
   5) Write features of PostgreSQL.

5. Answer **any two**. **(6×2=12)**
   1) List Hadoop Core component. Also explain how Mapreduce framework works ?
   2) Explain nested loop join in detail.
   3) List characteristics of NoSql. Also define Key-value store and document database.

Set Q

Set Q

SLR-TJ – 264

Seat No.	

Set **R**

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
MODERN DATABASE SYSTEM

Day and Date : Monday, 4-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) _____ fragmentation splits the relation by assigning each tuple of relation R into one or more fragments.
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2) A heterogeneous distributed database is
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4) Data mining is best described as the process of
   A) Identifying patterns in data B) Deducing relationships in data
   C) Representing data D) Simulating trends in data

5) Which of the following is not a NoSQL database ?
   A) SQL Server B) MongoDB C) Cassandra D) None

P.T.O.

6) A global locking system is required in
   A) Shared disk architecture
   B) Shared nothing architecture
   C) Shared-memory architecture
   D) None of the above

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   A) Frontend
   B) Backend
   C) Proprietary
   D) All of the mentioned

8) Schema which has more than one fact table is called as
   A) Star schema
   B) Star-snowflake schema
   C) Constellation
   D) None of these

9) Point out the wrong statement
   A) Hadoop's processing capabilities are huge and its real advantage lies in the ability to process terabytes and petabytes of data
   B) Hadoop uses a programming model called "MapReduce", all the programs should confirms to this model in order to work on Hadoop platform
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10) MongoDB uses a _____ lock that allows concurrent read access to a database but exclusive write access to a single write operation.
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   B) Readers-writer
   C) Writer
   D) None of the mentioned

11) The architecture of distributed database system is greatly influenced by
   A) Networking
   B) Parallelism
   C) Distribution of Data
   D) All of the above

12) In transaction server
   A) Client machines ship transaction to server systems
   B) Requests are made by clients to servers using SQL
   C) Server ships the information to clients
   D) All of the above

13) _____ protocol provides less overhead on READ operation.
   A) Majority Protocol
   B) Quorum Consensus Protocol
   C) Primary Copy Protocol
   D) Biased Protocol

14) Which of the following is not a characteristic of a data warehouse ?
   A) Contains historical data
   B) Designed for decision support
   C) Stores data in normalized tables
   D) Promotes data redundancy

_____

SLR-TJ – 264

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
MODERN DATABASE SYSTEM

Day and Date : Monday, 4-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four**. **(4×4=16)**
   1) Explain pipelined parallelism with its limitations.
   2) What are different Data Cube operations ?
   3) Explain majority protocol for distributed lock manager.
   4) How ranking operation can be performed on database ?
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   1) Explain Brewer's CAP Theorem in detail.
   2) In distributed transaction which protocol is used to ensure automocity ? Explain the protocol in detail.
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SECTION – II

4. Answer **any four**. **(4×4=16)**
   1) Write short note on MongoDB.
   2) Explain Hash-join algorithm.
   3) Explain table inheritance in object oriented database.
   4) How object identity and reference types applied in SQL ?
   5) Write features of PostgreSQL.

5. Answer **any two**. **(6×2=12)**
   1) List Hadoop Core component. Also explain how Mapreduce framework works ?
   2) Explain nested loop join in detail.
   3) List characteristics of NoSql. Also define Key-value store and document database.

Set R

Set R

SLR-TJ – 264

Seat No.	

Set S

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
MODERN DATABASE SYSTEM

Day and Date : Monday, 4-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) A global locking system is required in
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2) MongoDB has been adopted as _____ software by a number of major websites and services.
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P.T.O.

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   A) Identifying patterns in data B) Deducing relationships in data
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14) Which of the following is not a NoSQL database ?
   A) SQL Server B) MongoDB C) Cassandra D) None

_____

SLR-TJ – 264

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
MODERN DATABASE SYSTEM

Day and Date : Monday, 4-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four**. **(4×4=16)**
   1) Explain pipelined parallelism with its limitations.
   2) What are different Data Cube operations ?
   3) Explain majority protocol for distributed lock manager.
   4) How ranking operation can be performed on database ?
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SECTION – II

4. Answer **any four**. **(4×4=16)**
   1) Write short note on MongoDB.
   2) Explain Hash-join algorithm.
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5. Answer **any two**. **(6×2=12)**
   1) List Hadoop Core component. Also explain how Mapreduce framework works ?
   2) Explain nested loop join in detail.
   3) List characteristics of NoSql. Also define Key-value store and document database.

Set S

Set S

SLR-TJ – 265

Seat No.	

Set P

B.E. (Computer Science and Engineering) (Part – I) (New-CGPA) Examination, 2017
HUMAN COMPUTER INTERACTION (Elective – I)

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) _____ responds to intense pressure, heat and pain.
A) Thermoreceptors B) Mechanoreceptors
C) Nociceptors D) None of these

2) The more specialized device typically used for freehand drawing.
A) Digitizing tablet B) Joystick
C) Trackball D) None of these

3) Controls and displays are organized to reflect the order of their use in a typical interaction is known as
A) Functional B) Sequential
C) Frequency D) None of these

4) To allow the same application to be used on different systems it is best to consider its development separate from its device-dependent interface is known as
A) Reusability B) Customization
C) Multiple interface D) Portability

5) _____ is a form of observation where the user is asked to talk through what he is doing as he is being observed.
A) Think aloud B) Protocol analysis
C) Post-talk walkthroughs D) Query techniques

6) Which of the prototype approach says : "The final product is built as separate components, one at a time" ?
   A) Throw-away B) Incremental C) Evolutionary D) None of these

7) Software engineering provides a means of understanding
   A) Structure of design process B) Use of explicit criteria
   C) Recording of design decisions D) Making design decisions

8) _____ methodology, stakeholders are included as participants in the decision making process.
   A) CUSTOM B) ETHICS C) OSTA D) Ethnographic

9) Which type of search interface integrates category browsing with keyword searching ?
   A) Automatic filtering B) Dynamic queries
   C) Faceted metadata D) Multlingual

10) Most relational- and statistical-database contents can be conveniently manipulated as
   A) 3D world data B) Multidimensional data
   C) 1D data D) Temporal data

11) Which is an important part of CSCW ?
   A) Computer mediated communication
   B) Shared applications and artifacts
   C) Decision support system
   D) None of these

12) _____ is often a direct and quick way to get information about a task.
   A) Documentation B) Observation
   C) Interviews D) None of these

13) The order and structure of inputs and outputs. In human language, the grammar of sentence construction is known.
   A) Syntactic B) Lexical C) Semantic D) Coding

14) CSP is
   A) Computer System Processing
   B) Communicating Sequential Processes
   C) Collaboration System Program
   D) None of these

_____

SLR-TJ – 265

Seat No.	

B.E. (Computer Science and Engineering) (Part – I) (New-CGPA) Examination, 2017

HUMAN COMPUTER INTERACTION (Elective – I)

Day and Date : Wednesday, 6-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four** of the following : **(4×4=16)**

   a) Explain the concept of human memory.

   b) Explain Norman's model of interaction.

   c) Why the start of any interaction design exercise must be the intended user or users ?

   d) Write a short note on physical and device models.

   e) Explain the principles to support usability.

   f) What do you mean by back channels ? Explain how it affects the face-to-face communication.

3. Answer **any two** of the following : **(2×6=12)**

   a) Explain the three approaches to iterative designing and prototyping.

   b) Explain why user support is important.

   c) Define direct manipulation and explain the problems with direct manipulation.

SECTION – II

4. Answer **any four** of the following : **(4×4=16)**

   a) Explanation of the main concerns of a UIMS.

   b) Explain the concept of balancing function and fashion.

   c) What are the challenges in information visualization ?

   d) Write a short note on Groupware.

   e) Explain the delivery technology of the hypertexts.

   f) Explain web technology and issues.

5. Answer **any two** of the following : **(2×6=12)**

   a) Explain any three information visualization categories.

   b) Explain virtual reality and augmented reality.

   c) List and explain the rules/guidelines of the rich content of the web pages.

_____

SLR-TJ – 265

Seat No.	

Set Q

B.E. (Computer Science and Engineering) (Part – I) (New-CGPA) Examination, 2017
HUMAN COMPUTER INTERACTION (Elective – I)

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) _____ methodology, stakeholders are included as participants in the decision making process.
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2) Which type of search interface integrates category browsing with keyword searching ?
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3) Most relational- and statistical-database contents can be conveniently manipulated as
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4) Which is an important part of CSCW ?
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P.T.O.

5) _____ is often a direct and quick way to get information about a task.
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A) Syntactic B) Lexical C) Semantic D) Coding

7) CSP is
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8) _____ responds to intense pressure, heat and pain.
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A) Reusability B) Customization
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SLR-TJ – 265

Seat No.	

B.E. (Computer Science and Engineering) (Part – I) (New-CGPA) Examination, 2017

HUMAN COMPUTER INTERACTION (Elective – I)

Day and Date : Wednesday, 6-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

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   c) What are the challenges in information visualization ?

   d) Write a short note on Groupware.

   e) Explain the delivery technology of the hypertexts.

   f) Explain web technology and issues.

5. Answer **any two** of the following : **(2×6=12)**

   a) Explain any three information visualization categories.

   b) Explain virtual reality and augmented reality.

   c) List and explain the rules/guidelines of the rich content of the web pages.

_____

SLR-TJ – 265

Seat No.	

Set R

B.E. (Computer Science and Engineering) (Part – I) (New-CGPA) Examination, 2017
HUMAN COMPUTER INTERACTION (Elective – I)

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) _____ is a form of observation where the user is asked to talk through what he is doing as he is being observed.
A) Think aloud B) Protocol analysis
C) Post-talk walkthroughs D) Query techniques

2) Which of the prototype approach says : "The final product is built as separate components, one at a time" ?
A) Throw-away B) Incremental C) Evolutionary D) None of these

3) Software engineering provides a means of understanding
A) Structure of design process B) Use of explicit criteria
C) Recording of design decisions D) Making design decisions

4) _____ methodology, stakeholders are included as participants in the decision making process.
A) CUSTOM B) ETHICS C) OSTA D) Ethnographic

5) Which type of search interface integrates category browsing with keyword searching ?
A) Automatic filtering B) Dynamic queries
C) Faceted metadata D) Multlingual

6) Most relational- and statistical-database contents can be conveniently manipulated as
   A) 3D world data
   B) Multidimensional data
   C) 1D data
   D) Temporal data

7) Which is an important part of CSCW ?
   A) Computer mediated communication
   B) Shared applications and artifacts
   C) Decision support system
   D) None of these

8) _____ is often a direct and quick way to get information about a task.
   A) Documentation
   B) Observation
   C) Interviews
   D) None of these

9) The order and structure of inputs and outputs. In human language, the grammar of sentence construction is known.
   A) Syntactic
   B) Lexical
   C) Semantic
   D) Coding

10) CSP is
   A) Computer System Processing
   B) Communicating Sequential Processes
   C) Collaboration System Program
   D) None of these

11) _____ responds to intense pressure, heat and pain.
   A) Thermoreceptors
   B) Mechanoreceptors
   C) Nociceptors
   D) None of these

12) The more specialized device typically used for freehand drawing.
   A) Digitizing tablet
   B) Joystick
   C) Trackball
   D) None of these

13) Controls and displays are organized to reflect the order of their use in a typical interaction is known as
   A) Functional
   B) Sequential
   C) Frequency
   D) None of these

14) To allow the same application to be used on different systems it is best to consider its development separate from its device-dependent interface is known as
   A) Reusability
   B) Customization
   C) Multiple interface
   D) Portability

SLR-TJ – 265

Seat No.	

B.E. (Computer Science and Engineering) (Part – I) (New-CGPA) Examination, 2017

HUMAN COMPUTER INTERACTION (Elective – I)

Day and Date : Wednesday, 6-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four** of the following : **(4×4=16)**

   a) Explain the concept of human memory.

   b) Explain Norman's model of interaction.

   c) Why the start of any interaction design exercise must be the intended user or users ?

   d) Write a short note on physical and device models.

   e) Explain the principles to support usability.

   f) What do you mean by back channels ? Explain how it affects the face-to-face communication.

3. Answer **any two** of the following : **(2×6=12)**

   a) Explain the three approaches to iterative designing and prototyping.

   b) Explain why user support is important.

   c) Define direct manipulation and explain the problems with direct manipulation.

SECTION – II

4. Answer **any four** of the following : **(4×4=16)**

   a) Explanation of the main concerns of a UIMS.

   b) Explain the concept of balancing function and fashion.

   c) What are the challenges in information visualization ?

   d) Write a short note on Groupware.

   e) Explain the delivery technology of the hypertexts.

   f) Explain web technology and issues.

5. Answer **any two** of the following : **(2×6=12)**

   a) Explain any three information visualization categories.

   b) Explain virtual reality and augmented reality.

   c) List and explain the rules/guidelines of the rich content of the web pages.

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SLR-TJ – 265

Seat No.	

Set S

B.E. (Computer Science and Engineering) (Part – I) (New-CGPA) Examination, 2017
HUMAN COMPUTER INTERACTION (Elective – I)

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) Most relational- and statistical-database contents can be conveniently manipulated as
A) 3D world data B) Multidimensional data
C) 1D data D) Temporal data

2) Which is an important part of CSCW ?
A) Computer mediated communication
B) Shared applications and artifacts
C) Decision support system
D) None of these

3) _____ is often a direct and quick way to get information about a task.
A) Documentation B) Observation
C) Interviews D) None of these

4) The order and structure of inputs and outputs. In human language, the grammar of sentence construction is known.
A) Syntactic B) Lexical C) Semantic D) Coding

5) CSP is
   A) Computer System Processing
   B) Communicating Sequential Processes
   C) Collaboration System Program
   D) None of these

6) _____ responds to intense pressure, heat and pain.
   A) Thermoreceptors B) Mechanoreceptors
   C) Nociceptors D) None of these

7) The more specialized device typically used for freehand drawing.
   A) Digitizing tablet B) Joystick
   C) Trackball D) None of these

8) Controls and displays are organized to reflect the order of their use in a typical interaction is known as
   A) Functional B) Sequential
   C) Frequency D) None of these

9) To allow the same application to be used on different systems it is best to consider its development separate from its device-dependent interface is known as
   A) Reusability B) Customization
   C) Multiple interface D) Portability

10) _____ is a form of observation where the user is asked to talk through what he is doing as he is being observed.
   A) Think aloud B) Protocol analysis
   C) Post-talk walkthroughs D) Query techniques

11) Which of the prototype approach says : "The final product is built as separate components, one at a time" ?
   A) Throw-away B) Incremental C) Evolutionary D) None of these

12) Software engineering provides a means of understanding
   A) Structure of design process B) Use of explicit criteria
   C) Recording of design decisions D) Making design decisions

13) _____ methodology, stakeholders are included as participants in the decision making process.
   A) CUSTOM B) ETHICS C) OSTA D) Ethnographic

14) Which type of search interface integrates category browsing with keyword searching ?
   A) Automatic filtering B) Dynamic queries
   C) Faceted metadata D) Multlingual

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SLR-TJ – 265

Seat No.	

B.E. (Computer Science and Engineering) (Part – I) (New-CGPA) Examination, 2017

HUMAN COMPUTER INTERACTION (Elective – I)

Day and Date : Wednesday, 6-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four** of the following : **(4×4=16)**

   a) Explain the concept of human memory.

   b) Explain Norman's model of interaction.

   c) Why the start of any interaction design exercise must be the intended user or users ?

   d) Write a short note on physical and device models.

   e) Explain the principles to support usability.

   f) What do you mean by back channels ? Explain how it affects the face-to-face communication.

3. Answer **any two** of the following : **(2×6=12)**

   a) Explain the three approaches to iterative designing and prototyping.

   b) Explain why user support is important.

   c) Define direct manipulation and explain the problems with direct manipulation.

SECTION – II

4. Answer **any four** of the following : **(4×4=16)**

   a) Explanation of the main concerns of a UIMS.

   b) Explain the concept of balancing function and fashion.

   c) What are the challenges in information visualization ?

   d) Write a short note on Groupware.

   e) Explain the delivery technology of the hypertexts.

   f) Explain web technology and issues.

5. Answer **any two** of the following : **(2×6=12)**

   a) Explain any three information visualization categories.

   b) Explain virtual reality and augmented reality.

   c) List and explain the rules/guidelines of the rich content of the web pages.

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SLR-TJ – 267

Seat No.	

Set P

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*
4) Assume suitable data ***if*** *necessary.*
5) Figures must be drawn ***wherever*** *necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) An issue identified in black box testing or by customer is termed as
a) Defect b) Error c) Mistake d) None

2) This money is pure loss for the organization
a) Blue Money b) White Money
c) Green Money d) Red Money

3) To check whether a right process is followed or not during development life cycle is termed as
a) Validation b) Verification
c) Quality Assurance d) Quality Control

4) The simplest form of path testing is called
a) Branch Coverage Testing b) Data Coverage Testing
c) Module Testing d) None

5) In _____ testing, the software tester has access to the program's code and can examine it for clues to help him with his testing.
a) Beta b) Black Box
c) White Box d) Gamma

6) Alpha testing is done at
   a) Customers site b) Developers site
   c) Both a) and b) d) None

7) _____ is performed without any formal test plan, test strategies, test scenario, test data or test cases.
   a) Adhoc Testing b) Sanity Testing
   c) Execution Testing d) All

8) Goals of test case planning are
   a) Organization b) Repeatability c) Tracking d) All

9) Bug can be described as
   a) Minimal b) Singular c) Reproducible d) All

10) Degree to which design specifications are followed in manufacturing the product is called
   a) Quality Control b) Quality of Conformance
   c) Quality Assurance d) None

11) An effective software process applied in a manner that creates a useful product that provides measurable value for those who produce it and those who use it. This can be defined as
   a) Software Quality b) Quality Control
   c) Software Availability d) All

12) Quality views are
   a) Transcendental b) Users c) Manufacturer d) All

13) A _____ analyser is an example of a viewing tool.
   a) Information flow b) Data flow
   c) Code coverage d) All

14) A viewer or monitor test tool allows you to see details of
   a) Software being tested b) Software operation
   c) Both a) and b) d) All

_____

SLR-TJ – 267

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Wednesday, 6-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*
*2) Assume suitable data **if** necessary.*
*3) Figures must be drawn **wherever** necessary.*

SECTION – I

2. Answer the following questions **(any three)** : **(3×4=12)**

   1) Explain Test Planning in detail.

   2) What are the different skills required by tester ?

   3) Explain State Testing in brief.

   4) Explain Load Testing and Stress Testing with example.

   5) Explain Verification and Validation model (VV model).

3. Answer **any two** questions : **(2×8=16)**

   1) Explain Testing Process in detail.

   2) Explain White Box and Black Box testing techniques in detail.

   3) Write short notes on :

      Regression testing

      Smoke testing

      Ad-hoc testing

      Installation testing.

SECTION – II

4. Answer the following questions **(any three)** : **(3×4=12)**

   1) Explain Targeted Quality factors.

   2) Explain goals of Test Case Planning.

   3) Write note on six sigma standard.

   4) Explain elements of Software Quality Assurance.

   5) Explain Random testing in automation.

5. Answer **any two** questions : **(2×8=16)**

   1) Write note on Software Quality Assurance Tasks and Goals.

   2) Explain Test case planning in detail with diagram.

   3) Write note on testing tools.

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SLR-TJ – 267

Seat No.	

Set Q

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*
4) Assume suitable data ***if*** *necessary.*
5) Figures must be drawn ***wherever*** *necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) Goals of test case planning are
a) Organization b) Repeatability c) Tracking d) All

2) Bug can be described as
a) Minimal b) Singular c) Reproducible d) All

3) Degree to which design specifications are followed in manufacturing the product is called
a) Quality Control b) Quality of Conformance
c) Quality Assurance d) None

4) An effective software process applied in a manner that creates a useful product that provides measurable value for those who produce it and those who use it. This can be defined as
a) Software Quality b) Quality Control
c) Software Availability d) All

5) Quality views are
a) Transcendental b) Users c) Manufacturer d) All

6) A _____ analyser is an example of a viewing tool.
a) Information flow b) Data flow
c) Code coverage d) All

P.T.O.

7) A viewer or monitor test tool allows you to see details of
   a) Software being tested
   b) Software operation
   c) Both a) and b)
   d) All

8) An issue identified in black box testing or by customer is termed as
   a) Defect
   b) Error
   c) Mistake
   d) None

9) This money is pure loss for the organization
   a) Blue Money
   b) White Money
   c) Green Money
   d) Red Money

10) To check whether a right process is followed or not during development life cycle is termed as
   a) Validation
   b) Verification
   c) Quality Assurance
   d) Quality Control

11) The simplest form of path testing is called
   a) Branch Coverage Testing
   b) Data Coverage Testing
   c) Module Testing
   d) None

12) In _____ testing, the software tester has access to the program's code and can examine it for clues to help him with his testing.
   a) Beta
   b) Black Box
   c) White Box
   d) Gamma

13) Alpha testing is done at
   a) Customers site
   b) Developers site
   c) Both a) and b)
   d) None

14) _____ is performed without any formal test plan, test strategies, test scenario, test data or test cases.
   a) Adhoc Testing
   b) Sanity Testing
   c) Execution Testing
   d) All

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SLR-TJ – 267

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Wednesday, 6-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*
*2) Assume suitable data **if** necessary.*
*3) Figures must be drawn **wherever** necessary.*

SECTION – I

2. Answer the following questions **(any three)** : **(3×4=12)**

   1) Explain Test Planning in detail.

   2) What are the different skills required by tester ?

   3) Explain State Testing in brief.

   4) Explain Load Testing and Stress Testing with example.

   5) Explain Verification and Validation model (VV model).

3. Answer **any two** questions : **(2×8=16)**

   1) Explain Testing Process in detail.

   2) Explain White Box and Black Box testing techniques in detail.

   3) Write short notes on :

      Regression testing

      Smoke testing

      Ad-hoc testing

      Installation testing.

SECTION – II

4. Answer the following questions **(any three)** : **(3×4=12)**

   1) Explain Targeted Quality factors.

   2) Explain goals of Test Case Planning.

   3) Write note on six sigma standard.

   4) Explain elements of Software Quality Assurance.

   5) Explain Random testing in automation.

5. Answer **any two** questions : **(2×8=16)**

   1) Write note on Software Quality Assurance Tasks and Goals.

   2) Explain Test case planning in detail with diagram.

   3) Write note on testing tools.

_____

SLR-TJ – 267

Seat No.	

Set R

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*
4) Assume suitable data ***if*** *necessary.*
5) Figures must be drawn ***wherever*** *necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) In _____ testing, the software tester has access to the program's code and can examine it for clues to help him with his testing.
   a) Beta b) Black Box
   c) White Box d) Gamma

2) Alpha testing is done at
   a) Customers site b) Developers site
   c) Both a) and b) d) None

3) _____ is performed without any formal test plan, test strategies, test scenario, test data or test cases.
   a) Adhoc Testing b) Sanity Testing
   c) Execution Testing d) All

4) Goals of test case planning are
   a) Organization b) Repeatability c) Tracking d) All

5) Bug can be described as
   a) Minimal b) Singular c) Reproducible d) All

6) Degree to which design specifications are followed in manufacturing the product is called
   a) Quality Control b) Quality of Conformance
   c) Quality Assurance d) None
7) An effective software process applied in a manner that creates a useful product that provides measurable value for those who produce it and those who use it. This can be defined as
   a) Software Quality b) Quality Control
   c) Software Availability d) All
8) Quality views are
   a) Transcendental b) Users c) Manufacturer d) All
9) A _____ analyser is an example of a viewing tool.
   a) Information flow b) Data flow
   c) Code coverage d) All
10) A viewer or monitor test tool allows you to see details of
   a) Software being tested b) Software operation
   c) Both a) and b) d) All
11) An issue identified in black box testing or by customer is termed as
   a) Defect b) Error c) Mistake d) None
12) This money is pure loss for the organization
   a) Blue Money b) White Money
   c) Green Money d) Red Money
13) To check whether a right process is followed or not during development life cycle is termed as
   a) Validation b) Verification
   c) Quality Assurance d) Quality Control
14) The simplest form of path testing is called
   a) Branch Coverage Testing b) Data Coverage Testing
   c) Module Testing d) None

_____

SLR-TJ – 267

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Wednesday, 6-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*
*2) Assume suitable data **if** necessary.*
*3) Figures must be drawn **wherever** necessary.*

SECTION – I

2. Answer the following questions **(any three)** : **(3×4=12)**

   1) Explain Test Planning in detail.

   2) What are the different skills required by tester ?

   3) Explain State Testing in brief.

   4) Explain Load Testing and Stress Testing with example.

   5) Explain Verification and Validation model (VV model).

3. Answer **any two** questions : **(2×8=16)**

   1) Explain Testing Process in detail.

   2) Explain White Box and Black Box testing techniques in detail.

   3) Write short notes on :

      Regression testing

      Smoke testing

      Ad-hoc testing

      Installation testing.

SECTION – II

4. Answer the following questions **(any three)** : **(3×4=12)**

   1) Explain Targeted Quality factors.

   2) Explain goals of Test Case Planning.

   3) Write note on six sigma standard.

   4) Explain elements of Software Quality Assurance.

   5) Explain Random testing in automation.

5. Answer **any two** questions : **(2×8=16)**

   1) Write note on Software Quality Assurance Tasks and Goals.

   2) Explain Test case planning in detail with diagram.

   3) Write note on testing tools.

_____

SLR-TJ – 267

Seat No.	

Set S

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*
4) Assume suitable data ***if*** *necessary.*
5) Figures must be drawn ***wherever*** *necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) Degree to which design specifications are followed in manufacturing the product is called
   a) Quality Control b) Quality of Conformance
   c) Quality Assurance d) None

2) An effective software process applied in a manner that creates a useful product that provides measurable value for those who produce it and those who use it. This can be defined as
   a) Software Quality b) Quality Control
   c) Software Availability d) All

3) Quality views are
   a) Transcendental b) Users c) Manufacturer d) All

4) A _____ analyser is an example of a viewing tool.
   a) Information flow b) Data flow
   c) Code coverage d) All

5) A viewer or monitor test tool allows you to see details of
   a) Software being tested b) Software operation
   c) Both a) and b) d) All

P.T.O.

6) An issue identified in black box testing or by customer is termed as
   a) Defect b) Error c) Mistake d) None
7) This money is pure loss for the organization
   a) Blue Money b) White Money
   c) Green Money d) Red Money
8) To check whether a right process is followed or not during development life cycle is termed as
   a) Validation b) Verification
   c) Quality Assurance d) Quality Control
9) The simplest form of path testing is called
   a) Branch Coverage Testing b) Data Coverage Testing
   c) Module Testing d) None
10) In _____ testing, the software tester has access to the program's code and can examine it for clues to help him with his testing.
   a) Beta b) Black Box
   c) White Box d) Gamma
11) Alpha testing is done at
   a) Customers site b) Developers site
   c) Both a) and b) d) None
12) _____ is performed without any formal test plan, test strategies, test scenario, test data or test cases.
   a) Adhoc Testing b) Sanity Testing
   c) Execution Testing d) All
13) Goals of test case planning are
   a) Organization b) Repeatability c) Tracking d) All
14) Bug can be described as
   a) Minimal b) Singular c) Reproducible d) All

_____

SLR-TJ – 267

Seat No.	

B.E. (CSE) (Part – I) (New CGPA) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (Elective – I)

Day and Date : Wednesday, 6-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Figures to the **right** indicate **full** marks.*
*2) Assume suitable data **if** necessary.*
*3) Figures must be drawn **wherever** necessary.*

SECTION – I

2. Answer the following questions **(any three)** : **(3×4=12)**

   1) Explain Test Planning in detail.

   2) What are the different skills required by tester ?

   3) Explain State Testing in brief.

   4) Explain Load Testing and Stress Testing with example.

   5) Explain Verification and Validation model (VV model).

3. Answer **any two** questions : **(2×8=16)**

   1) Explain Testing Process in detail.

   2) Explain White Box and Black Box testing techniques in detail.

   3) Write short notes on :

      Regression testing

      Smoke testing

      Ad-hoc testing

      Installation testing.

SECTION – II

4. Answer the following questions **(any three)** : **(3×4=12)**

   1) Explain Targeted Quality factors.

   2) Explain goals of Test Case Planning.

   3) Write note on six sigma standard.

   4) Explain elements of Software Quality Assurance.

   5) Explain Random testing in automation.

5. Answer **any two** questions : **(2×8=16)**

   1) Write note on Software Quality Assurance Tasks and Goals.

   2) Explain Test case planning in detail with diagram.

   3) Write note on testing tools.

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SLR-TJ – 268

Seat No.	

Set P

B.E. (Computer Science & Engineering) (Part – I) (New CGPA) Examination, 2017
Elective – I : BUSINESS INTELLIGENCE

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*
4) Assume suitable data ***if*** *necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) ETL stands for
   a) Extraction, Transformation and Loader
   b) Extract, Transform and Loading
   c) Extraction, Transformation and Load
   d) Extraction, Transformation and Loading

2) The need for Business Intelligence was felt and increased during the years as a result of an increase in the amount of data, known as
   a) Big data velocity b) Big data variety
   c) Big data d) None of these

3) _____ cardinality exists between dimension tables to fact table.
   a) One-to-many b) Many-to-one
   c) Many-to-many d) None of these

4) _____ schema, dimension tables are denormalized.
   a) Star-schema b) Snowflake schema
   c) Galaxy schema d) None of these

5) Keys that do not have in-built meaning and are independent of operational system keys are called

a) Primary key b) Surrogate key c) Foreign keys d) None of these

6) ETL is a part of _____ architecture.

a) Front room b) Back room c) Both d) Presentation

7) A row in the fact table relates to a combination of rows from all the dimension tables

a) True b) False

8) A _____ server is used to define roles for different users to enforce security in ETL.

a) Web server b) DNS c) LDAP d) OLTP

9) Data Latency can be reduced using

a) Clever processing algorithms b) Parallel processing

c) Potent hardware d) All of these

10) In pyramid data model, the top half represents the dimensional model of

a) Data marts b) Enterprise data warehouse

c) OLPT data sources d) None of these

11) Drill across reports can be generated using conforming dimensions

a) True b) False

12) Compliance includes

a) Proof of the complete transaction flow that changed any data results

b) Fully documented algorithms for allocations, adjustments and derivations

c) Only a) but not b)

d) Both a) and b)

13) Data profiling is a subsystem related to

a) Extracting b) Cleaning and Conforming

c) Delivering d) Managing ETL environment

14) Job Scheduler is the subsystem of Managing ETL Environment.

a) True b) False

_____

SLR-TJ – 268

Seat No.	

B.E. (Computer Science & Engineering) (Part – I) (New CGPA) Examination, 2017
Elective – I : BUSINESS INTELLIGENCE

Day and Date : Wednesday, 6-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if*** *necessary.*

SECTION – I

2. Answer **any three** : **(3×4=12)**

   a) Explain in brief ETL operations.

   b) Explain snowflake schema with the help of an example.

   c) Draw information package diagram for hotel occupancy.

   d) What is metadata ? Explain different types of metadata.

3. Answer **any one** : **(1×8=8)**

   a) Draw Technical architecture of Business intelligence system and explain its components.

   b) List and explain the components of infrastructure required in Business intelligence systems.

4. Write down the characteristics of fact table attributes and dimension table attributes. **8**

SECTION – II

5. Answer **any three** : **(3×4=12)**

   a) Explain the concept of Data Latency in Business Intelligence.

   b) What is Data Integration ? Why it is called 360 degree view of customer ?

   c) List the four major subsystems of Cleaning and Conforming data.

   d) Explain the Analytical cycle for Business Intelligence.

6. Answer **any one** : **(1×8=8)**

   a) List the types of Business Intelligence applications. Explain any one type of Business Intelligence application.

   b) What are the compliance and security requirements in ETL ?

7. List and explain the advantages and disadvantages of ETL tools. **8**

SLR-TJ – 268

Seat No.	

Set Q

B.E. (Computer Science & Engineering) (Part – I) (New CGPA) Examination, 2017
Elective – I : BUSINESS INTELLIGENCE

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*
4) Assume suitable data ***if*** *necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) A _____ server is used to define roles for different users to enforce security in ETL.
   a) Web server b) DNS c) LDAP d) OLTP

2) Data Latency can be reduced using
   a) Clever processing algorithms b) Parallel processing
   c) Potent hardware d) All of these

3) In pyramid data model, the top half represents the dimensional model of
   a) Data marts b) Enterprise data warehouse
   c) OLPT data sources d) None of these

4) Drill across reports can be generated using conforming dimensions
   a) True b) False

5) Compliance includes
   a) Proof of the complete transaction flow that changed any data results
   b) Fully documented algorithms for allocations, adjustments and derivations
   c) Only a) but not b)
   d) Both a) and b)

P.T.O.

6) Data profiling is a subsystem related to
   a) Extracting
   b) Cleaning and Conforming
   c) Delivering
   d) Managing ETL environment
7) Job Scheduler is the subsystem of Managing ETL Environment.
   a) True
   b) False
8) ETL stands for
   a) Extraction, Transformation and Loader
   b) Extract, Transform and Loading
   c) Extraction, Transformation and Load
   d) Extraction, Transformation and Loading
9) The need for Business Intelligence was felt and increased during the years as a result of an increase in the amount of data, known as
   a) Big data velocity
   b) Big data variety
   c) Big data
   d) None of these
10) _____ cardinality exists between dimension tables to fact table.
   a) One-to-many
   b) Many-to-one
   c) Many-to-many
   d) None of these
11) _____ schema, dimension tables are denormalized.
   a) Star-schema
   b) Snowflake schema
   c) Galaxy schema
   d) None of these
12) Keys that do not have in-built meaning and are independent of operational system keys are called
   a) Primary key
   b) Surrogate key
   c) Foreign keys
   d) None of these
13) ETL is a part of _____ architecture.
   a) Front room
   b) Back room
   c) Both
   d) Presentation
14) A row in the fact table relates to a combination of rows from all the dimension tables
   a) True
   b) False

_____

SLR-TJ – 268

Seat No.	

B.E. (Computer Science & Engineering) (Part – I) (New CGPA) Examination, 2017
Elective – I : BUSINESS INTELLIGENCE

Day and Date : Wednesday, 6-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if*** *necessary.*

SECTION – I

2. Answer **any three** : **(3×4=12)**

   a) Explain in brief ETL operations.

   b) Explain snowflake schema with the help of an example.

   c) Draw information package diagram for hotel occupancy.

   d) What is metadata ? Explain different types of metadata.

3. Answer **any one** : **(1×8=8)**

   a) Draw Technical architecture of Business intelligence system and explain its components.

   b) List and explain the components of infrastructure required in Business intelligence systems.

4. Write down the characteristics of fact table attributes and dimension table attributes. **8**

SECTION – II

5. Answer **any three** : **(3×4=12)**

   a) Explain the concept of Data Latency in Business Intelligence.

   b) What is Data Integration ? Why it is called 360 degree view of customer ?

   c) List the four major subsystems of Cleaning and Conforming data.

   d) Explain the Analytical cycle for Business Intelligence.

6. Answer **any one** : **(1×8=8)**

   a) List the types of Business Intelligence applications. Explain any one type of Business Intelligence application.

   b) What are the compliance and security requirements in ETL ?

7. List and explain the advantages and disadvantages of ETL tools. **8**

SLR-TJ – 268

Seat No.	

Set R

B.E. (Computer Science & Engineering) (Part – I) (New CGPA) Examination, 2017
Elective – I : BUSINESS INTELLIGENCE

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*
4) Assume suitable data ***if*** *necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) Keys that do not have in-built meaning and are independent of operational system keys are called

a) Primary key b) Surrogate key c) Foreign keys d) None of these

2) ETL is a part of _____ architecture.

a) Front room b) Back room c) Both d) Presentation

3) A row in the fact table relates to a combination of rows from all the dimension tables

a) True b) False

4) A _____ server is used to define roles for different users to enforce security in ETL.

a) Web server b) DNS c) LDAP d) OLTP

5) Data Latency can be reduced using

a) Clever processing algorithms b) Parallel processing
c) Potent hardware d) All of these

6) In pyramid data model, the top half represents the dimensional model of

a) Data marts b) Enterprise data warehouse
c) OLPT data sources d) None of these

P.T.O.

7) Drill across reports can be generated using conforming dimensions
   a) True b) False
8) Compliance includes
   a) Proof of the complete transaction flow that changed any data results
   b) Fully documented algorithms for allocations, adjustments and derivations
   c) Only a) but not b)
   d) Both a) and b)
9) Data profiling is a subsystem related to
   a) Extracting b) Cleaning and Conforming
   c) Delivering d) Managing ETL environment
10) Job Scheduler is the subsystem of Managing ETL Environment.
   a) True b) False
11) ETL stands for
   a) Extraction, Transformation and Loader
   b) Extract, Transform and Loading
   c) Extraction, Transformation and Load
   d) Extraction, Transformation and Loading
12) The need for Business Intelligence was felt and increased during the years as a result of an increase in the amount of data, known as
   a) Big data velocity b) Big data variety
   c) Big data d) None of these
13) _____ cardinality exists between dimension tables to fact table.
   a) One-to-many b) Many-to-one
   c) Many-to-many d) None of these
14) _____ schema, dimension tables are denormalized.
   a) Star-schema b) Snowflake schema
   c) Galaxy schema d) None of these

_____

SLR-TJ – 268

Seat No.	

B.E. (Computer Science & Engineering) (Part – I) (New CGPA) Examination, 2017
Elective – I : BUSINESS INTELLIGENCE

Day and Date : Wednesday, 6-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if*** *necessary.*

SECTION – I

2. Answer **any three** : **(3×4=12)**

   a) Explain in brief ETL operations.

   b) Explain snowflake schema with the help of an example.

   c) Draw information package diagram for hotel occupancy.

   d) What is metadata ? Explain different types of metadata.

3. Answer **any one** : **(1×8=8)**

   a) Draw Technical architecture of Business intelligence system and explain its components.

   b) List and explain the components of infrastructure required in Business intelligence systems.

4. Write down the characteristics of fact table attributes and dimension table attributes. **8**

SECTION – II

5. Answer **any three** : **(3×4=12)**

   a) Explain the concept of Data Latency in Business Intelligence.

   b) What is Data Integration ? Why it is called 360 degree view of customer ?

   c) List the four major subsystems of Cleaning and Conforming data.

   d) Explain the Analytical cycle for Business Intelligence.

6. Answer **any one** : **(1×8=8)**

   a) List the types of Business Intelligence applications. Explain any one type of Business Intelligence application.

   b) What are the compliance and security requirements in ETL ?

7. List and explain the advantages and disadvantages of ETL tools. **8**

SLR-TJ – 268

Seat No.	

Set S

B.E. (Computer Science & Engineering) (Part – I) (New CGPA) Examination, 2017
Elective – I : BUSINESS INTELLIGENCE

Day and Date : Wednesday, 6-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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*** *indicate* ***full*** *marks.*
4) Assume suitable data ***if*** *necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **(14×1=14)**

1) In pyramid data model, the top half represents the dimensional model of
   a) Data marts b) Enterprise data warehouse
   c) OLPT data sources d) None of these

2) Drill across reports can be generated using conforming dimensions
   a) True b) False

3) Compliance includes
   a) Proof of the complete transaction flow that changed any data results
   b) Fully documented algorithms for allocations, adjustments and derivations
   c) Only a) but not b)
   d) Both a) and b)

4) Data profiling is a subsystem related to
   a) Extracting b) Cleaning and Conforming
   c) Delivering d) Managing ETL environment

5) Job Scheduler is the subsystem of Managing ETL Environment.
   a) True b) False

6) ETL stands for
   a) Extraction, Transformation and Loader
   b) Extract, Transform and Loading
   c) Extraction, Transformation and Load
   d) Extraction, Transformation and Loading

7) The need for Business Intelligence was felt and increased during the years as a result of an increase in the amount of data, known as
   a) Big data velocity b) Big data variety
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8) _____ cardinality exists between dimension tables to fact table.
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   c) Many-to-many d) None of these

9) _____ schema, dimension tables are denormalized.
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10) Keys that do not have in-built meaning and are independent of operational system keys are called
   a) Primary key b) Surrogate key c) Foreign keys d) None of these

11) ETL is a part of _____ architecture.
   a) Front room b) Back room c) Both d) Presentation

12) A row in the fact table relates to a combination of rows from all the dimension tables
   a) True b) False

13) A _____ server is used to define roles for different users to enforce security in ETL.
   a) Web server b) DNS c) LDAP d) OLTP

14) Data Latency can be reduced using
   a) Clever processing algorithms b) Parallel processing
   c) Potent hardware d) All of these

_____

SLR-TJ – 268

Seat No.	

B.E. (Computer Science & Engineering) (Part – I) (New CGPA) Examination, 2017
Elective – I : BUSINESS INTELLIGENCE

Day and Date : Wednesday, 6-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Assume suitable data ***if*** *necessary.*

SECTION – I

2. Answer **any three** : **(3×4=12)**

   a) Explain in brief ETL operations.

   b) Explain snowflake schema with the help of an example.

   c) Draw information package diagram for hotel occupancy.

   d) What is metadata ? Explain different types of metadata.

3. Answer **any one** : **(1×8=8)**

   a) Draw Technical architecture of Business intelligence system and explain its components.

   b) List and explain the components of infrastructure required in Business intelligence systems.

4. Write down the characteristics of fact table attributes and dimension table attributes. **8**

SECTION – II

5. Answer **any three** : **(3×4=12)**

   a) Explain the concept of Data Latency in Business Intelligence.

   b) What is Data Integration ? Why it is called 360 degree view of customer ?

   c) List the four major subsystems of Cleaning and Conforming data.

   d) Explain the Analytical cycle for Business Intelligence.

6. Answer **any one** : **(1×8=8)**

   a) List the types of Business Intelligence applications. Explain any one type of Business Intelligence application.

   b) What are the compliance and security requirements in ETL ?

7. List and explain the advantages and disadvantages of ETL tools. **8**

SLR-TJ – 269

Seat No.	

Set P

B.E. (CSE) (Part – I) (New) (CGPA) Examination, 2017
OBJECT ORIENTED MODELING AND DESIGN (Elective – III)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose correct answer : **(1×14=14)**

1) What is the programming style of the object oriented conceptual model ?
   a) Invariant relationships
   b) Algorithms
   c) Classes and objects
   d) Goals, often expressed in a predicate calculus

2) What are the advantages of inheritance ?
   a) It permits code reusability. Reusability saves time in program development
   b) It encourages the reuse of proven and debugged high-quality software, thus reducing problem after a system becomes functional
   c) Both a) and b)
   d) Only a)

3) Which type of association does the following diagram depict ?
   a) Association b) Aggregation c) Generalization d) Composition

4) Some object-oriented systems permit a class to inherit its state (attributes) and behaviours from more than one super class. This is called
   a) Multiple inheritance b) Inheritance
   c) Hybrid inheritance d) Specialization

5) Which of the following statements is false with respect to a use case ?
   a) A use case is a scenario for understanding the requirements
   b) It is an interaction between the users and the system
   c) It captures the responsibility of the system to its users
   d) It represents the flow of activities of various processes in the system

6) Which type of association does the following diagram depict ?

a) Aggregation b) Composition
c) Specialization d) Generalization

7) Diagrams which are used to distribute files, libraries and tables across topology of hardware are called
a) Deployment diagrams b) Use case diagrams
c) Sequence diagrams d) Collaboration diagrams

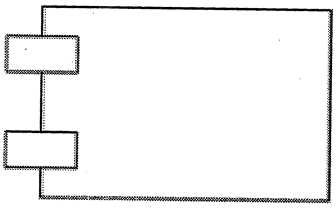
8) Which of the following is not concept of advanced dynamic modelling ?
a) Entry and Exit action b) Synchronization
c) Automatic transition d) Actor

9) The _____ model specifies the result of a computation without specifying how or when they are computing.
a) Data flow b) Functional c) Structural d) Dynamic

10) A _____ allows you to a conceptual chunk that encompasses both static and dynamic aspects.
a) Interaction b) Activity c) Link d) Collaboration

11) A deployment diagram is a collection of _____ and _____.
a) Point, Line b) Vertices, Arcs
c) Link, Interaction d) Arc, Point

12) Which core element of UML is being shown in the figure ?



a) Node b) Interface c) Class d) Component

13) Which of the following diagram is time oriented ?
a) Collaboration b) Sequence c) Activity d) None

14) Identify the following who presented the Object Modeling Technique (OMT) ?
a) Booch b) Jim Rumbaugh ET AL
c) Jacobson ET AL d) None

_____

SLR-TJ – 269

Seat No.	

B.E. (CSE) (Part – I) (New) (CGPA) Examination, 2017
OBJECT ORIENTED MODELING AND DESIGN (Elective – III)

Day and Date : Friday, 8-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** : **(4×5=20)**
   1) Explain in brief concept of class and object.
   2) Write a short note on DFD.
   3) What is Link ? How it differs from Association ?
   4) Explain Object Modeling in detail.
   5) Explain advanced dynamic modeling concepts.

3. Solve **any one** : **8**
   1) What are the steps for constructing Functional Model ?
   2) Write a note on :
      a) Aggregation
      b) The OMT Methodology.

SECTION – II

4. Solve **any four** : **(4×5=20)**
   1) Compare Interaction and Activity diagram.
   2) Write a short note on component diagrams with suitable example.
   3) Explain in short Client-Dispatcher-Server pattern and Publisher-Subscriber pattern.
   4) What is a design pattern and what makes a pattern ?
   5) Describe the applications of OMT.

Set P

5. Solve **any one** : **8**

   1) With an example explain state chart diagram with :

      Initial State, State, Nested State, Composite State, Activity, Action, Event, Transition.

   2) Draw and explain use case and Collaboration Diagram for ATM System.

_____

SLR-TJ – 269

Seat No.	

Set **Q**

B.E. (CSE) (Part – I) (New) (CGPA) Examination, 2017
OBJECT ORIENTED MODELING AND DESIGN (Elective – III)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose correct answer : **(1×14=14)**

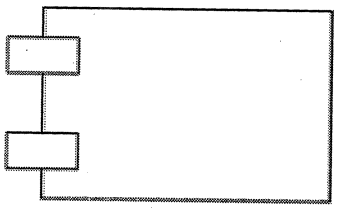
1) Which of the following is not concept of advanced dynamic modelling ?
   a) Entry and Exit action b) Synchronization
   c) Automatic transition d) Actor

2) The _____ model specifies the result of a computation without specifying how or when they are computing.
   a) Data flow b) Functional c) Structural d) Dynamic

3) A _____ allows you to a conceptual chunk that encompasses both static and dynamic aspects.
   a) Interaction b) Activity c) Link d) Collaboration

4) A deployment diagram is a collection of _____ and _____.
   a) Point, Line b) Vertices, Arcs
   c) Link, Interaction d) Arc, Point

5) Which core element of UML is being shown in the figure ?



   a) Node b) Interface c) Class d) Component

P.T.O.

6) Which of the following diagram is time oriented ?
   a) Collaboration b) Sequence c) Activity d) None
7) Identify the following who presented the Object Modeling Technique (OMT) ?
   a) Booch b) Jim Rumbaugh ET AL
   c) Jacobson ET AL d) None
8) What is the programming style of the object oriented conceptual model ?
   a) Invariant relationships
   b) Algorithms
   c) Classes and objects
   d) Goals, often expressed in a predicate calculus
9) What are the advantages of inheritance ?
   a) It permits code reusability. Reusability saves time in program development
   b) It encourages the reuse of proven and debugged high-quality software, thus reducing problem after a system becomes functional
   c) Both a) and b)
   d) Only a)
10) Which type of association does the following diagram depict ?
   a) Association b) Aggregation c) Generalization d) Composition
11) Some object-oriented systems permit a class to inherit its state (attributes) and behaviours from more than one super class. This is called
   a) Multiple inheritance b) Inheritance
   c) Hybrid inheritance d) Specialization
12) Which of the following statements is false with respect to a use case ?
   a) A use case is a scenario for understanding the requirements
   b) It is an interaction between the users and the system
   c) It captures the responsibility of the system to its users
   d) It represents the flow of activities of various processes in the system
13) Which type of association does the following diagram depict ?

   a) Aggregation b) Composition
   c) Specialization d) Generalization
14) Diagrams which are used to distribute files, libraries and tables across topology of hardware are called
   a) Deployment diagrams b) Use case diagrams
   c) Sequence diagrams d) Collaboration diagrams

SLR-TJ – 269

Seat No.	

B.E. (CSE) (Part – I) (New) (CGPA) Examination, 2017
OBJECT ORIENTED MODELING AND DESIGN (Elective – III)

Day and Date : Friday, 8-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** : **(4×5=20)**
   1) Explain in brief concept of class and object.
   2) Write a short note on DFD.
   3) What is Link ? How it differs from Association ?
   4) Explain Object Modeling in detail.
   5) Explain advanced dynamic modeling concepts.

3. Solve **any one** : **8**
   1) What are the steps for constructing Functional Model ?
   2) Write a note on :
      a) Aggregation
      b) The OMT Methodology.

SECTION – II

4. Solve **any four** : **(4×5=20)**
   1) Compare Interaction and Activity diagram.
   2) Write a short note on component diagrams with suitable example.
   3) Explain in short Client-Dispatcher-Server pattern and Publisher-Subscriber pattern.
   4) What is a design pattern and what makes a pattern ?
   5) Describe the applications of OMT.

5. Solve **any one** : **8**

   1) With an example explain state chart diagram with :

      Initial State, State, Nested State, Composite State, Activity, Action, Event, Transition.

   2) Draw and explain use case and Collaboration Diagram for ATM System.

_____

SLR-TJ – 269

Seat No.	

Set R

B.E. (CSE) (Part – I) (New) (CGPA) Examination, 2017
OBJECT ORIENTED MODELING AND DESIGN (Elective – III)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose correct answer : **(1×14=14)**

1) Which of the following statements is false with respect to a use case ?
   a) A use case is a scenario for understanding the requirements
   b) It is an interaction between the users and the system
   c) It captures the responsibility of the system to its users
   d) It represents the flow of activities of various processes in the system

2) Which type of association does the following diagram depict ?

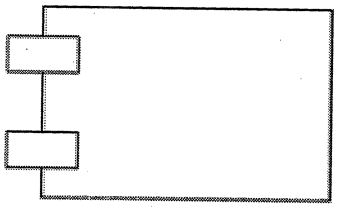
   a) Aggregation b) Composition
   c) Specialization d) Generalization

3) Diagrams which are used to distribute files, libraries and tables across topology of hardware are called
   a) Deployment diagrams b) Use case diagrams
   c) Sequence diagrams d) Collaboration diagrams

4) Which of the following is not concept of advanced dynamic modelling ?
   a) Entry and Exit action b) Synchronization
   c) Automatic transition d) Actor

5) The _____ model specifies the result of a computation without specifying how or when they are computing.
   a) Data flow b) Functional c) Structural d) Dynamic

6) A _____ allows you to a conceptual chunk that encompasses both static and dynamic aspects.
   a) Interaction b) Activity c) Link d) Collaboration
7) A deployment diagram is a collection of _____ and _____.
   a) Point, Line b) Vertices, Arcs
   c) Link, Interaction d) Arc, Point
8) Which core element of UML is being shown in the figure ?



   a) Node b) Interface c) Class d) Component
9) Which of the following diagram is time oriented ?
   a) Collaboration b) Sequence c) Activity d) None
10) Identify the following who presented the Object Modeling Technique (OMT) ?
   a) Booch b) Jim Rumbaugh ET AL
   c) Jacobson ET AL d) None
11) What is the programming style of the object oriented conceptual model ?
   a) Invariant relationships
   b) Algorithms
   c) Classes and objects
   d) Goals, often expressed in a predicate calculus
12) What are the advantages of inheritance ?
   a) It permits code reusability. Reusability saves time in program development
   b) It encourages the reuse of proven and debugged high-quality software, thus reducing problem after a system becomes functional
   c) Both a) and b)
   d) Only a)
13) Which type of association does the following diagram depict ?
   a) Association b) Aggregation c) Generalization d) Composition
14) Some object-oriented systems permit a class to inherit its state (attributes) and behaviours from more than one super class. This is called
   a) Multiple inheritance b) Inheritance
   c) Hybrid inheritance d) Specialization

SLR-TJ – 269

Seat No.	

B.E. (CSE) (Part – I) (New) (CGPA) Examination, 2017
OBJECT ORIENTED MODELING AND DESIGN (Elective – III)

Day and Date : Friday, 8-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** : **(4×5=20)**
   1) Explain in brief concept of class and object.
   2) Write a short note on DFD.
   3) What is Link ? How it differs from Association ?
   4) Explain Object Modeling in detail.
   5) Explain advanced dynamic modeling concepts.

3. Solve **any one** : **8**
   1) What are the steps for constructing Functional Model ?
   2) Write a note on :
      a) Aggregation
      b) The OMT Methodology.

SECTION – II

4. Solve **any four** : **(4×5=20)**
   1) Compare Interaction and Activity diagram.
   2) Write a short note on component diagrams with suitable example.
   3) Explain in short Client-Dispatcher-Server pattern and Publisher-Subscriber pattern.
   4) What is a design pattern and what makes a pattern ?
   5) Describe the applications of OMT.

5. Solve **any one** : **8**

   1) With an example explain state chart diagram with :

      Initial State, State, Nested State, Composite State, Activity, Action, Event, Transition.

   2) Draw and explain use case and Collaboration Diagram for ATM System.

_____

SLR-TJ – 269

Seat No.	

Set S

B.E. (CSE) (Part – I) (New) (CGPA) Examination, 2017
OBJECT ORIENTED MODELING AND DESIGN (Elective – III)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*

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.***

MCQ/Objective Type Questions

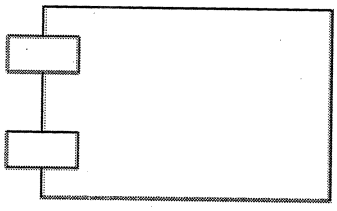
Duration : 30 Minutes Marks : 14

1. Choose correct answer : **(1×14=14)**

1) A _____ allows you to a conceptual chunk that encompasses both static and dynamic aspects.
   a) Interaction b) Activity c) Link d) Collaboration

2) A deployment diagram is a collection of _____ and _____.
   a) Point, Line b) Vertices, Arcs
   c) Link, Interaction d) Arc, Point

3) Which core element of UML is being shown in the figure ?



   a) Node b) Interface c) Class d) Component

4) Which of the following diagram is time oriented ?
   a) Collaboration b) Sequence
   c) Activity d) None

5) Identify the following who presented the Object Modeling Technique (OMT) ?
   a) Booch b) Jim Rumbaugh ET AL
   c) Jacobson ET AL d) None

P.T.O.

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   a) Invariant relationships
   b) Algorithms
   c) Classes and objects
   d) Goals, often expressed in a predicate calculus

7) What are the advantages of inheritance ?
   a) It permits code reusability. Reusability saves time in program development
   b) It encourages the reuse of proven and debugged high-quality software, thus reducing problem after a system becomes functional
   c) Both a) and b)
   d) Only a)

8) Which type of association does the following diagram depict ?
   a) Association b) Aggregation c) Generalization d) Composition

9) Some object-oriented systems permit a class to inherit its state (attributes) and behaviours from more than one super class. This is called
   a) Multiple inheritance b) Inheritance
   c) Hybrid inheritance d) Specialization

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   b) It is an interaction between the users and the system
   c) It captures the responsibility of the system to its users
   d) It represents the flow of activities of various processes in the system

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   a) Aggregation b) Composition
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12) Diagrams which are used to distribute files, libraries and tables across topology of hardware are called
   a) Deployment diagrams b) Use case diagrams
   c) Sequence diagrams d) Collaboration diagrams

13) Which of the following is not concept of advanced dynamic modelling ?
   a) Entry and Exit action b) Synchronization
   c) Automatic transition d) Actor

14) The _____ model specifies the result of a computation without specifying how or when they are computing.
   a) Data flow b) Functional c) Structural d) Dynamic

SLR-TJ – 269

Seat No.	

B.E. (CSE) (Part – I) (New) (CGPA) Examination, 2017
OBJECT ORIENTED MODELING AND DESIGN (Elective – III)

Day and Date : Friday, 8-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** : **(4×5=20)**
   1) Explain in brief concept of class and object.
   2) Write a short note on DFD.
   3) What is Link ? How it differs from Association ?
   4) Explain Object Modeling in detail.
   5) Explain advanced dynamic modeling concepts.

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   1) What are the steps for constructing Functional Model ?
   2) Write a note on :
      a) Aggregation
      b) The OMT Methodology.

SECTION – II

4. Solve **any four** : **(4×5=20)**
   1) Compare Interaction and Activity diagram.
   2) Write a short note on component diagrams with suitable example.
   3) Explain in short Client-Dispatcher-Server pattern and Publisher-Subscriber pattern.
   4) What is a design pattern and what makes a pattern ?
   5) Describe the applications of OMT.

5. Solve **any one** : **8**

   1) With an example explain state chart diagram with :

      Initial State, State, Nested State, Composite State, Activity, Action, Event, Transition.

   2) Draw and explain use case and Collaboration Diagram for ATM System.

_____

SLR-TJ – 270

Seat No.	

Set P

B.E. (Computer Sci. & Engg.) (Part – I) (New CGPA) Examination, 2017
WIRELESS ADHOC NETWORK (Elective – II)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) DES stands for
A) Delay Estimation Scheme B) Distributed Estimation Scheme
C) Dynamic Energy Scheme D) Data Estimation Scheme

2) The L2CAP protocol header contains
A) Logical Channels Identification bits
B) RFCOMM
C) Active bits
D) Control bits

3) The fourth generation of Wireless LAN operates in the _____ ISM band.
A) 50.5 MHz B) 5.2 MHz
C) 5.2 KHz D) 50.5 KHz

4) All the nodes in Adhoc wireless network has _____ energy makes the design a challenging task.
A) Infinite B) Finite
C) Both D) None

P.T.O.

5) _____ topology of the network or of any portion of it is not regular.
A) Regular B) Random
C) Quasi D) None of these

6) In _____ method the inter-arrival time in between to packet is indicated by λ.
A) Regular B) Random
C) Poisson Distribution D) None

7) Spatial neighbor of a nodes are those nodes whose _____ cells are adjacent.
A) Neighboring B) Random
C) Voronoi D) None

8) In Adhoc wireless network, different _____ routes are assume to be disjoint.
A) SNR B) BER C) Multi-hop D) None

9) _____ represents the average transmission rate at which the source node is transmitting.
A) λ L B) L
C) λ D) None

10) The use of particular _____ techniques could allow retransmission before complete reception.
A) Mobility B) Coding/decoding
C) Speed D) None

11) In ONRBS, a _____ multi-hop route from source to destination is created.
A) Tentative B) Permanent C) Reserved D) None

12) In Two Dimension Poisson Node Distribution, _____ is denoted by w.
A) Nearest neighbour B) Longest neighbour
C) Destination D) None

13) The optimal transmit power for an adhoc wireless network scenario where all nodes use a _____ transmits power.
A) Different B) Common C) Average D) None

14) The _____ bit is declared as an error if it differ from the original bit sent by the transmitter.
A) Average B) Signal
C) Both A) and B) D) Detected

_____

SLR-TJ – 270

Seat No.	

B.E. (Computer Sci. & Engg.) (Part – I) (New CGPA) Examination, 2017

WIRELESS ADHOC NETWORK (Elective – II)

Day and Date : Friday, 8-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

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

2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any four** questions : **12**

1) Which constraint you will consider while designing a wireless adhoc network ?

2) Explain with neat diagram Digital Radio Properties.

3) List all MAC protocol. Explain any one in detail.

4) What is BER at the end of multi hop route ?

3. Attempt **any two** questions : **16**

1) Define Quasi-Regular Topology with any four definitions.

2) Explain with neat diagram Bluetooth Technological Design.

3) Derive an equation for link communication model in ideal and Realistic scenario.

SECTION – II

4. Attempt **any three** questions : **12**

   1) What are the assumptions need to be consider while deriving Transport effective capacity in Adhoc wireless network ?

   2) Explain with neat ONRBS switching scheme in impact of mobility.

   3) Define Models for Transport capacity in Adhoc wireless network.

   4) How Poison distribution method is used to avoid collision ?

5. Attempt **any two** questions : **16**

   1) Explain Aggregate Effective transport capacity with ideal and realistic scenario.

   2) Explain Route Reservation Switching Schemes.

   3) Describe in grief Performance Matrix for Transmission power.

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Seat No.	

Set Q

B.E. (Computer Sci. & Engg.) (Part – I) (New CGPA) Examination, 2017
WIRELESS ADHOC NETWORK (Elective – II)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) In Adhoc wireless network, different _____ routes are assume to be disjoint.
A) SNR B) BER C) Multi-hop D) None

2) _____ represents the average transmission rate at which the source node is transmitting.
A) λL B) L
C) λ D) None

3) The use of particular _____ techniques could allow retransmission before complete reception.
A) Mobility B) Coding/decoding
C) Speed D) None

4) In ONRBS, a _____ multi-hop route from source to destination is created.
A) Tentative B) Permanent C) Reserved D) None

5) In Two Dimension Poisson Node Distribution, _____ is denoted by w.
A) Nearest neighbour B) Longest neighbour
C) Destination D) None

P.T.O.

6) The optimal transmit power for an adhoc wireless network scenario where all nodes use a _____ transmits power.
A) Different B) Common C) Average D) None

7) The _____ bit is declared as an error if it differ from the original bit sent by the transmitter.
A) Average B) Signal
C) Both A) and B) D) Detected

8) DES stands for
A) Delay Estimation Scheme B) Distributed Estimation Scheme
C) Dynamic Energy Scheme D) Data Estimation Scheme

9) The L2CAP protocol header contains
A) Logical Channels Identification bits
B) RFCOMM
C) Active bits
D) Control bits

10) The fourth generation of Wireless LAN operates in the _____ ISM band.
A) 50.5 MHz B) 5.2 MHz
C) 5.2 KHz D) 50.5 KHz

11) All the nodes in Adhoc wireless network has _____ energy makes the design a challenging task.
A) Infinite B) Finite
C) Both D) None

12) _____ topology of the network or of any portion of it is not regular.
A) Regular B) Random
C) Quasi D) None of these

13) In _____ method the inter-arrival time in between to packet is indicated by λ.
A) Regular B) Random
C) Poisson Distribution D) None

14) Spatial neighbor of a nodes are those nodes whose _____ cells are adjacent.
A) Neighboring B) Random
C) Voronoi D) None

_____

SLR-TJ – 270

Seat No.	

B.E. (Computer Sci. & Engg.) (Part – I) (New CGPA) Examination, 2017

WIRELESS ADHOC NETWORK (Elective – II)

Day and Date : Friday, 8-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

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

2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any four** questions : **12**

1) Which constraint you will consider while designing a wireless adhoc network ?

2) Explain with neat diagram Digital Radio Properties.

3) List all MAC protocol. Explain any one in detail.

4) What is BER at the end of multi hop route ?

3. Attempt **any two** questions : **16**

1) Define Quasi-Regular Topology with any four definitions.

2) Explain with neat diagram Bluetooth Technological Design.

3) Derive an equation for link communication model in ideal and Realistic scenario.

SECTION – II

4. Attempt **any three** questions : **12**

   1) What are the assumptions need to be consider while deriving Transport effective capacity in Adhoc wireless network ?
   2) Explain with neat ONRBS switching scheme in impact of mobility.
   3) Define Models for Transport capacity in Adhoc wireless network.
   4) How Poison distribution method is used to avoid collision ?

5. Attempt **any two** questions : **16**

   1) Explain Aggregate Effective transport capacity with ideal and realistic scenario.
   2) Explain Route Reservation Switching Schemes.
   3) Describe in grief Performance Matrix for Transmission power.

SLR-TJ – 270

Seat No.	

Set R

B.E. (Computer Sci. & Engg.) (Part – I) (New CGPA) Examination, 2017
WIRELESS ADHOC NETWORK (Elective – II)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
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3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) _____ topology of the network or of any portion of it is not regular.
A) Regular B) Random
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2) In _____ method the inter-arrival time in between to packet is indicated by λ.
A) Regular B) Random
C) Poisson Distribution D) None

3) Spatial neighbor of a nodes are those nodes whose _____ cells are adjacent.
A) Neighboring B) Random
C) Voronoi D) None

4) In Adhoc wireless network, different _____ routes are assume to be disjoint.
A) SNR B) BER C) Multi-hop D) None

P.T.O.

5) _____ represents the average transmission rate at which the source node is transmitting.
A) λ L
B) L
C) λ
D) None

6) The use of particular _____ techniques could allow retransmission before complete reception.
A) Mobility
B) Coding/decoding
C) Speed
D) None

7) In ONRBS, a _____ multi-hop route from source to destination is created.
A) Tentative
B) Permanent
C) Reserved
D) None

8) In Two Dimension Poisson Node Distribution, _____ is denoted by w.
A) Nearest neighbour
B) Longest neighbour
C) Destination
D) None

9) The optimal transmit power for an adhoc wireless network scenario where all nodes use a _____ transmits power.
A) Different
B) Common
C) Average
D) None

10) The _____ bit is declared as an error if it differ from the original bit sent by the transmitter.
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11) DES stands for
A) Delay Estimation Scheme
B) Distributed Estimation Scheme
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12) The L2CAP protocol header contains
A) Logical Channels Identification bits
B) RFCOMM
C) Active bits
D) Control bits

13) The fourth generation of Wireless LAN operates in the _____ ISM band.
A) 50.5 MHz
B) 5.2 MHz
C) 5.2 KHz
D) 50.5 KHz

14) All the nodes in Adhoc wireless network has _____ energy makes the design a challenging task.
A) Infinite
B) Finite
C) Both
D) None

_____

SLR-TJ – 270

Seat No.	

B.E. (Computer Sci. & Engg.) (Part – I) (New CGPA) Examination, 2017

WIRELESS ADHOC NETWORK (Elective – II)

Day and Date : Friday, 8-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

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

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SECTION – I

2. Attempt **any four** questions : **12**

1) Which constraint you will consider while designing a wireless adhoc network ?

2) Explain with neat diagram Digital Radio Properties.

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4) What is BER at the end of multi hop route ?

3. Attempt **any two** questions : **16**

1) Define Quasi-Regular Topology with any four definitions.

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SECTION – II

4. Attempt **any three** questions : **12**

   1) What are the assumptions need to be consider while deriving Transport effective capacity in Adhoc wireless network ?

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   3) Describe in grief Performance Matrix for Transmission power.

SLR-TJ – 270

Seat No.	

Set S

B.E. (Computer Sci. & Engg.) (Part – I) (New CGPA) Examination, 2017
WIRELESS ADHOC NETWORK (Elective – II)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct answer : **14**

1) The use of particular _____ techniques could allow retransmission before complete reception.
A) Mobility B) Coding/decoding
C) Speed D) None

2) In ONRBS, a _____ multi-hop route from source to destination is created.
A) Tentative B) Permanent C) Reserved D) None

3) In Two Dimension Poisson Node Distribution, _____ is denoted by w.
A) Nearest neighbour B) Longest neighbour
C) Destination D) None

4) The optimal transmit power for an adhoc wireless network scenario where all nodes use a _____ transmits power.
A) Different B) Common C) Average D) None

5) The _____ bit is declared as an error if it differ from the original bit sent by the transmitter.
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P.T.O.

6) DES stands for
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10) _____ topology of the network or of any portion of it is not regular.
   A) Regular
   B) Random
   C) Quasi
   D) None of these

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   B) Random
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   D) None

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   A) SNR
   B) BER
   C) Multi-hop
   D) None

14) _____ represents the average transmission rate at which the source node is transmitting.
   A) λL
   B) L
   C) λ
   D) None

_____

SLR-TJ – 270

Seat No.	

B.E. (Computer Sci. & Engg.) (Part – I) (New CGPA) Examination, 2017

WIRELESS ADHOC NETWORK (Elective – II)

Day and Date : Friday, 8-12-2017 Marks : 56

Time : 3.00 p.m. to 6.00 p.m.

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

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SECTION – I

2. Attempt **any four** questions : **12**

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2) Explain with neat diagram Digital Radio Properties.

3) List all MAC protocol. Explain any one in detail.

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3. Attempt **any two** questions : **16**

1) Define Quasi-Regular Topology with any four definitions.

2) Explain with neat diagram Bluetooth Technological Design.

3) Derive an equation for link communication model in ideal and Realistic scenario.

SECTION – II

4. Attempt **any three** questions : **12**

   1) What are the assumptions need to be consider while deriving Transport effective capacity in Adhoc wireless network ?

   2) Explain with neat ONRBS switching scheme in impact of mobility.

   3) Define Models for Transport capacity in Adhoc wireless network.

   4) How Poison distribution method is used to avoid collision ?

5. Attempt **any two** questions : **16**

   1) Explain Aggregate Effective transport capacity with ideal and realistic scenario.

   2) Explain Route Reservation Switching Schemes.

   3) Describe in grief Performance Matrix for Transmission power.

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Seat No.	

Set P

B.E. (Computer Science and Engineering) (Part – I) (New – CGPA) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (Elective – II)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option. **(14×1=14)**

1) On which thread services work in android ?
A) Worker thread B) Own thread
C) Main thread D) User thread

2) What is an anonymous class in android ?
A) Interface class
B) A class that does not have a name but have functionalities in it
C) Java class
D) Manifest file

3) _____ permission is needed to send text sms.
A) SMS_SEND B) SMS_SEND_MESSAGE
C) READ_SMS D) RECEIVE_SMS

4) Which of the following is not lifecycle state of a service ?
A) Starting B) Running
C) Destroyed D) Paused

5) _____ is the life cycle method of broadcast receivers in android ?
A) send intent B) onReceive
C) implicitBroadcast D) all

6) _____ method is used to run task in background using AsynTask.
A) doInBackground B) doBackground
C) onPostExecute( ) D) none

P.T.O.

7) The emulated device for android
   A) Runs the same code base as the actual device, all the way down to the machine layer
   B) Is more of a simulator, and acts as a virtual machine for the android device
   C) Runs the same code base as the actual device, however at a higher level
   D) None

8) Testing in which functionality of software is tested without considering internal code structure is called
   A) Black box testing B) White box testing
   C) Regression testing D) None

9) A _____ is location provider.
   A) network B) gps
   C) both A) and B) D) none

10) SqliteDatabase class can be used to
   A) Create tables B) Insert data in tables
   C) Update and delete data in tables D) All

11) Permission needed to access location using tower based mechanism are
   A) ACCESS_FINE_LOCATION B) ACCESS_COARSE_LOCATION
   C) Both A) and B) D) None

12) _____ property in xml file can be used to enlarge or compress object in view animation.
   A) FromXScale, toXScale B) FromAlpha, toAlpha
   C) FromDegrees, toDegrees D) None

13) _____ animation can be used to animate any property of object described in view class with numeric values.
   A) view B) property C) drawable D) none

14) _____, _____ functions of editor need to be invoked to write integer value in SharedPreference file.
   A) Write, commit B) WriteInt, commit
   C) Write, commitInt D) WritePref, commit

_____

SLR-TJ – 272

Seat No.	

B.E. (Computer Science and Engineering) (Part – I) (New – CGPA) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (Elective – II)

Day and Date : Friday, 8-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

***Instruction** : **All** questions are **compulsory**.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Describe in brief the use/purpose of AndroidManifest.xml.
   b) Describe the various logical components of an Android app.
   c) Explain local and remote binding concepts of services.
   d) Explain any 5 widgets in android.

3. Attempt **any one** : **(1×8=8)**
   a) What are Intents ? What role is played by them ? Explain Intent Resolution and how it is realized in android application.
   b) Illustrate the benefits of AsyncTask over threads for implementing long running tasks. Write a program to demonstrate all overrided methods of AsyncTask.

4. Explain Android stack architecture in detail. **(1×8=8)**

SECTION – II

5. Write a note on (**any three**) : **(3×4=12)**
   a) Cursor.
   b) Canvas and drawable.
   c) JUnit testing tool.
   d) File handling in android.

6. Attempt **any one** : **(1×8=8)**
   a) Explain App uploading procedure on play store.
   b) Explain types of Sensors. Explain how sensors are operated through android program with example.

7. What is relational data. Explain features of sqlite. Discuss SqliteOpenHelper and SqliteDatabase in detail. **(1×8=8)**

Set P

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SLR-TJ – 272

Seat No.	

Set Q

B.E. (Computer Science and Engineering) (Part – I) (New – CGPA) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (Elective – II)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option. **(14×1=14)**

1) Testing in which functionality of software is tested without considering internal code structure is called
A) Black box testing B) White box testing
C) Regression testing D) None

2) A _____ is location provider.
A) network B) gps
C) both A) and B) D) none

3) SqliteDatabase class can be used to
A) Create tables B) Insert data in tables
C) Update and delete data in tables D) All

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A) ACCESS_FINE_LOCATION B) ACCESS_COARSE_LOCATION
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5) _____ property in xml file can be used to enlarge or compress object in view animation.
A) FromXScale, toXScale B) FromAlpha, toAlpha
C) FromDegrees, toDegrees D) None

6) _____ animation can be used to animate any property of object described in view class with numeric values.
A) view B) property C) drawable D) none

P.T.O.

7) _____, _____ functions of editor need to be invoked to write integer value in SharedPreference file.
   A) Write, commit
   B) WriteInt, commit
   C) Write, commitInt
   D) WritePref, commit

8) On which thread services work in android ?
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   B) Own thread
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9) What is an anonymous class in android ?
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   B) A class that does not have a name but have functionalities in it
   C) Java class
   D) Manifest file

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11) Which of the following is not lifecycle state of a service ?
   A) Starting
   B) Running
   C) Destroyed
   D) Paused

12) _____ is the life cycle method of broadcast receivers in android ?
   A) send intent
   B) onReceive
   C) implicitBroadcast
   D) all

13) _____ method is used to run task in background using AsynTask.
   A) doInBackground
   B) doBackground
   C) onPostExecute( )
   D) none

14) The emulated device for android
   A) Runs the same code base as the actual device, all the way down to the machine layer
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   C) Runs the same code base as the actual device, however at a higher level
   D) None

_____

SLR-TJ – 272

Seat No.	

B.E. (Computer Science and Engineering) (Part – I) (New – CGPA) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (Elective – II)

Day and Date : Friday, 8-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

***Instruction** : **All** questions are **compulsory**.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Describe in brief the use/purpose of AndroidManifest.xml.
   b) Describe the various logical components of an Android app.
   c) Explain local and remote binding concepts of services.
   d) Explain any 5 widgets in android.

3. Attempt **any one** : **(1×8=8)**
   a) What are Intents ? What role is played by them ? Explain Intent Resolution and how it is realized in android application.
   b) Illustrate the benefits of AsyncTask over threads for implementing long running tasks. Write a program to demonstrate all overrided methods of AsyncTask.

4. Explain Android stack architecture in detail. **(1×8=8)**

SECTION – II

5. Write a note on (**any three**) : **(3×4=12)**
   a) Cursor.
   b) Canvas and drawable.
   c) JUnit testing tool.
   d) File handling in android.

6. Attempt **any one** : **(1×8=8)**
   a) Explain App uploading procedure on play store.
   b) Explain types of Sensors. Explain how sensors are operated through android program with example.

7. What is relational data. Explain features of sqlite. Discuss SqliteOpenHelper and SqliteDatabase in detail. **(1×8=8)**

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SLR-TJ – 272

Seat No.	

Set R

B.E. (Computer Science and Engineering) (Part – I) (New – CGPA) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (Elective – II)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option. **(14×1=14)**

1) _____ is the life cycle method of broadcast receivers in android ?
A) send intent B) onReceive
C) implicitBroadcast D) all

2) _____ method is used to run task in background using AsynTask.
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D) None

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C) Regression testing D) None

5) A _____ is location provider.
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C) both A) and B) D) none

P.T.O.

6) SqliteDatabase class can be used to
   A) Create tables
   B) Insert data in tables
   C) Update and delete data in tables
   D) All

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   A) ACCESS_FINE_LOCATION
   B) ACCESS_COARSE_LOCATION
   C) Both A) and B)
   D) None

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   B) FromAlpha, toAlpha
   C) FromDegrees, toDegrees
   D) None

9) _____ animation can be used to animate any property of object described in view class with numeric values.
   A) view
   B) property
   C) drawable
   D) none

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   B) WriteInt, commit
   C) Write, commitInt
   D) WritePref, commit

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   B) A class that does not have a name but have functionalities in it
   C) Java class
   D) Manifest file

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   B) SMS_SEND_MESSAGE
   C) READ_SMS
   D) RECEIVE_SMS

14) Which of the following is not lifecycle state of a service ?
   A) Starting
   B) Running
   C) Destroyed
   D) Paused

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SLR-TJ – 272

Seat No.	

B.E. (Computer Science and Engineering) (Part – I) (New – CGPA) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (Elective – II)

Day and Date : Friday, 8-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

***Instruction** : **All** questions are **compulsory**.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Describe in brief the use/purpose of AndroidManifest.xml.
   b) Describe the various logical components of an Android app.
   c) Explain local and remote binding concepts of services.
   d) Explain any 5 widgets in android.

3. Attempt **any one** : **(1×8=8)**
   a) What are Intents ? What role is played by them ? Explain Intent Resolution and how it is realized in android application.
   b) Illustrate the benefits of AsyncTask over threads for implementing long running tasks. Write a program to demonstrate all overrided methods of AsyncTask.

4. Explain Android stack architecture in detail. **(1×8=8)**

SECTION – II

5. Write a note on (**any three**) : **(3×4=12)**
   a) Cursor.
   b) Canvas and drawable.
   c) JUnit testing tool.
   d) File handling in android.

6. Attempt **any one** : **(1×8=8)**
   a) Explain App uploading procedure on play store.
   b) Explain types of Sensors. Explain how sensors are operated through android program with example.

7. What is relational data. Explain features of sqlite. Discuss SqliteOpenHelper and SqliteDatabase in detail. **(1×8=8)**

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Seat No.	

Set S

B.E. (Computer Science and Engineering) (Part – I) (New – CGPA) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (Elective – II)

Day and Date : Friday, 8-12-2017 Max. Marks : 70
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 14

1. Choose the correct option. **(14×1=14)**

1) SqliteDatabase class can be used to
A) Create tables B) Insert data in tables
C) Update and delete data in tables D) All

2) Permission needed to access location using tower based mechanism are
A) ACCESS_FINE_LOCATION B) ACCESS_COARSE_LOCATION
C) Both A) and B) D) None

3) _____ property in xml file can be used to enlarge or compress object in view animation.
A) FromXScale, toXScale B) FromAlpha, toAlpha
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4) _____ animation can be used to animate any property of object described in view class with numeric values.
A) view B) property C) drawable D) none

5) _____, _____ functions of editor need to be invoked to write integer value in SharedPreference file.
A) Write, commit B) WriteInt, commit
C) Write, commitInt D) WritePref, commit

6) On which thread services work in android ?
A) Worker thread B) Own thread
C) Main thread D) User thread

P.T.O.

7) What is an anonymous class in android ?
   A) Interface class
   B) A class that does not have a name but have functionalities in it
   C) Java class
   D) Manifest file

8) _____ permission is needed to send text sms.
   A) SMS_SEND
   B) SMS_SEND_MESSAGE
   C) READ_SMS
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9) Which of the following is not lifecycle state of a service ?
   A) Starting
   B) Running
   C) Destroyed
   D) Paused

10) _____ is the life cycle method of broadcast receivers in android ?
   A) send intent
   B) onReceive
   C) implicitBroadcast
   D) all

11) _____ method is used to run task in background using AsynTask.
   A) doInBackground
   B) doBackground
   C) onPostExecute( )
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   A) Runs the same code base as the actual device, all the way down to the machine layer
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   C) Runs the same code base as the actual device, however at a higher level
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13) Testing in which functionality of software is tested without considering internal code structure is called
   A) Black box testing
   B) White box testing
   C) Regression testing
   D) None

14) A _____ is location provider.
   A) network
   B) gps
   C) both A) and B)
   D) none

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SLR-TJ – 272

Seat No.	

B.E. (Computer Science and Engineering) (Part – I) (New – CGPA) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (Elective – II)

Day and Date : Friday, 8-12-2017 Marks : 56
Time : 3.00 p.m. to 6.00 p.m.

***Instruction** : **All** questions are **compulsory**.*

SECTION – I

2. Attempt **any three** : **(3×4=12)**
   a) Describe in brief the use/purpose of AndroidManifest.xml.
   b) Describe the various logical components of an Android app.
   c) Explain local and remote binding concepts of services.
   d) Explain any 5 widgets in android.

3. Attempt **any one** : **(1×8=8)**
   a) What are Intents ? What role is played by them ? Explain Intent Resolution and how it is realized in android application.
   b) Illustrate the benefits of AsyncTask over threads for implementing long running tasks. Write a program to demonstrate all overrided methods of AsyncTask.

4. Explain Android stack architecture in detail. **(1×8=8)**

SECTION – II

5. Write a note on (**any three**) : **(3×4=12)**
   a) Cursor.
   b) Canvas and drawable.
   c) JUnit testing tool.
   d) File handling in android.

6. Attempt **any one** : **(1×8=8)**
   a) Explain App uploading procedure on play store.
   b) Explain types of Sensors. Explain how sensors are operated through android program with example.

7. What is relational data. Explain features of sqlite. Discuss SqliteOpenHelper and SqliteDatabase in detail. **(1×8=8)**

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Set S

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Seat No.	

Set P

B.E. (CSE) (Part – I) Examination, 2017
NETWORK SECURITY (Old)

Day and Date : Tuesday, 12-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

N.B. : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Figures to the ***right*** *indicate* ***full*** *marks.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternatives. **(20×1=20)**

1) In CIA triad security requirement C stands for Confidentiality, I stands for _____ whereas A stands for Availability.
   a) Inheritance b) Integrity c) Intruder d) Intrusion
2) A loss of integrity is the unauthorized modification or destruction of information
   a) True b) False c) Can't Say d) None of the above
3) The attack which prevents or inhibits the normal use or management of communication facilities is known as
   a) Replay b) Masquerade c) Denial of Service d) None of the above
4) A _____ attack involves trying every possible key until an intelligible translation of the ciphertext into plaintext is obtained.
   a) brute-force b) stegnoanalysis c) timing d) all above
5) RSA scheme is a block cipher in which the plaintext and ciphertext are integers between 0 and n – 1
   a) True b) False c) Can't Say d) None of the above
6) If both sender and receiver use the same key, then cryptography is known as
   a) Secret Key b) Symmetric
   c) Single key or One key d) All above
7) In block cipher, the advantages of larger block size is
   a) Greater Security
   b) Increase encryption/decryption speed
   c) Hardware implementation is easy
   d) None of the above
8) _____ provides a one-time session key for the connection.
   a) Sender b) Receiver
   c) Intruder d) Key Distribution Centre

P.T.O.

9) The DES stands for Data Encryption Scheme
   a) True b) False c) Can't Say d) None of the above

10) Steganography uses character making, Invisible Ink, Pin Punctures and Typewritter correction ribbon methods for its implementation
   a) True b) False c) Can't Say d) None of the above

11) A function of the message and secret key that produces a fixed-length value that serves as the authenticator is
   a) Hash value b) Message encryption
   c) Message Authentication Code (MAC) d) Symmetric encryption of message

12) X.509 is
   a) Authentication Service b) Format for public key certificate
   c) Encryption Algorithm d) Notarization

13) If the sender sends the message without private key, it achieves the purpose of
   a) Only Confidentiality b) Confidentiality and Authentication
   c) Authentication d) None of these

14) IPSec is a capability that can be added to either version of IPv4 or IPv6 by means of additional headers
   a) True b) False c) Can't Say d) None of the above

15) In IPSec, both AH and ESP supports
   a) Transport mode b) Tunnel mode c) Both a and b d) None of the above

16) In IP Sec AH stands for Authentication Header
   a) True b) False c) Can't Say d) None of the above

17) Web Security does not consider Context-Sensitive Technologies
   a) True b) False c) Can't Say d) None of the above

18) PGP is an open source freely available software package for email security
   a) True b) False c) Can't Say d) None of the above

19) A key concept that appears in both the authentication and confidentiality mechanism for IP is
   a) Security Association b) AH
   c) ESP d) None of the above

20) Which of the function is provides by S/MIME ?
   a) Enveloped data b) Signed data
   c) Clear-signed data d) All above

SLR-TJ – 273

Seat No.	

B.E. (CSE) (Part – I) Examination, 2017
NETWORK SECURITY (Old)

Day and Date : Tuesday, 12-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any four** (**each** carries **5** marks). **20**

   a) Write a note on : Rotor machine.

   b) Explain Ceaser Cipher with example. Specify its merit and demerits.

   c) Describe Digital Signature Standard.

   d) Describe the transposition method with the help of example.

   e) Write a note on : Diffe-Hellman key exchange algorithm.

3. Attempt **any one** : **10**

   a) What is public key cryptography ? Explain its components with diagrams.

   b) Explain Authentication protocols.
      i) One way Authentication
      ii) Mutual Authentication.

4. Explain all Block Cipher modes of operation with suitable diagram. **10**

SECTION – II

5. Attempt **any four** (**Each** carries **5** marks) : **20**

   a) What is Kerberos ? List the requirements of Kerberos.

   b) List and explain the functions of S/MIME.

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c) Explain transport and tunnel mode of IPSec.

d) Write a note on : Privacy in Semantic Web.

e) Explain Secure Electronic Transaction (SET) with diagram.

6. Attempt **any one**. **10**

A) Explain AH and ESP of IP Sec with formats.

B) Explain viruses with their structure, type and nature in detail.

7. What is PGP ? How PGP provides authentication and confidentiality ? Explain with the help of diagram. **10**

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Seat No.	

Set Q

B.E. (CSE) (Part – I) Examination, 2017
NETWORK SECURITY (Old)

Day and Date : Tuesday, 12-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

N.B. : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternatives. **(20×1=20)**

1) In IP Sec AH stands for Authentication Header
   a) True b) False c) Can't Say d) None of the above
2) Web Security does not consider Context-Sensitive Technologies
   a) True b) False c) Can't Say d) None of the above
3) PGP is an open source freely available software package for email security
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18) If the sender sends the message without private key, it achieves the purpose of
   a) Only Confidentiality b) Confidentiality and Authentication
   c) Authentication d) None of these

19) IPSec is a capability that can be added to either version of IPv4 or IPv6 by means of additional headers
   a) True b) False c) Can't Say d) None of the above

20) In IPSec, both AH and ESP supports
   a) Transport mode b) Tunnel mode c) Both a and b d) None of the above

SLR-TJ – 273

Seat No.	

B.E. (CSE) (Part – I) Examination, 2017
NETWORK SECURITY (Old)

Day and Date : Tuesday, 12-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

N.B. : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any four** (**each** carries **5** marks). **20**

   a) Write a note on : Rotor machine.

   b) Explain Ceaser Cipher with example. Specify its merit and demerits.

   c) Describe Digital Signature Standard.

   d) Describe the transposition method with the help of example.

   e) Write a note on : Diffe-Hellman key exchange algorithm.

3. Attempt **any one** : **10**

   a) What is public key cryptography ? Explain its components with diagrams.

   b) Explain Authentication protocols.
      i) One way Authentication
      ii) Mutual Authentication.

4. Explain all Block Cipher modes of operation with suitable diagram. **10**

SECTION – II

5. Attempt **any four** (**Each** carries **5** marks) : **20**

   a) What is Kerberos ? List the requirements of Kerberos.

   b) List and explain the functions of S/MIME.

Set Q

c) Explain transport and tunnel mode of IPSec.

d) Write a note on : Privacy in Semantic Web.

e) Explain Secure Electronic Transaction (SET) with diagram.

6. Attempt **any one**. **10**

A) Explain AH and ESP of IP Sec with formats.

B) Explain viruses with their structure, type and nature in detail.

7. What is PGP ? How PGP provides authentication and confidentiality ? Explain with the help of diagram. **10**

SLR-TJ – 273

Seat No.	

Set R

B.E. (CSE) (Part – I) Examination, 2017
NETWORK SECURITY (Old)

Day and Date : Tuesday, 12-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

N.B. : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Figures to the ***right*** *indicate* ***full*** *marks.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternatives. **(20×1=20)**

1) A function of the message and secret key that produces a fixed-length value that serves as the authenticator is
   a) Hash value
   b) Message encryption
   c) Message Authentication Code (MAC)
   d) Symmetric encryption of message

2) X.509 is
   a) Authentication Service
   b) Format for public key certificate
   c) Encryption Algorithm
   d) Notarization

3) If the sender sends the message without private key, it achieves the purpose of
   a) Only Confidentiality
   b) Confidentiality and Authentication
   c) Authentication
   d) None of these

4) IPSec is a capability that can be added to either version of IPv4 or IPv6 by means of additional headers
   a) True b) False c) Can't Say d) None of the above

5) In IPSec, both AH and ESP supports
   a) Transport mode b) Tunnel mode c) Both a and b d) None of the above

6) In IP Sec AH stands for Authentication Header
   a) True b) False c) Can't Say d) None of the above

7) Web Security does not consider Context-Sensitive Technologies
   a) True b) False c) Can't Say d) None of the above

8) PGP is an open source freely available software package for email security
   a) True b) False c) Can't Say d) None of the above

9) A key concept that appears in both the authentication and confidentiality mechanism for IP is
   a) Security Association
   b) AH
   c) ESP
   d) None of the above

P.T.O.

10) Which of the function is provides by S/MIME ?
   a) Enveloped data b) Signed data
   c) Clear-signed data d) All above

11) In CIA triad security requirement C stands for Confidentiality, I stands for _____ whereas A stands for Availability.
   a) Inheritance b) Integrity c) Intruder d) Intrusion

12) A loss of integrity is the unauthorized modification or destruction of information
   a) True b) False c) Can't Say d) None of the above

13) The attack which prevents or inhibits the normal use or management of communication facilities is known as
   a) Replay b) Masquerade c) Denial of Service d) None of the above

14) A _____ attack involves trying every possible key until an intelligible translation of the ciphertext into plaintext is obtained.
   a) brute-force b) stegnoanalysis c) timing d) all above

15) RSA scheme is a block cipher in which the plaintext and ciphertext are integers between 0 and n – 1
   a) True b) False c) Can't Say d) None of the above

16) If both sender and receiver use the same key, then cryptography is known as
   a) Secret Key b) Symmetric
   c) Single key or One key d) All above

17) In block cipher, the advantages of larger block size is
   a) Greater Security
   b) Increase encryption/decryption speed
   c) Hardware implementation is easy
   d) None of the above

18) _____ provides a one-time session key for the connection.
   a) Sender b) Receiver
   c) Intruder d) Key Distribution Centre

19) The DES stands for Data Encryption Scheme
   a) True b) False c) Can't Say d) None of the above

20) Steganography uses character making, Invisible Ink, Pin Punctures and Typewritter correction ribbon methods for its implementation
   a) True b) False c) Can't Say d) None of the above

_____

SLR-TJ – 273

Seat No.	

B.E. (CSE) (Part – I) Examination, 2017
NETWORK SECURITY (Old)

Day and Date : Tuesday, 12-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any four** (**each** carries **5** marks). **20**

   a) Write a note on : Rotor machine.

   b) Explain Ceaser Cipher with example. Specify its merit and demerits.

   c) Describe Digital Signature Standard.

   d) Describe the transposition method with the help of example.

   e) Write a note on : Diffe-Hellman key exchange algorithm.

3. Attempt **any one** : **10**

   a) What is public key cryptography ? Explain its components with diagrams.

   b) Explain Authentication protocols.
      i) One way Authentication
      ii) Mutual Authentication.

4. Explain all Block Cipher modes of operation with suitable diagram. **10**

SECTION – II

5. Attempt **any four** (**Each** carries **5** marks) : **20**

   a) What is Kerberos ? List the requirements of Kerberos.

   b) List and explain the functions of S/MIME.

Set R

c) Explain transport and tunnel mode of IPSec.

d) Write a note on : Privacy in Semantic Web.

e) Explain Secure Electronic Transaction (SET) with diagram.

6. Attempt **any one**. **10**

A) Explain AH and ESP of IP Sec with formats.

B) Explain viruses with their structure, type and nature in detail.

7. What is PGP ? How PGP provides authentication and confidentiality ? Explain with the help of diagram. **10**

SLR-TJ – 273

Seat No.	

Set S

B.E. (CSE) (Part – I) Examination, 2017
NETWORK SECURITY (Old)

Day and Date : Tuesday, 12-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

N.B. : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***All*** *questions are* ***compulsory****.*
4) Figures to the ***right*** *indicate* ***full*** *marks.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternatives. **(20×1=20)**

1) If both sender and receiver use the same key, then cryptography is known as
   a) Secret Key b) Symmetric
   c) Single key or One key d) All above

2) In block cipher, the advantages of larger block size is
   a) Greater Security
   b) Increase encryption/decryption speed
   c) Hardware implementation is easy
   d) None of the above

3) _____ provides a one-time session key for the connection.
   a) Sender b) Receiver
   c) Intruder d) Key Distribution Centre

4) The DES stands for Data Encryption Scheme
   a) True b) False c) Can't Say d) None of the above

5) Steganography uses character making, Invisible Ink, Pin Punctures and Typewritter correction ribbon methods for its implementation
   a) True b) False c) Can't Say d) None of the above

6) A function of the message and secret key that produces a fixed-length value that serves as the authenticator is
   a) Hash value b) Message encryption
   c) Message Authentication Code (MAC) d) Symmetric encryption of message

7) X.509 is
   a) Authentication Service b) Format for public key certificate
   c) Encryption Algorithm d) Notarization

8) If the sender sends the message without private key, it achieves the purpose of
   a) Only Confidentiality
   b) Confidentiality and Authentication
   c) Authentication
   d) None of these

9) IPSec is a capability that can be added to either version of IPv4 or IPv6 by means of additional headers
   a) True b) False c) Can't Say d) None of the above

10) In IPSec, both AH and ESP supports
   a) Transport mode b) Tunnel mode c) Both a and b d) None of the above

11) In IP Sec AH stands for Authentication Header
   a) True b) False c) Can't Say d) None of the above

12) Web Security does not consider Context-Sensitive Technologies
   a) True b) False c) Can't Say d) None of the above

13) PGP is an open source freely available software package for email security
   a) True b) False c) Can't Say d) None of the above

14) A key concept that appears in both the authentication and confidentiality mechanism for IP is
   a) Security Association
   b) AH
   c) ESP
   d) None of the above

15) Which of the function is provides by S/MIME ?
   a) Enveloped data
   b) Signed data
   c) Clear-signed data
   d) All above

16) In CIA triad security requirement C stands for Confidentiality, I stands for _____ whereas A stands for Availability.
   a) Inheritance b) Integrity c) Intruder d) Intrusion

17) A loss of integrity is the unauthorized modification or destruction of information
   a) True b) False c) Can't Say d) None of the above

18) The attack which prevents or inhibits the normal use or management of communication facilities is known as
   a) Replay b) Masquerade c) Denial of Service d) None of the above

19) A _____ attack involves trying every possible key until an intelligible translation of the ciphertext into plaintext is obtained.
   a) brute-force b) stegnoanalysis c) timing d) all above

20) RSA scheme is a block cipher in which the plaintext and ciphertext are integers between 0 and n – 1
   a) True b) False c) Can't Say d) None of the above

_____

SLR-TJ – 273

Seat No.	

B.E. (CSE) (Part – I) Examination, 2017
NETWORK SECURITY (Old)

Day and Date : Tuesday, 12-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

N.B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Attempt **any four** (**each** carries **5** marks). **20**

   a) Write a note on : Rotor machine.

   b) Explain Ceaser Cipher with example. Specify its merit and demerits.

   c) Describe Digital Signature Standard.

   d) Describe the transposition method with the help of example.

   e) Write a note on : Diffe-Hellman key exchange algorithm.

3. Attempt **any one** : **10**

   a) What is public key cryptography ? Explain its components with diagrams.

   b) Explain Authentication protocols.
      i) One way Authentication
      ii) Mutual Authentication.

4. Explain all Block Cipher modes of operation with suitable diagram. **10**

SECTION – II

5. Attempt **any four** (**Each** carries **5** marks) : **20**

   a) What is Kerberos ? List the requirements of Kerberos.

   b) List and explain the functions of S/MIME.

Set S

c) Explain transport and tunnel mode of IPSec.

d) Write a note on : Privacy in Semantic Web.

e) Explain Secure Electronic Transaction (SET) with diagram.

6. Attempt **any one**. **10**

A) Explain AH and ESP of IP Sec with formats.

B) Explain viruses with their structure, type and nature in detail.

7. What is PGP ? How PGP provides authentication and confidentiality ? Explain with the help of diagram. **10**

SLR-TJ – 274

Seat No.	

Set P

B.E. (Computer Science and Engg.) (Part – I) Examination, 2017
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)

Day and Date : Thursday, 14-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

1) Generalisation is a _____ relationship.
a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

2) Association is a _____ relationship.
a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

3) Aggregation is a _____ relationship.
a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

4) A class is
a) a group of objects b) template for objects of a particular type
c) a class of objects d) a classification of objects

5) Life cycle of a class is represented by
a) collaboration diagram b) state chart diagram
c) class diagram d) deployment diagram

6) Encapsulation is also known as
a) Information hiding b) Interface management
c) Polymorphism d) Aggregation

7) Which of the following is not a UML diagram ?
a) Component diagram b) State chart diagram
c) Deployment diagram d) Broadcast diagram

8) To organize elements into reusable groups with full information hiding is used.
a) Package b) Class
c) Class and interface d) Subsystem or component

P.T.O.

9) _____ is the implementation of an operation for a class.
a) Method b) Attributes c) Link d) Ordering

10) The _____ is a special attribute that reduces the effective multiplicity of an association.
a) Role name b) Ordering c) Qualifier d) Link

11) Classes and interfaces are a part of
a) Structural things b) Behavioural things
c) Grouping things d) Annotational things

12) What is a physical element that exists at run time in UML ?
a) Node b) An interface
c) An activity d) None of the mentioned

13) Which diagram in UML emphasizes the time-ordering of messages ?
a) Activity b) Sequence c) Collaboration d) Class

14) _____ diagrams are important for visualising, specifying and documenting the behaviour of an element.
a) Collaboration b) Interaction c) Component d) Use Case

15) The _____ model shows the static, structural data aspects of a system.
a) Functional b) Object c) Dynamic d) None

16) _____ characterise mainstream object oriented language.
a) Identity b) Polymorphism c) Classification d) All of the above

17) A _____ represents the specification of an asynchronous stimulus communicated between instances.
a) Event b) Thread c) Process d) Signal

18) A _____ is a common solution to a common problem in a given context.
a) Architecture b) Module c) Pattern d) Framework

19) Role names are, necessary for _____ between two objects of the same class.
a) Aggregation b) Association c) Generalization d) None of these

20) In the UML notation, an ellipse signifies a
a) Actor b) Use case
c) Class d) System Boundary

_____

SLR-TJ – 274

Seat No.	

B.E. (Computer Science and Engg.) (Part – I) Examination, 2017
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)

Day and Date : Thursday, 14-12-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) **All** questions are **compulsory**.*
*2) Figures to the **right** indicate **full** marks.*
*3) Assume suitable data **if** necessary.*

SECTION – I

2. Attempt the following questions (**any four**) : **(4×5=20)**
   a) Explain object modelling techniques.
   b) Explain the general concepts of generalization with example.
   c) Explain class and object from object model with example.
   d) Explain in association multiplicity with example.
   e) Explain data flow diagram with example.

3. Explain object oriented themes. **10**

4. What are the steps for constructing Functional Model ? **10**

OR

4. Explain below dynamic modelling concept :
   a) State
   b) Event
   c) State diagram
   d) Conditions
   e) Operation

SECTION – II

5. Attempt the following questions (**any four**) : **(4×5=20)**
   a) Explain Sequence Diagram with example.
   b) Explain Component Diagram with example.
   c) Explain different views in UML.
   d) Explain State Chart Diagram in UML with example.
   e) Explain about JOIN and FORKING with example.

6. Explain building Blocks of UML. **10**

7. Explain Activity and Interaction Diagram with example. **10**

OR

7. Explain Core Elements of use case diagram. Also draw the Use Case diagram for Bank ATM System.

SLR-TJ – 274

Seat No.	

Set Q

B.E. (Computer Science and Engg.) (Part – I) Examination, 2017
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)

Day and Date : Thursday, 14-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

1) _____ characterise mainstream object oriented language.
a) Identity b) Polymorphism c) Classification d) All of the above

2) A _____ represents the specification of an asynchronous stimulus communicated between instances.
a) Event b) Thread c) Process d) Signal

3) A _____ is a common solution to a common problem in a given context.
a) Architecture b) Module c) Pattern d) Framework

4) Role names are, necessary for _____ between two objects of the same class.
a) Aggregation b) Association c) Generalization d) None of these

5) In the UML notation, an ellipse signifies a
a) Actor b) Use case
c) Class d) System Boundary

6) Generalisation is a _____ relationship.
a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

7) Association is a _____ relationship.
a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

8) Aggregation is a _____ relationship.
a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

9) A class is
a) a group of objects b) template for objects of a particular type
c) a class of objects d) a classification of objects

P.T.O.

10) Life cycle of a class is represented by
a) collaboration diagram b) state chart diagram
c) class diagram d) deployment diagram

11) Encapsulation is also known as
a) Information hiding b) Interface management
c) Polymorphism d) Aggregation

12) Which of the following is not a UML diagram ?
a) Component diagram b) State chart diagram
c) Deployment diagram d) Broadcast diagram

13) To organize elements into reusable groups with full information hiding is used.
a) Package b) Class
c) Class and interface d) Subsystem or component

14) _____ is the implementation of an operation for a class.
a) Method b) Attributes c) Link d) Ordering

15) The _____ is a special attribute that reduces the effective multiplicity of an association.
a) Role name b) Ordering c) Qualifier d) Link

16) Classes and interfaces are a part of
a) Structural things b) Behavioural things
c) Grouping things d) Annotational things

17) What is a physical element that exists at run time in UML ?
a) Node b) An interface
c) An activity d) None of the mentioned

18) Which diagram in UML emphasizes the time-ordering of messages ?
a) Activity b) Sequence c) Collaboration d) Class

19) _____ diagrams are important for visualising, specifying and documenting the behaviour of an element.
a) Collaboration b) Interaction c) Component d) Use Case

20) The _____ model shows the static, structural data aspects of a system.
a) Functional b) Object c) Dynamic d) None

_____

SLR-TJ – 274

Seat No.	

B.E. (Computer Science and Engg.) (Part – I) Examination, 2017
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)

Day and Date : Thursday, 14-12-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) **All** questions are **compulsory**.*
*2) Figures to the **right** indicate **full** marks.*
*3) Assume suitable data **if** necessary.*

SECTION – I

2. Attempt the following questions (**any four**) : **(4×5=20)**
   a) Explain object modelling techniques.
   b) Explain the general concepts of generalization with example.
   c) Explain class and object from object model with example.
   d) Explain in association multiplicity with example.
   e) Explain data flow diagram with example.

3. Explain object oriented themes. **10**

4. What are the steps for constructing Functional Model ? **10**

OR

4. Explain below dynamic modelling concept :
   a) State
   b) Event
   c) State diagram
   d) Conditions
   e) Operation

SECTION – II

5. Attempt the following questions (**any four**) : **(4×5=20)**
   a) Explain Sequence Diagram with example.
   b) Explain Component Diagram with example.
   c) Explain different views in UML.
   d) Explain State Chart Diagram in UML with example.
   e) Explain about JOIN and FORKING with example.

6. Explain building Blocks of UML. **10**

7. Explain Activity and Interaction Diagram with example. **10**

OR

7. Explain Core Elements of use case diagram. Also draw the Use Case diagram for Bank ATM System.

SLR-TJ – 274

Seat No.	

Set R

B.E. (Computer Science and Engg.) (Part – I) Examination, 2017
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)

Day and Date : Thursday, 14-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

1) Classes and interfaces are a part of
   a) Structural things b) Behavioural things
   c) Grouping things d) Annotational things

2) What is a physical element that exists at run time in UML ?
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5) The _____ model shows the static, structural data aspects of a system.
   a) Functional b) Object c) Dynamic d) None

6) _____ characterise mainstream object oriented language.
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8) A _____ is a common solution to a common problem in a given context.
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9) Role names are, necessary for _____ between two objects of the same class.
   a) Aggregation b) Association c) Generalization d) None of these

10) In the UML notation, an ellipse signifies a
   a) Actor b) Use case
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11) Generalisation is a _____ relationship.
   a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

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   a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

14) A class is
   a) a group of objects b) template for objects of a particular type
   c) a class of objects d) a classification of objects

15) Life cycle of a class is represented by
   a) collaboration diagram b) state chart diagram
   c) class diagram d) deployment diagram

16) Encapsulation is also known as
   a) Information hiding b) Interface management
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17) Which of the following is not a UML diagram ?
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18) To organize elements into reusable groups with full information hiding is used.
   a) Package b) Class
   c) Class and interface d) Subsystem or component

19) _____ is the implementation of an operation for a class.
   a) Method b) Attributes c) Link d) Ordering

20) The _____ is a special attribute that reduces the effective multiplicity of an association.
   a) Role name b) Ordering c) Qualifier d) Link

_____

SLR-TJ – 274

Seat No.	

B.E. (Computer Science and Engg.) (Part – I) Examination, 2017
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)

Day and Date : Thursday, 14-12-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) **All** questions are **compulsory**.*
*2) Figures to the **right** indicate **full** marks.*
*3) Assume suitable data **if** necessary.*

SECTION – I

2. Attempt the following questions (**any four**) : **(4×5=20)**
   a) Explain object modelling techniques.
   b) Explain the general concepts of generalization with example.
   c) Explain class and object from object model with example.
   d) Explain in association multiplicity with example.
   e) Explain data flow diagram with example.

3. Explain object oriented themes. **10**

4. What are the steps for constructing Functional Model ? **10**

OR

4. Explain below dynamic modelling concept :
   a) State
   b) Event
   c) State diagram
   d) Conditions
   e) Operation

SECTION – II

5. Attempt the following questions (**any four**) : **(4×5=20)**
   a) Explain Sequence Diagram with example.
   b) Explain Component Diagram with example.
   c) Explain different views in UML.
   d) Explain State Chart Diagram in UML with example.
   e) Explain about JOIN and FORKING with example.

6. Explain building Blocks of UML. **10**

7. Explain Activity and Interaction Diagram with example. **10**

OR

7. Explain Core Elements of use case diagram. Also draw the Use Case diagram for Bank ATM System.

SLR-TJ – 274

Seat No.	

Set S

B.E. (Computer Science and Engg.) (Part – I) Examination, 2017
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)

Day and Date : Thursday, 14-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

1) Encapsulation is also known as
   a) Information hiding b) Interface management
   c) Polymorphism d) Aggregation

2) Which of the following is not a UML diagram ?
   a) Component diagram b) State chart diagram
   c) Deployment diagram d) Broadcast diagram

3) To organize elements into reusable groups with full information hiding is used.
   a) Package b) Class
   c) Class and interface d) Subsystem or component

4) _____ is the implementation of an operation for a class.
   a) Method b) Attributes c) Link d) Ordering

5) The _____ is a special attribute that reduces the effective multiplicity of an association.
   a) Role name b) Ordering c) Qualifier d) Link

6) Classes and interfaces are a part of
   a) Structural things b) Behavioural things
   c) Grouping things d) Annotational things

7) What is a physical element that exists at run time in UML ?
   a) Node b) An interface
   c) An activity d) None of the mentioned

8) Which diagram in UML emphasizes the time-ordering of messages ?
   a) Activity b) Sequence c) Collaboration d) Class

P.T.O.

9) _____ diagrams are important for visualising, specifying and documenting the behaviour of an element.
   a) Collaboration b) Interaction c) Component d) Use Case

10) The _____ model shows the static, structural data aspects of a system.
   a) Functional b) Object c) Dynamic d) None

11) _____ characterise mainstream object oriented language.
   a) Identity b) Polymorphism c) Classification d) All of the above

12) A _____ represents the specification of an asynchronous stimulus communicated between instances.
   a) Event b) Thread c) Process d) Signal

13) A _____ is a common solution to a common problem in a given context.
   a) Architecture b) Module c) Pattern d) Framework

14) Role names are, necessary for _____ between two objects of the same class.
   a) Aggregation b) Association c) Generalization d) None of these

15) In the UML notation, an ellipse signifies a
   a) Actor b) Use case
   c) Class d) System Boundary

16) Generalisation is a _____ relationship.
   a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

17) Association is a _____ relationship.
   a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

18) Aggregation is a _____ relationship.
   a) "is a part of" b) "is a replica of" c) "is a kind of" d) "Has a"

19) A class is
   a) a group of objects b) template for objects of a particular type
   c) a class of objects d) a classification of objects

20) Life cycle of a class is represented by
   a) collaboration diagram b) state chart diagram
   c) class diagram d) deployment diagram

_____

SLR-TJ – 274

Seat No.	

B.E. (Computer Science and Engg.) (Part – I) Examination, 2017
Elective : OBJECT ORIENTED MODELLING AND DESIGN (Old)

Day and Date : Thursday, 14-12-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) **All** questions are **compulsory**.*
*2) Figures to the **right** indicate **full** marks.*
*3) Assume suitable data **if** necessary.*

SECTION – I

2. Attempt the following questions (**any four**) : **(4×5=20)**
   a) Explain object modelling techniques.
   b) Explain the general concepts of generalization with example.
   c) Explain class and object from object model with example.
   d) Explain in association multiplicity with example.
   e) Explain data flow diagram with example.

3. Explain object oriented themes. **10**

4. What are the steps for constructing Functional Model ? **10**

OR

4. Explain below dynamic modelling concept :
   a) State
   b) Event
   c) State diagram
   d) Conditions
   e) Operation

SECTION – II

5. Attempt the following questions (**any four**) : **(4×5=20)**
   a) Explain Sequence Diagram with example.
   b) Explain Component Diagram with example.
   c) Explain different views in UML.
   d) Explain State Chart Diagram in UML with example.
   e) Explain about JOIN and FORKING with example.

6. Explain building Blocks of UML. **10**

7. Explain Activity and Interaction Diagram with example. **10**

OR

7. Explain Core Elements of use case diagram. Also draw the Use Case diagram for Bank ATM System.

SLR-TJ – 275

Seat No.	

Set P

B.E. (CSE) (Part – I) (Old) Examination, 2017
INFORMATION RETRIEVAL

Day and Date : Thursday, 14-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose correct option : **(1×20=20)**
   1) Documents have no match in vector model if cosine value is _____
      a) zero b) one c) ninety d) sixty
   2) Structural queries allow querying based on _____
      a) text b) structure c) text and structure d) none of these
   3) In Boolean model index term weights are _____ values.
      a) hexadecimal b) octal c) binary d) Decimal
   4) An inverted file is _____ oriented mechanism.
      a) sentences b) data c) word d) Letter
   5) Use of IR is more concerned with retrieving _____
      a) information b) data c) words d) Sentences
   6) Recall is fraction of relevant and _____ documents.
      a) modified b) deleted
      c) retrieved d) whole text collection
   7) SGML stands for
      a) Structured Generalized Mark-up Language
      b) Standard Generalized Mark-up Language
      c) Sequential Generalized Mark-up Language
      d) Soft Generalized Mark-up Language

P.T.O.

8) Phrase query is sequence of _____ quires.
   a) Boolean b) Single word c) Proximity d) Context
9) _____ is the technique used in allowing error pattern matching.
   a) Distance function b) LCS
   c) Edit distance d) None of these
10) Precision is the ratio of retrieved and _____ documents.
   a) Relevant b) Non relevant
   c) All doc. of database d) Modified
11) Object index is pair of _____
   a) (BI, IMH) b) (MF, IMH) c) (BI, MF) d) None of these
12) MULTOS stands for _____
   a) Multimedia Office Server b) Multimedia Offline Server
   c) Multimedia Oriented Server d) Multimedia Online Server
13) GEMINI has also been applied for colour images with the _____ project of IBM.
   a) QDIC b) QCIC c) QBIC d) QQIC
14) Trying all possible pattern positions in text is _____ algorithm.
   a) KMP b) Boyer-Moore Family
   c) BF d) None of these
15) TIFF stands for _____
   a) Tagged Image Frame Format b) Tagged Image File Format
   c) Tagged Image Form Format d) None of these
16) Harvest uses _____ architecture.
   a) Client/server b) Centralized c) Distributed d) None of these
17) Crawler is the _____ that sends request to different remote web servers.
   a) Process b) Program c) Data d) Information
18) An important Meta data format is _____
   a) MARC b) CARC c) FARC d) DARC
19) MULTOS data model is based on _____ architecture.
   a) Client b) Server c) Client-server d) Two-tier
20) Digital Libraries are the part of _____ information infrastructure.
   a) Whole b) Global c) Domestic d) None of these

_____

SLR-TJ – 275

Seat No.	

B.E. (CSE) (Part – I) (Old) Examination, 2017
INFORMATION RETRIEVAL

Day and Date : Thursday, 14-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Explain SGML, XML and HTML in detail. **10**

3. Attempt **any one** : **10**
   a) Keyword based querying.
   b) Boolean model.

4. Write notes on **(any four)** : **(5×4=20)**
   a) Difference between data retrieval and information retrieval
   b) BF algorithm
   c) Structural queries
   d) KMP
   e) Vector model.

SECTION – II

5. Describe MULTOS Query Language Form. **10**

6. Attempt **any one** : **10**
   a) Architectural issues of digital library.
   b) Data retrieval steps.

7. Write notes on **(any four)** : **(5×4=20)**
   a) Problems posed by web
   b) Document model
   c) Browsing in Web
   d) GEMINI
   e) MULTOS Data Model.

———————————

Set P

SLR-TJ – 275

Seat No.	

Set Q

B.E. (CSE) (Part – I) (Old) Examination, 2017
INFORMATION RETRIEVAL

Day and Date : Thursday, 14-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose correct option : **(1×20=20)**

1) Harvest uses _____ architecture.
   a) Client/server b) Centralized c) Distributed d) None of these
2) Crawler is the _____ that sends request to different remote web servers.
   a) Process b) Program c) Data d) Information
3) An important Meta data format is _____
   a) MARC b) CARC c) FARC d) DARC
4) MULTOS data model is based on _____ architecture.
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5) Digital Libraries are the part of _____ information infrastructure.
   a) Whole b) Global c) Domestic d) None of these
6) Documents have no match in vector model if cosine value is _____
   a) zero b) one c) ninety d) sixty
7) Structural queries allow querying based on _____
   a) text b) structure c) text and structure d) none of these
8) In Boolean model index term weights are _____ values.
   a) hexadecimal b) octal c) binary d) Decimal
9) An inverted file is _____ oriented mechanism.
   a) sentences b) data c) word d) Letter

P.T.O.

10) Use of IR is more concerned with retrieving _____
a) information b) data c) words d) Sentences

11) Recall is fraction of relevant and _____ documents.
a) modified b) deleted
c) retrieved d) whole text collection

12) SGML stands for
a) Structured Generalized Mark-up Language
b) Standard Generalized Mark-up Language
c) Sequential Generalized Mark-up Language
d) Soft Generalized Mark-up Language

13) Phrase query is sequence of _____ quires.
a) Boolean b) Single word c) Proximity d) Context

14) _____ is the technique used in allowing error pattern matching.
a) Distance function b) LCS
c) Edit distance d) None of these

15) Precision is the ratio of retrieved and _____ documents.
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16) Object index is pair of _____
a) (BI, IMH) b) (MF, IMH) c) (BI, MF) d) None of these

17) MULTOS stands for _____
a) Multimedia Office Server b) Multimedia Offline Server
c) Multimedia Oriented Server d) Multimedia Online Server

18) GEMINI has also been applied for colour images with the _____ project of IBM.
a) QDIC b) QCIC c) QBIC d) QQIC

19) Trying all possible pattern positions in text is _____ algorithm.
a) KMP b) Boyer-Moore Family
c) BF d) None of these

20) TIFF stands for _____
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_____

SLR-TJ – 275

Seat No.	

B.E. (CSE) (Part – I) (Old) Examination, 2017
INFORMATION RETRIEVAL

Day and Date : Thursday, 14-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Explain SGML, XML and HTML in detail. **10**

3. Attempt **any one** : **10**
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4. Write notes on **(any four)** : **(5×4=20)**
   a) Difference between data retrieval and information retrieval
   b) BF algorithm
   c) Structural queries
   d) KMP
   e) Vector model.

SECTION – II

5. Describe MULTOS Query Language Form. **10**

6. Attempt **any one** : **10**
   a) Architectural issues of digital library.
   b) Data retrieval steps.

7. Write notes on **(any four)** : **(5×4=20)**
   a) Problems posed by web
   b) Document model
   c) Browsing in Web
   d) GEMINI
   e) MULTOS Data Model.

Set Q

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Seat No.	

Set R

B.E. (CSE) (Part – I) (Old) Examination, 2017
INFORMATION RETRIEVAL

Day and Date : Thursday, 14-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose correct option : **(1×20=20)**

1) Object index is pair of _____
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6) Harvest uses _____ architecture.
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7) Crawler is the _____ that sends request to different remote web servers.
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   a) text b) structure c) text and structure d) none of these
13) In Boolean model index term weights are _____ values.
   a) hexadecimal b) octal c) binary d) Decimal
14) An inverted file is _____ oriented mechanism.
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16) Recall is fraction of relevant and _____ documents.
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_____

SLR-TJ – 275

Seat No.	

B.E. (CSE) (Part – I) (Old) Examination, 2017
INFORMATION RETRIEVAL

Day and Date : Thursday, 14-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Explain SGML, XML and HTML in detail. **10**

3. Attempt **any one** : **10**
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   b) Boolean model.

4. Write notes on **(any four)** : **(5×4=20)**
   a) Difference between data retrieval and information retrieval
   b) BF algorithm
   c) Structural queries
   d) KMP
   e) Vector model.

SECTION – II

5. Describe MULTOS Query Language Form. **10**

6. Attempt **any one** : **10**
   a) Architectural issues of digital library.
   b) Data retrieval steps.

7. Write notes on **(any four)** : **(5×4=20)**
   a) Problems posed by web
   b) Document model
   c) Browsing in Web
   d) GEMINI
   e) MULTOS Data Model.

Set R

SLR-TJ – 275

Seat No.	

Set S

B.E. (CSE) (Part – I) (Old) Examination, 2017
INFORMATION RETRIEVAL

Day and Date : Thursday, 14-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose correct option : **(1×20=20)**

1) Recall is fraction of relevant and _____ documents.
   a) modified b) deleted
   c) retrieved d) whole text collection
2) SGML stands for
   a) Structured Generalized Mark-up Language
   b) Standard Generalized Mark-up Language
   c) Sequential Generalized Mark-up Language
   d) Soft Generalized Mark-up Language
3) Phrase query is sequence of _____ quires.
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4) _____ is the technique used in allowing error pattern matching.
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   c) Edit distance d) None of these
5) Precision is the ratio of retrieved and _____ documents.
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6) Object index is pair of _____
   a) (BI, IMH) b) (MF, IMH) c) (BI, MF) d) None of these

P.T.O.

7) MULTOS stands for _____
   a) Multimedia Office Server b) Multimedia Offline Server
   c) Multimedia Oriented Server d) Multimedia Online Server
8) GEMINI has also been applied for colour images with the _____ project of IBM.
   a) QDIC b) QCIC c) QBIC d) QQIC
9) Trying all possible pattern positions in text is _____ algorithm.
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11) Harvest uses _____ architecture.
   a) Client/server b) Centralized c) Distributed d) None of these
12) Crawler is the _____ that sends request to different remote web servers.
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16) Documents have no match in vector model if cosine value is _____
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18) In Boolean model index term weights are _____ values.
   a) hexadecimal b) octal c) binary d) Decimal
19) An inverted file is _____ oriented mechanism.
   a) sentences b) data c) word d) Letter
20) Use of IR is more concerned with retrieving _____
   a) information b) data c) words d) Sentences

_____

SLR-TJ – 275

Seat No.	

B.E. (CSE) (Part – I) (Old) Examination, 2017
INFORMATION RETRIEVAL

Day and Date : Thursday, 14-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Explain SGML, XML and HTML in detail. **10**

3. Attempt **any one** : **10**
   a) Keyword based querying.
   b) Boolean model.

4. Write notes on **(any four)** : **(5×4=20)**
   a) Difference between data retrieval and information retrieval
   b) BF algorithm
   c) Structural queries
   d) KMP
   e) Vector model.

SECTION – II

5. Describe MULTOS Query Language Form. **10**

6. Attempt **any one** : **10**
   a) Architectural issues of digital library.
   b) Data retrieval steps.

7. Write notes on **(any four)** : **(5×4=20)**
   a) Problems posed by web
   b) Document model
   c) Browsing in Web
   d) GEMINI
   e) MULTOS Data Model.

Set S

SLR-TJ – 276

Seat No.	

Set P

B.E. (CSE) (Part – II) Examination, 2017
MANAGEMENT INFORMATION SYSTEM

Day and Date : Tuesday, 21-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) The back bone of any organization is
a) information b) employee c) management d) capital

2) _____ details are given by Management to Marketing Service System.
a) Employee b) Supplier
c) Customer d) None of the above

3) The information of MIS comes from the
a) Internal source
b) External source
c) Both internal and external source
d) None of the above

4) The basic components of DSS is are
a) Database b) Model base
c) DSS software system d) All of the above

5) ESS means
a) Executive Support System b) Expert Support System
c) Extended Support System d) All

6) Top level Managers use
a) Operational information b) Strategic information
c) Tactical information d) None of these

7) _____ is the first step in system development life cycle.
a) Designing b) Analysis
c) Planning d) Implementation

8) The most important reason for failure of MIS is use of improper tools for design
a) Use of improper tools for design b) Over budget
c) Improper specification d) Non involvement of end-user

9) Inbound logistics and outbound logistics are the activities of _____ model.
a) value chain b) tactical c) force d) cost analysis

10) _____ systems are developed in response to corporate business initiative and give competitive advantage to the organization.
a) Operational information b) Strategic information
c) Decision information d) All

11) _____ also provides concrete probability percentages when determining the likelihood of threats.
a) Risk assessment b) Risk management
c) Risk analysis d) None of these

12) A _____ is an overall general statement produced by senior management (or a selected policy board or committee) that dictates what role security plays within the organization.
a) security audit b) security mechanism
c) security alerts d) security policy

13) Confidentially, _____, and availability are the basic principles of information security.
a) integrity b) portability c) modularity d) efficiency

14) Which of the following is the largest community in classification of e-commerce ?
a) Business to Consumer (B to C) b) Business to Business (B to B)
c) Business to Government (B to G) d) Government to Government (G to G)

15) E-commerce is not suitable for
a) Sale/purchase of expensive jewellery and antiques
b) Sale/ Purchase of mobile phones
c) Online job searching
d) Sale/Purchase of branded clothes

16) A typical ERP system includes this module
a) financial accounting b) inventory
c) bill of material d) all

17) Building and sustaining long term business with customers is the aim of
a) Customer relationship management
b) Customer acquisition
c) Customer management
d) Electronic customer relationship management

18) Which of the following is not an example of a business process ?
a) designing a new product b) testing software
c) hiring an employee d) purchasing services

19) An important feature of supply chain management is its application of electronic commerce technology that allows companies to share and operate systems for
a) future purchasing of computer systems
b) cost-effective flowing of raw materials
c) order processing, transportation scheduling and inventory management
d) future merger opportunities

20) _____ is the buying and selling of goods and services through wireless hand held devices such as cellular telephone and personal digital assistants.
a) P-Commerce b) E-market c) Chain model d) M-Commerce

_____

SLR-TJ – 276

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
MANAGEMENT INFORMATION SYSTEM

Day and Date : Tuesday, 21-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   a) What is role and importance of Management Information system ?
   b) What is the impact of management information system in organization ?
   c) Explain about Information System Software.
   d) What is ESS ? Explain benefits of ESS.
   e) How information act as a strategic resources in strategic information system ?
   f) What are the principle causes of information system failure ?

3. Explain system development life cycle in detail. **10**

   OR

   What is Decision Support Systems (DSS) and also explain characteristics, components and applications of decision support systems.

4. Write note on **(any two)** : **(2×5=10)**
   a) Management as control system.
   b) Concept of strategic information system.
   c) MIS and User.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
   a) What is the need for security and control in information system ?
   b) What are the organizational security policies of information systems resource management ?
   c) Explain the concept of M-Commerce.
   d) What is the concept E-Commerce ?

Set P

e) Explain briefly about an CRM.

f) Explain the concept of Supply Chain Management.

6. What are the different types and applications of E-Commerce ? **10**

OR

Explain in detail about Business Process Re-engineering (BPR).

7. Write note on **(any two)** : **(2×5=10)**

a) Security Planning

b) E-market

c) Common ERP myths.

SLR-TJ – 276

Seat No.	

Set Q

B.E. (CSE) (Part – II) Examination, 2017
MANAGEMENT INFORMATION SYSTEM

Day and Date : Tuesday, 21-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) A typical ERP system includes this module
a) financial accounting b) inventory
c) bill of material d) all

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 customer relationship management

3) Which of the following is not an example of a business process ?
a) designing a new product b) testing software
c) hiring an employee d) purchasing services

4) An important feature of supply chain management is its application of electronic commerce technology that allows companies to share and operate systems for
a) future purchasing of computer systems
b) cost-effective flowing of raw materials
c) order processing, transportation scheduling and inventory management
d) future merger opportunities

5) _____ is the buying and selling of goods and services through wireless hand held devices such as cellular telephone and personal digital assistants.
a) P-Commerce b) E-market c) Chain model d) M-Commerce

6) The back bone of any organization is
a) information b) employee c) management d) capital

7) _____ details are given by Management to Marketing Service System.
a) Employee b) Supplier
c) Customer d) None of the above

8) The information of MIS comes from the
a) Internal source b) External source
c) Both internal and external source d) None of the above

P.T.O.

9) The basic components of DSS is are
   a) Database
   b) Model base
   c) DSS software system
   d) All of the above

10) ESS means
   a) Executive Support System
   b) Expert Support System
   c) Extended Support System
   d) All

11) Top level Managers use
   a) Operational information
   b) Strategic information
   c) Tactical information
   d) None of these

12) _____ is the first step in system development life cycle.
   a) Designing
   b) Analysis
   c) Planning
   d) Implementation

13) The most important reason for failure of MIS is use of improper tools for design
   a) Use of improper tools for design
   b) Over budget
   c) Improper specification
   d) Non involvement of end-user

14) Inbound logistics and outbound logistics are the activities of _____ model.
   a) value chain
   b) tactical
   c) force
   d) cost analysis

15) _____ systems are developed in response to corporate business initiative and give competitive advantage to the organization.
   a) Operational information
   b) Strategic information
   c) Decision information
   d) All

16) _____ also provides concrete probability percentages when determining the likelihood of threats.
   a) Risk assessment
   b) Risk management
   c) Risk analysis
   d) None of these

17) A _____ is an overall general statement produced by senior management (or a selected policy board or committee) that dictates what role security plays within the organization.
   a) security audit
   b) security mechanism
   c) security alerts
   d) security policy

18) Confidentially, _____, and availability are the basic principles of information security.
   a) integrity
   b) portability
   c) modularity
   d) efficiency

19) Which of the following is the largest community in classification of e-commerce ?
   a) Business to Consumer (B to C)
   b) Business to Business (B to B)
   c) Business to Government (B to G)
   d) Government to Government (G to G)

20) E-commerce is not suitable for
   a) Sale/purchase of expensive jewellery and antiques
   b) Sale/ Purchase of mobile phones
   c) Online job searching
   d) Sale/Purchase of branded clothes

_____

SLR-TJ – 276

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
MANAGEMENT INFORMATION SYSTEM

Day and Date : Tuesday, 21-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   a) What is role and importance of Management Information system ?
   b) What is the impact of management information system in organization ?
   c) Explain about Information System Software.
   d) What is ESS ? Explain benefits of ESS.
   e) How information act as a strategic resources in strategic information system ?
   f) What are the principle causes of information system failure ?

3. Explain system development life cycle in detail. **10**

   OR

   What is Decision Support Systems (DSS) and also explain characteristics, components and applications of decision support systems.

4. Write note on **(any two)** : **(2×5=10)**
   a) Management as control system.
   b) Concept of strategic information system.
   c) MIS and User.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
   a) What is the need for security and control in information system ?
   b) What are the organizational security policies of information systems resource management ?
   c) Explain the concept of M-Commerce.
   d) What is the concept E-Commerce ?

e) Explain briefly about an CRM.

f) Explain the concept of Supply Chain Management.

6. What are the different types and applications of E-Commerce ? **10**

OR

Explain in detail about Business Process Re-engineering (BPR).

7. Write note on **(any two)** : **(2×5=10)**

a) Security Planning

b) E-market

c) Common ERP myths.

SLR-TJ – 276

Seat No.	

Set R

B.E. (CSE) (Part – II) Examination, 2017
MANAGEMENT INFORMATION SYSTEM

Day and Date : Tuesday, 21-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) _____ also provides concrete probability percentages when determining the likelihood of threats.
a) Risk assessment b) Risk management
c) Risk analysis d) None of these

2) A _____ is an overall general statement produced by senior management (or a selected policy board or committee) that dictates what role security plays within the organization.
a) security audit b) security mechanism
c) security alerts d) security policy

3) Confidentially, _____, and availability are the basic principles of information security.
a) integrity b) portability c) modularity d) efficiency

4) Which of the following is the largest community in classification of e-commerce ?
a) Business to Consumer (B to C) b) Business to Business (B to B)
c) Business to Government (B to G) d) Government to Government (G to G)

5) E-commerce is not suitable for
a) Sale/purchase of expensive jewellery and antiques
b) Sale/ Purchase of mobile phones
c) Online job searching
d) Sale/Purchase of branded clothes

6) A typical ERP system includes this module
a) financial accounting b) inventory
c) bill of material d) all

7) Building and sustaining long term business with customers is the aim of
a) Customer relationship management
b) Customer acquisition
c) Customer management
d) Electronic customer relationship management

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9) An important feature of supply chain management is its application of electronic commerce technology that allows companies to share and operate systems for
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   c) order processing, transportation scheduling and inventory management
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10) _____ is the buying and selling of goods and services through wireless hand held devices such as cellular telephone and personal digital assistants.
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12) _____ details are given by Management to Marketing Service System.
   a) Employee
   b) Supplier
   c) Customer
   d) None of the above

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   c) Both internal and external source
   d) None of the above

14) The basic components of DSS is are
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   b) Model base
   c) DSS software system
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15) ESS means
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   b) Expert Support System
   c) Extended Support System
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17) _____ is the first step in system development life cycle.
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   a) Use of improper tools for design
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   d) Non involvement of end-user

19) Inbound logistics and outbound logistics are the activities of _____ model.
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20) _____ systems are developed in response to corporate business initiative and give competitive advantage to the organization.
   a) Operational information
   b) Strategic information
   c) Decision information
   d) All

_____

SLR-TJ – 276

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
MANAGEMENT INFORMATION SYSTEM

Day and Date : Tuesday, 21-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
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   c) Explain about Information System Software.
   d) What is ESS ? Explain benefits of ESS.
   e) How information act as a strategic resources in strategic information system ?
   f) What are the principle causes of information system failure ?

3. Explain system development life cycle in detail. **10**

   OR

   What is Decision Support Systems (DSS) and also explain characteristics, components and applications of decision support systems.

4. Write note on **(any two)** : **(2×5=10)**
   a) Management as control system.
   b) Concept of strategic information system.
   c) MIS and User.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
   a) What is the need for security and control in information system ?
   b) What are the organizational security policies of information systems resource management ?
   c) Explain the concept of M-Commerce.
   d) What is the concept E-Commerce ?

Set R

e) Explain briefly about an CRM.

f) Explain the concept of Supply Chain Management.

6. What are the different types and applications of E-Commerce ? **10**

OR

Explain in detail about Business Process Re-engineering (BPR).

7. Write note on **(any two)** : **(2×5=10)**

a) Security Planning

b) E-market

c) Common ERP myths.

SLR-TJ – 276

Seat No.	

Set S

B.E. (CSE) (Part – II) Examination, 2017
MANAGEMENT INFORMATION SYSTEM

Day and Date : Tuesday, 21-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) Top level Managers use
a) Operational information b) Strategic information
c) Tactical information d) None of these

2) _____ is the first step in system development life cycle.
a) Designing b) Analysis
c) Planning d) Implementation

3) The most important reason for failure of MIS is use of improper tools for design
a) Use of improper tools for design b) Over budget
c) Improper specification d) Non involvement of end-user

4) Inbound logistics and outbound logistics are the activities of _____ model.
a) value chain b) tactical c) force d) cost analysis

5) _____ systems are developed in response to corporate business initiative and give competitive advantage to the organization.
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c) Decision information d) All

6) _____ also provides concrete probability percentages when determining the likelihood of threats.
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c) Risk analysis d) None of these

7) A _____ is an overall general statement produced by senior management (or a selected policy board or committee) that dictates what role security plays within the organization.
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c) security alerts d) security policy

8) Confidentially, _____, and availability are the basic principles of information security.
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   b) Business to Business (B to B)
   c) Business to Government (B to G)
   d) Government to Government (G to G)

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   a) Sale/purchase of expensive jewellery and antiques
   b) Sale/ Purchase of mobile phones
   c) Online job searching
   d) Sale/Purchase of branded clothes

11) A typical ERP system includes this module
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   b) inventory
   c) bill of material
   d) all

12) Building and sustaining long term business with customers is the aim of
   a) Customer relationship management
   b) Customer acquisition
   c) Customer management
   d) Electronic customer relationship management

13) Which of the following is not an example of a business process ?
   a) designing a new product
   b) testing software
   c) hiring an employee
   d) purchasing services

14) An important feature of supply chain management is its application of electronic commerce technology that allows companies to share and operate systems for
   a) future purchasing of computer systems
   b) cost-effective flowing of raw materials
   c) order processing, transportation scheduling and inventory management
   d) future merger opportunities

15) _____ is the buying and selling of goods and services through wireless hand held devices such as cellular telephone and personal digital assistants.
   a) P-Commerce
   b) E-market
   c) Chain model
   d) M-Commerce

16) The back bone of any organization is
   a) information
   b) employee
   c) management
   d) capital

17) _____ details are given by Management to Marketing Service System.
   a) Employee
   b) Supplier
   c) Customer
   d) None of the above

18) The information of MIS comes from the
   a) Internal source
   b) External source
   c) Both internal and external source
   d) None of the above

19) The basic components of DSS is are
   a) Database
   b) Model base
   c) DSS software system
   d) All of the above

20) ESS means
   a) Executive Support System
   b) Expert Support System
   c) Extended Support System
   d) All

SLR-TJ – 276

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
MANAGEMENT INFORMATION SYSTEM

Day and Date : Tuesday, 21-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   a) What is role and importance of Management Information system ?
   b) What is the impact of management information system in organization ?
   c) Explain about Information System Software.
   d) What is ESS ? Explain benefits of ESS.
   e) How information act as a strategic resources in strategic information system ?
   f) What are the principle causes of information system failure ?

3. Explain system development life cycle in detail. **10**

   OR

   What is Decision Support Systems (DSS) and also explain characteristics, components and applications of decision support systems.

4. Write note on **(any two)** : **(2×5=10)**
   a) Management as control system.
   b) Concept of strategic information system.
   c) MIS and User.

SECTION – II

5. Attempt **any four** : **(5×4=20)**
   a) What is the need for security and control in information system ?
   b) What are the organizational security policies of information systems resource management ?
   c) Explain the concept of M-Commerce.
   d) What is the concept E-Commerce ?

Set S

e) Explain briefly about an CRM.

f) Explain the concept of Supply Chain Management.

6. What are the different types and applications of E-Commerce ? **10**

OR

Explain in detail about Business Process Re-engineering (BPR).

7. Write note on **(any two)** : **(2×5=10)**

a) Security Planning

b) E-market

c) Common ERP myths.

SLR-TJ – 277

Seat No.	

Set P

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
INFORMATION AND CYBER SECURITY

Day and Date : Wednesday, 22-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 minutes Marks : 20

1. Choose the correct alternative. **20**

1) A brute-force cryptanalysis is easily performed by simply trying _____ keys in Caesar cipher
   a) 25 b) 75 c) 2^{25} d) $2^{25} - 1$

2) Playfair cipher uses
   a) Single-letter encryption b) Multiple-letter encryption
   c) Columnar transposition d) Poly alphabetic substitution

3) The strength of _____ cipher is that it completely hides single-letter frequencies and also two-letter frequencies.
   a) Caesar cipher b) Hill cipher c) Playfair cipher d) All of the above

4) A mechanism intended to ensure the identity of an entity by means of information exchange is called
   a) Notarization b) Access control
   c) Encipherment d) Authentication

5) AES uses a block size of
   a) 64 bits b) 128 bits c) 256 bits d) 1024 bits

6) An autokey system is used in
   a) Vernam cipher b) Vigenere cipher
   c) One-time pad d) a) and b)

7) A small change in either the plaintext or the key should produce a significant change in the ciphertext. This is called
   a) Avalanche Effect b) Bit independence criterion
   c) Strict avalanche criterion d) None of the above

8) Asymmetric encryption can be used for
   a) Confidentiality and Authentication
   b) Confidentiality and Integrity
   c) Authentication and Integrity
   d) Confidentiality, Authentication and Integrity

9) In ____ block cipher mode of operation, each block of plaintext is encrypted using the same key.
   a) CBC b) CFB c) ECB d) OFB

10) Hash functions can be used for
   a) Intrusion detection
   b) Virus detection
   c) Prohibiting the hacker to access actual passwords from password file
   d) All the above

11) In IPSec AH and ESP support which of the following mode ?
   a) Transport b) Tunnel
   c) Fragmentation d) None of the above

12) In AH of IPSec _____ identifies the security association
   a) Sequence Number b) Security Parameter Index
   c) Next Header d) Payload Length

13) VeriSign provides a _____ service that is intended to be compatible with S/MIME.
   a) CA b) AH c) AC d) CH

14) In PGP, sender uses _____ to generate a 160-bit hash code of the message.
   a) SHA-1 b) CA c) DES d) All

15) Cybercriminals those are insiders come under _____ category.
   a) Type II b) Type III c) Type I d) Type IV

16) _____ is a fraud involving another person's identity for an illicit purpose.
   a) Software piracy b) Computer Sabotage
   c) Hacking d) Identity Theft

17) A _____ attack involves alternating raw data just before it is processed by a computer and then changing it back after the processing is completed.
   a) Salami b) Computer Sabotage
   c) Data diddling d) Identity Theft

18) One of the main advantage of a proxy server is that its cache memory serve all users.
   a) True b) False c) Can't say d) None of above

19) ____ is a program in which malicious or harmful code is contained inside apparently harmless programming or data in such a way that it can get control and cause harm.
   a) Spam b) Trojan Horse c) Virus d) Keyloggers

20) A____ is a means of access to a program that bypasses security mechanism.
   a) Proxy b) Backdoor c) Virus d) Trojan Horse

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
INFORMATION AND CYBER SECURITY

Day and Date : Wednesday, 22-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Answer **any four** : **(4×5=20)**
   1) Define
      i) Avalanche effect
      ii) Timing attack
      iii) Brute force attack
      iv) Digital signature
      v) Replay attack
   2) Use vigenere cipher and encrypt the word “cryptography” using the key “house”.
   3) List five important properties of digital signature.
   4) Perform encryption and decryption using RSA algorithm given p = 5, q = 7, e = 7, M = 12.
   5) List the differences between linear cryptanalysis and differential cryptanalysis.

3. Answer **any one** : **(1×10=10)**
   1) Explain the following block cipher modes of operation with diagram :
      a) Cipher Block Chaining mode (CBC)
      b) Cipher Feedback mode (CFB)
   2) Draw the diagram of Kerberos 4 and explain its working in steps.

4. Explain Diffie-Hellman Key Exchange Algorithm in steps. Users A and B use the Diffie-Hellman key exchange technique with a common prime q = 83 and a primitive root $\alpha = 5$.
   i) If A has a private key $X_A = 6$, what is A’s public key Y_A ?
   ii) If B has a private key $X_B = 10$, what is B’s public key Y_B ?
   iii) What is the shared secret key ? **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   1) Describe ESP of IPSec.
   2) Write a note on : Transport Layer Security.
   3) Describe Cybercrime and information Security.
   4) List and explain types of Buffer Overflow.
   5) Describe following terms :
      a) Software Piracy b) Computer Sabotage.
   6) Explain Trojan Horses and Backdoors.

6. Attempt **any two** : **(2×10=20)**
   1) What is S/MIME ? Explain. Describe S/MIME functionality and messages.
   2) What is SQL Injection ? Describe steps for SQL Injection Attacks. How to prevent SQL Injection Attacks ?
   3) Describe following cybercrimes :
      a) Spamming
      b) Hacking
      c) Online Frauds
      d) Password sniffing.

_____

SLR-TJ – 277

Seat No.	

Set Q

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
INFORMATION AND CYBER SECURITY

Day and Date : Wednesday, 22-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
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MCQ/Objective Type Questions

Duration : 30 minutes Marks : 20

1. Choose the correct alternative. **20**

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P.T.O.

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   a) Notarization b) Access control
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10) AES uses a block size of
   a) 64 bits b) 128 bits c) 256 bits d) 1024 bits

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   a) Avalanche Effect b) Bit independence criterion
   c) Strict avalanche criterion d) None of the above

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   b) Confidentiality and Integrity
   c) Authentication and Integrity
   d) Confidentiality, Authentication and Integrity

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   a) Intrusion detection
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18) VeriSign provides a _____ service that is intended to be compatible with S/MIME.
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19) In PGP, sender uses _____ to generate a 160-bit hash code of the message.
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   a) Type II b) Type III c) Type I d) Type IV

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
INFORMATION AND CYBER SECURITY

Day and Date : Wednesday, 22-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
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SECTION – I

2. Answer **any four** : **(4×5=20)**
   1) Define
      i) Avalanche effect
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   2) Use vigenere cipher and encrypt the word “cryptography” using the key “house”.
   3) List five important properties of digital signature.
   4) Perform encryption and decryption using RSA algorithm given p = 5, q = 7, e = 7, M = 12.
   5) List the differences between linear cryptanalysis and differential cryptanalysis.

3. Answer **any one** : **(1×10=10)**
   1) Explain the following block cipher modes of operation with diagram :
      a) Cipher Block Chaining mode (CBC)
      b) Cipher Feedback mode (CFB)
   2) Draw the diagram of Kerberos 4 and explain its working in steps.

4. Explain Diffie-Hellman Key Exchange Algorithm in steps. Users A and B use the Diffie-Hellman key exchange technique with a common prime q = 83 and a primitive root $\alpha = 5$.
   i) If A has a private key $X_A = 6$, what is A’s public key Y_A ?
   ii) If B has a private key $X_B = 10$, what is B’s public key Y_B ?
   iii) What is the shared secret key ? **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   1) Describe ESP of IPSec.
   2) Write a note on : Transport Layer Security.
   3) Describe Cybercrime and information Security.
   4) List and explain types of Buffer Overflow.
   5) Describe following terms :
      a) Software Piracy b) Computer Sabotage.
   6) Explain Trojan Horses and Backdoors.

6. Attempt **any two** : **(2×10=20)**
   1) What is S/MIME ? Explain. Describe S/MIME functionality and messages.
   2) What is SQL Injection ? Describe steps for SQL Injection Attacks. How to prevent SQL Injection Attacks ?
   3) Describe following cybercrimes :
      a) Spamming
      b) Hacking
      c) Online Frauds
      d) Password sniffing.

_____

SLR-TJ – 277

Seat No.	

Set R

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
INFORMATION AND CYBER SECURITY

Day and Date : Wednesday, 22-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 minutes Marks : 20

1. Choose the correct alternative. **20**

1) In IPSec AH and ESP support which of the following mode ?
   a) Transport b) Tunnel
   c) Fragmentation d) None of the above

2) In AH of IPSec _____ identifies the security association
   a) Sequence Number b) Security Parameter Index
   c) Next Header d) Payload Length

3) VeriSign provides a _____ service that is intended to be compatible with S/MIME.
   a) CA b) AH c) AC d) CH

4) In PGP, sender uses _____ to generate a 160-bit hash code of the message.
   a) SHA-1 b) CA c) DES d) All

5) Cybercriminals those are insiders come under _____ category.
   a) Type II b) Type III c) Type I d) Type IV

6) _____ is a fraud involving another person's identity for an illicit purpose.
   a) Software piracy b) Computer Sabotage
   c) Hacking d) Identity Theft

7) A _____ attack involves alternating raw data just before it is processed by a computer and then changing it back after the processing is completed.
   a) Salami b) Computer Sabotage
   c) Data diddling d) Identity Theft

8) One of the main advantage of a proxy server is that its cache memory serve all users.
   a) True b) False c) Can't say d) None of above

9) ____ is a program in which malicious or harmful code is contained inside apparently harmless programming or data in such a way that it can get control and cause harm.
   a) Spam b) Trojan Horse c) Virus d) Keyloggers

10) A____ is a means of access to a program that bypasses security mechanism.
   a) Proxy b) Backdoor c) Virus d) Trojan Horse

11) A brute-force cryptanalysis is easily performed by simply trying _____ keys in Caesar cipher
   a) 25 b) 75 c) 2^{25} d) $2^{25} - 1$

12) Playfair cipher uses
   a) Single-letter encryption b) Multiple-letter encryption
   c) Columnar transposition d) Poly alphabetic substitution

13) The strength of _____ cipher is that it completely hides single-letter frequencies and also two-letter frequencies.
   a) Caesar cipher b) Hill cipher c) Playfair cipher d) All of the above

14) A mechanism intended to ensure the identity of an entity by means of information exchange is called
   a) Notarization b) Access control
   c) Encipherment d) Authentication

15) AES uses a block size of
   a) 64 bits b) 128 bits c) 256 bits d) 1024 bits

16) An autokey system is used in
   a) Vernam cipher b) Vigenere cipher
   c) One-time pad d) a) and b)

17) A small change in either the plaintext or the key should produce a significant change in the ciphertext. This is called
   a) Avalanche Effect b) Bit independence criterion
   c) Strict avalanche criterion d) None of the above

18) Asymmetric encryption can be used for
   a) Confidentiality and Authentication
   b) Confidentiality and Integrity
   c) Authentication and Integrity
   d) Confidentiality, Authentication and Integrity

19) In ____ block cipher mode of operation, each block of plaintext is encrypted using the same key.
   a) CBC b) CFB c) ECB d) OFB

20) Hash functions can be used for
   a) Intrusion detection
   b) Virus detection
   c) Prohibiting the hacker to access actual passwords from password file
   d) All the above

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
INFORMATION AND CYBER SECURITY

Day and Date : Wednesday, 22-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Answer **any four** : **(4×5=20)**
   1) Define
      i) Avalanche effect
      ii) Timing attack
      iii) Brute force attack
      iv) Digital signature
      v) Replay attack
   2) Use vigenere cipher and encrypt the word “cryptography” using the key “house”.
   3) List five important properties of digital signature.
   4) Perform encryption and decryption using RSA algorithm given p = 5, q = 7, e = 7, M = 12.
   5) List the differences between linear cryptanalysis and differential cryptanalysis.

3. Answer **any one** : **(1×10=10)**
   1) Explain the following block cipher modes of operation with diagram :
      a) Cipher Block Chaining mode (CBC)
      b) Cipher Feedback mode (CFB)
   2) Draw the diagram of Kerberos 4 and explain its working in steps.

4. Explain Diffie-Hellman Key Exchange Algorithm in steps. Users A and B use the Diffie-Hellman key exchange technique with a common prime q = 83 and a primitive root $\alpha = 5$.
   i) If A has a private key $X_A = 6$, what is A’s public key Y_A ?
   ii) If B has a private key $X_B = 10$, what is B’s public key Y_B ?
   iii) What is the shared secret key ? **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   1) Describe ESP of IPSec.
   2) Write a note on : Transport Layer Security.
   3) Describe Cybercrime and information Security.
   4) List and explain types of Buffer Overflow.
   5) Describe following terms :
      a) Software Piracy b) Computer Sabotage.
   6) Explain Trojan Horses and Backdoors.

6. Attempt **any two** : **(2×10=20)**
   1) What is S/MIME ? Explain. Describe S/MIME functionality and messages.
   2) What is SQL Injection ? Describe steps for SQL Injection Attacks. How to prevent SQL Injection Attacks ?
   3) Describe following cybercrimes :
      a) Spamming
      b) Hacking
      c) Online Frauds
      d) Password sniffing.

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SLR-TJ – 277

Seat No.	

Set S

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
INFORMATION AND CYBER SECURITY

Day and Date : Wednesday, 22-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*
3) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
4) ***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.***

MCQ/Objective Type Questions

Duration : 30 minutes Marks : 20

1. Choose the correct alternative. **20**

1) An autokey system is used in
   a) Vernam cipher b) Vigenere cipher
   c) One-time pad d) a) and b)

2) A small change in either the plaintext or the key should produce a significant change in the ciphertext. This is called
   a) Avalanche Effect b) Bit independence criterion
   c) Strict avalanche criterion d) None of the above

3) Asymmetric encryption can be used for
   a) Confidentiality and Authentication
   b) Confidentiality and Integrity
   c) Authentication and Integrity
   d) Confidentiality, Authentication and Integrity

4) In ____ block cipher mode of operation, each block of plaintext is encrypted using the same key.
   a) CBC b) CFB c) ECB d) OFB

5) Hash functions can be used for
   a) Intrusion detection
   b) Virus detection
   c) Prohibiting the hacker to access actual passwords from password file
   d) All the above

6) In IPSec AH and ESP support which of the following mode ?
   a) Transport b) Tunnel
   c) Fragmentation d) None of the above

7) In AH of IPSec _____ identifies the security association
   a) Sequence Number b) Security Parameter Index
   c) Next Header d) Payload Length

8) VeriSign provides a _____ service that is intended to be compatible with S/MIME.
   a) CA b) AH c) AC d) CH

9) In PGP, sender uses _____ to generate a 160-bit hash code of the message.
   a) SHA-1 b) CA c) DES d) All

10) Cybercriminals those are insiders come under _____ category.
   a) Type II b) Type III c) Type I d) Type IV

11) _____ is a fraud involving another person's identity for an illicit purpose.
   a) Software piracy b) Computer Sabotage
   c) Hacking d) Identity Theft

12) A _____ attack involves alternating raw data just before it is processed by a computer and then changing it back after the processing is completed.
   a) Salami b) Computer Sabotage
   c) Data diddling d) Identity Theft

13) One of the main advantage of a proxy server is that its cache memory serve all users.
   a) True b) False c) Can't say d) None of above

14) ____ is a program in which malicious or harmful code is contained inside apparently harmless programming or data in such a way that it can get control and cause harm.
   a) Spam b) Trojan Horse c) Virus d) Keyloggers

15) A____ is a means of access to a program that bypasses security mechanism.
   a) Proxy b) Backdoor c) Virus d) Trojan Horse

16) A brute-force cryptanalysis is easily performed by simply trying _____ keys in Caesar cipher
   a) 25 b) 75 c) 2^{25} d) $2^{25} - 1$

17) Playfair cipher uses
   a) Single-letter encryption b) Multiple-letter encryption
   c) Columnar transposition d) Poly alphabetic substitution

18) The strength of _____ cipher is that it completely hides single-letter frequencies and also two-letter frequencies.
   a) Caesar cipher b) Hill cipher c) Playfair cipher d) All of the above

19) A mechanism intended to ensure the identity of an entity by means of information exchange is called
   a) Notarization b) Access control
   c) Encipherment d) Authentication

20) AES uses a block size of
   a) 64 bits b) 128 bits c) 256 bits d) 1024 bits

SLR-TJ – 277

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
INFORMATION AND CYBER SECURITY

Day and Date : Wednesday, 22-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate* ***full*** *marks.*

SECTION – I

2. Answer **any four** : **(4×5=20)**
   1) Define
      i) Avalanche effect
      ii) Timing attack
      iii) Brute force attack
      iv) Digital signature
      v) Replay attack
   2) Use vigenere cipher and encrypt the word “cryptography” using the key “house”.
   3) List five important properties of digital signature.
   4) Perform encryption and decryption using RSA algorithm given p = 5, q = 7, e = 7, M = 12.
   5) List the differences between linear cryptanalysis and differential cryptanalysis.

3. Answer **any one** : **(1×10=10)**
   1) Explain the following block cipher modes of operation with diagram :
      a) Cipher Block Chaining mode (CBC)
      b) Cipher Feedback mode (CFB)
   2) Draw the diagram of Kerberos 4 and explain its working in steps.

4. Explain Diffie-Hellman Key Exchange Algorithm in steps. Users A and B use the Diffie-Hellman key exchange technique with a common prime q = 83 and a primitive root $\alpha = 5$.
   i) If A has a private key $X_A = 6$, what is A’s public key Y_A ?
   ii) If B has a private key $X_B = 10$, what is B’s public key Y_B ?
   iii) What is the shared secret key ? **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   1) Describe ESP of IPSec.
   2) Write a note on : Transport Layer Security.
   3) Describe Cybercrime and information Security.
   4) List and explain types of Buffer Overflow.
   5) Describe following terms :
      a) Software Piracy b) Computer Sabotage.
   6) Explain Trojan Horses and Backdoors.

6. Attempt **any two** : **(2×10=20)**
   1) What is S/MIME ? Explain. Describe S/MIME functionality and messages.
   2) What is SQL Injection ? Describe steps for SQL Injection Attacks. How to prevent SQL Injection Attacks ?
   3) Describe following cybercrimes :
      a) Spamming
      b) Hacking
      c) Online Frauds
      d) Password sniffing.

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SLR-TJ – 278

Seat No.	

Set P

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA WAREHOUSING AND MINING (Elective – III)

Day and Date : Thursday, 23-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer :

1) In data mining output is _____
a) Precise b) Exact c) Fuzzy d) None of the above

2) _____ is an approach to handle missing data.
a) Ignore the missing value b) Assume a value for missing data
c) Fill missing value manually d) All the above

3) _____ is unsupervised learning.
a) Classification b) Regression c) Clustering d) None of above

4) Which of the following is a measure task in data preprocessing ?
a) Data transformation b) Classification
c) Clustering d) None of above

5) Which among the following is an example of spatial databases ?
a) Stock Price Database b) Daily Temperature
c) VLSI database d) Super Market Transaction

6) _____ is one of the method of handle noisy data.
a) Catching b) Crawling c) Binning d) None of the above

7) Wireless Sensor Data is a stream data
a) True b) False

8) In clustering class labels of training data are _____
a) Known b) Unknown c) Predefined d) None of above

9) In classification by decision tree method, each _____ node holds a class label.
   a) leaf b) root c) internal d) none of above

10) _____ are important issues in classification by decision tree method.
   a) Choosing splitting attribute b) Pruning
   c) Ordering of splitting attributes d) All of above

11) _____ is a spatial database primitive.
   a) Time b) Direction
   c) Transaction item d) None

12) Trend analysis can be done on _____ data.
   a) Spatial b) Transaction item sets
   c) Time series d) None of above

13) Dendrogram is a data structure used to solve _____ problems.
   a) Agglomerative clustering b) Classification
   c) k-means d) Dendrogram

14) Text data is _____
   a) structured b) unstructured
   c) Hypertext tagged d) None of above

15) _____ type of data is continuous, ordered, changing, fast and huge amount.
   a) Transaction b) Stream data c) Spatial d) Graph

16) The "IF" – part of a rule is known as _____
   a) Rule Antecedent b) Rule Consequent
   c) Action d) None of these

17) OLAP is used by _____
   a) Computer Administrators b) Clerk
   c) Knowledge worker d) None of these

18) Automatic e-mail filtering is an application of _____
   a) Graph mining b) Stream mining
   c) Text mining d) Association analysis

19) Social Network mining can be done by _____
   a) Graph Mining b) Tree Mining
   c) Tree Pruning d) None

20) K-means clustering is a _____ clustering method.
   a) Partitional b) Sampling c) Hierarchical d) Categorical

_____

SLR-TJ – 278

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA WAREHOUSING AND MINING (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

SECTION – I

2. Solve **any four** : **(4×5=20)**
   a) What are different issues in KDD ?
   b) What are different OLAP operations ? Explain.
   c) Define and explain the terms support and confidence.
   d) What is supervised and unsupervised learning ?
   e) What kind of data can be mined ?

3. With diagram, explain classification as a two step process. **10**

OR

Using Naive Bayes classifier find the class of following tuple **10**
X = (age <=30, Income = medium, Student = yes, Credit_rating = Fair)
Use following dataset as a training data for the classification model.

Sr. No.	age	income	Is_student	Credit_rating	buys_computer
1.	<=30	high	no	fair	no
2.	<=30	high	no	excellent	no
3.	31...40	high	no	fair	yes
4.	>40	medium	no	fair	yes
5.	>40	low	yes	fair	yes
6.	>40	low	yes	excellent	no
7.	31...40	low	yes	excellent	yes
8.	<=30	medium	no	fair	no
9.	<=30	low	yes	fair	yes
10.	>40	medium	yes	fair	yes
11.	<=30	medium	yes	excellent	yes
12.	31...40	medium	no	excellent	yes
13.	31...40	high	yes	fair	yes
14.	>40	medium	no	excellent	no

4. Explain and write apriori algorithm for frequent itemset mining with suitable example. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
   a) What are different issues in clustering real world data ?
   b) Explain K-means clustering algorithm with example.
   c) What is graph mining ? Explain.
   d) Explain different data stream applications.
   e) Write a note on PAM algorithm.

6. Write a detailed note on text mining and its applications. **10**

OR

Explain MST single link agglomerative algorithm with example and neat diagram.

7. Write short notes on : **10**
   a) Applications of Data Mining
   b) Spatial data mining.

SLR-TJ – 278

Seat No.	

Set Q

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA WAREHOUSING AND MINING (Elective – III)

Day and Date : Thursday, 23-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer :

1) The "IF" – part of a rule is known as _____
   a) Rule Antecedent b) Rule Consequent
   c) Action d) None of these

2) OLAP is used by _____
   a) Computer Administrators b) Clerk
   c) Knowledge worker d) None of these

3) Automatic e-mail filtering is an application of _____
   a) Graph mining b) Stream mining
   c) Text mining d) Association analysis

4) Social Network mining can be done by _____
   a) Graph Mining b) Tree Mining
   c) Tree Pruning d) None

5) K-means clustering is a _____ clustering method.
   a) Partitional b) Sampling c) Hierarchical d) Categorical

6) In data mining output is _____
   a) Precise b) Exact c) Fuzzy d) None of the above

7) _____ is an approach to handle missing data.
   a) Ignore the missing value b) Assume a value for missing data
   c) Fill missing value manually d) All the above

8) _____ is unsupervised learning.
a) Classification b) Regression c) Clustering d) None of above

9) Which of the following is a measure task in data preprocessing ?
a) Data transformation b) Classification
c) Clustering d) None of above

10) Which among the following is an example of spatial databases ?
a) Stock Price Database b) Daily Temperature
c) VLSI database d) Super Market Transaction

11) _____ is one of the method of handle noisy data.
a) Catching b) Crawling c) Binning d) None of the above

12) Wireless Sensor Data is a stream data
a) True b) False

13) In clustering class labels of training data are _____
a) Known b) Unknown c) Predefined d) None of above

14) In classification by decision tree method, each _____ node holds a class label.
a) leaf b) root c) internal d) none of above

15) _____ are important issues in classification by decision tree method.
a) Choosing splitting attribute b) Pruning
c) Ordering of splitting attributes d) All of above

16) _____ is a spatial database primitive.
a) Time b) Direction
c) Transaction item d) None

17) Trend analysis can be done on _____ data.
a) Spatial b) Transaction item sets
c) Time series d) None of above

18) Dendrogram is a data structure used to solve _____ problems.
a) Agglomerative clustering b) Classification
c) k-means d) Dendrogram

19) Text data is _____
a) structured b) unstructured
c) Hypertext tagged d) None of above

20) _____ type of data is continuous, ordered, changing, fast and huge amount.
a) Transaction b) Stream data c) Spatial d) Graph

_____

SLR-TJ – 278

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA WAREHOUSING AND MINING (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

SECTION – I

2. Solve **any four** : **(4×5=20)**
   a) What are different issues in KDD ?
   b) What are different OLAP operations ? Explain.
   c) Define and explain the terms support and confidence.
   d) What is supervised and unsupervised learning ?
   e) What kind of data can be mined ?

3. With diagram, explain classification as a two step process. **10**

OR

Using Naive Bayes classifier find the class of following tuple **10**
X = (age <=30, Income = medium, Student = yes, Credit_rating = Fair)
Use following dataset as a training data for the classification model.

Sr. No.	age	income	Is_student	Credit_rating	buys_computer
1.	<=30	high	no	fair	no
2.	<=30	high	no	excellent	no
3.	31...40	high	no	fair	yes
4.	>40	medium	no	fair	yes
5.	>40	low	yes	fair	yes
6.	>40	low	yes	excellent	no
7.	31...40	low	yes	excellent	yes
8.	<=30	medium	no	fair	no
9.	<=30	low	yes	fair	yes
10.	>40	medium	yes	fair	yes
11.	<=30	medium	yes	excellent	yes
12.	31...40	medium	no	excellent	yes
13.	31...40	high	yes	fair	yes
14.	>40	medium	no	excellent	no

4. Explain and write apriori algorithm for frequent itemset mining with suitable example. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
   a) What are different issues in clustering real world data ?
   b) Explain K-means clustering algorithm with example.
   c) What is graph mining ? Explain.
   d) Explain different data stream applications.
   e) Write a note on PAM algorithm.

6. Write a detailed note on text mining and its applications. **10**

OR

Explain MST single link agglomerative algorithm with example and neat diagram.

7. Write short notes on : **10**
   a) Applications of Data Mining
   b) Spatial data mining.

SLR-TJ – 278

Seat No.	

Set R

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA WAREHOUSING AND MINING (Elective – III)

Day and Date : Thursday, 23-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer :

1) _____ is a spatial database primitive.
a) Time b) Direction
c) Transaction item d) None

2) Trend analysis can be done on _____ data.
a) Spatial b) Transaction item sets
c) Time series d) None of above

3) Dendrogram is a data structure used to solve _____ problems.
a) Agglomerative clustering b) Classification
c) k-means d) Dendrogram

4) Text data is _____
a) structured b) unstructured
c) Hypertext tagged d) None of above

5) _____ type of data is continuous, ordered, changing, fast and huge amount.
a) Transaction b) Stream data
c) Spatial d) Graph

6) The "IF" – part of a rule is known as _____
a) Rule Antecedent b) Rule Consequent
c) Action d) None of these

P.T.O.

7) OLAP is used by _____
   a) Computer Administrators b) Clerk
   c) Knowledge worker d) None of these
8) Automatic e-mail filtering is an application of _____
   a) Graph mining b) Stream mining
   c) Text mining d) Association analysis
9) Social Network mining can be done by _____
   a) Graph Mining b) Tree Mining
   c) Tree Pruning d) None
10) K-means clustering is a _____ clustering method.
   a) Partitional b) Sampling c) Hierarchical d) Categorical
11) In data mining output is _____
   a) Precise b) Exact c) Fuzzy d) None of the above
12) _____ is an approach to handle missing data.
   a) Ignore the missing value b) Assume a value for missing data
   c) Fill missing value manually d) All the above
13) _____ is unsupervised learning.
   a) Classification b) Regression c) Clustering d) None of above
14) Which of the following is a measure task in data preprocessing ?
   a) Data transformation b) Classification
   c) Clustering d) None of above
15) Which among the following is an example of spatial databases ?
   a) Stock Price Database b) Daily Temperature
   c) VLSI database d) Super Market Transaction
16) _____ is one of the method of handle noisy data.
   a) Catching b) Crawling c) Binning d) None of the above
17) Wireless Sensor Data is a stream data
   a) True b) False
18) In clustering class labels of training data are _____
   a) Known b) Unknown c) Predefined d) None of above
19) In classification by decision tree method, each _____ node holds a class label.
   a) leaf b) root c) internal d) none of above
20) _____ are important issues in classification by decision tree method.
   a) Choosing splitting attribute b) Pruning
   c) Ordering of splitting attributes d) All of above

_____

SLR-TJ – 278

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA WAREHOUSING AND MINING (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

SECTION – I

2. Solve **any four** : **(4×5=20)**
   a) What are different issues in KDD ?
   b) What are different OLAP operations ? Explain.
   c) Define and explain the terms support and confidence.
   d) What is supervised and unsupervised learning ?
   e) What kind of data can be mined ?

3. With diagram, explain classification as a two step process. **10**

OR

Using Naive Bayes classifier find the class of following tuple **10**
X = (age <=30, Income = medium, Student = yes, Credit_rating = Fair)
Use following dataset as a training data for the classification model.

Sr. No.	age	income	Is_student	Credit_rating	buys_computer
1.	<=30	high	no	fair	no
2.	<=30	high	no	excellent	no
3.	31...40	high	no	fair	yes
4.	>40	medium	no	fair	yes
5.	>40	low	yes	fair	yes
6.	>40	low	yes	excellent	no
7.	31...40	low	yes	excellent	yes
8.	<=30	medium	no	fair	no
9.	<=30	low	yes	fair	yes
10.	>40	medium	yes	fair	yes
11.	<=30	medium	yes	excellent	yes
12.	31...40	medium	no	excellent	yes
13.	31...40	high	yes	fair	yes
14.	>40	medium	no	excellent	no

4. Explain and write apriori algorithm for frequent itemset mining with suitable example. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
   a) What are different issues in clustering real world data ?
   b) Explain K-means clustering algorithm with example.
   c) What is graph mining ? Explain.
   d) Explain different data stream applications.
   e) Write a note on PAM algorithm.

6. Write a detailed note on text mining and its applications. **10**

OR

Explain MST single link agglomerative algorithm with example and neat diagram.

7. Write short notes on : **10**
   a) Applications of Data Mining
   b) Spatial data mining.

SLR-TJ – 278

Seat No.	

Set S

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA WAREHOUSING AND MINING (Elective – III)

Day and Date : Thursday, 23-11-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
3) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer :

1) _____ is one of the method of handle noisy data.
a) Catching b) Crawling c) Binning d) None of the above

2) Wireless Sensor Data is a stream data
a) True b) False

3) In clustering class labels of training data are _____
a) Known b) Unknown c) Predefined d) None of above

4) In classification by decision tree method, each _____ node holds a class label.
a) leaf b) root c) internal d) none of above

5) _____ are important issues in classification by decision tree method.
a) Choosing splitting attribute
b) Pruning
c) Ordering of splitting attributes
d) All of above

6) _____ is a spatial database primitive.
a) Time b) Direction
c) Transaction item d) None

7) Trend analysis can be done on _____ data.
a) Spatial b) Transaction item sets
c) Time series d) None of above

P.T.O.

8) Dendrogram is a data structure used to solve _____ problems.
   a) Agglomerative clustering b) Classification
   c) k-means d) Dendrogram

9) Text data is _____
   a) structured b) unstructured
   c) Hypertext tagged d) None of above

10) _____ type of data is continuous, ordered, changing, fast and huge amount.
   a) Transaction b) Stream data c) Spatial d) Graph

11) The "IF" – part of a rule is known as _____
   a) Rule Antecedent b) Rule Consequent
   c) Action d) None of these

12) OLAP is used by _____
   a) Computer Administrators b) Clerk
   c) Knowledge worker d) None of these

13) Automatic e-mail filtering is an application of _____
   a) Graph mining b) Stream mining
   c) Text mining d) Association analysis

14) Social Network mining can be done by _____
   a) Graph Mining b) Tree Mining
   c) Tree Pruning d) None

15) K-means clustering is a _____ clustering method.
   a) Partitional b) Sampling c) Hierarchical d) Categorical

16) In data mining output is _____
   a) Precise b) Exact c) Fuzzy d) None of the above

17) _____ is an approach to handle missing data.
   a) Ignore the missing value b) Assume a value for missing data
   c) Fill missing value manually d) All the above

18) _____ is unsupervised learning.
   a) Classification b) Regression c) Clustering d) None of above

19) Which of the following is a measure task in data preprocessing ?
   a) Data transformation b) Classification
   c) Clustering d) None of above

20) Which among the following is an example of spatial databases ?
   a) Stock Price Database b) Daily Temperature
   c) VLSI database d) Super Market Transaction

_____

SLR-TJ – 278

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA WAREHOUSING AND MINING (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

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

SECTION – I

2. Solve **any four** : **(4×5=20)**
   a) What are different issues in KDD ?
   b) What are different OLAP operations ? Explain.
   c) Define and explain the terms support and confidence.
   d) What is supervised and unsupervised learning ?
   e) What kind of data can be mined ?

3. With diagram, explain classification as a two step process. **10**

OR

Using Naive Bayes classifier find the class of following tuple **10**
X = (age <=30, Income = medium, Student = yes, Credit_rating = Fair)
Use following dataset as a training data for the classification model.

Sr. No.	age	income	Is_student	Credit_rating	buys_computer
1.	<=30	high	no	fair	no
2.	<=30	high	no	excellent	no
3.	31...40	high	no	fair	yes
4.	>40	medium	no	fair	yes
5.	>40	low	yes	fair	yes
6.	>40	low	yes	excellent	no
7.	31...40	low	yes	excellent	yes
8.	<=30	medium	no	fair	no
9.	<=30	low	yes	fair	yes
10.	>40	medium	yes	fair	yes
11.	<=30	medium	yes	excellent	yes
12.	31...40	medium	no	excellent	yes
13.	31...40	high	yes	fair	yes
14.	>40	medium	no	excellent	no

4. Explain and write apriori algorithm for frequent itemset mining with suitable example. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
   a) What are different issues in clustering real world data ?
   b) Explain K-means clustering algorithm with example.
   c) What is graph mining ? Explain.
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   e) Write a note on PAM algorithm.

6. Write a detailed note on text mining and its applications. **10**

OR

Explain MST single link agglomerative algorithm with example and neat diagram.

7. Write short notes on : **10**
   a) Applications of Data Mining
   b) Spatial data mining.

SLR-TJ – 279

Seat No.	

Set P

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
IMAGE PROCESSING (Elective – III)

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) _____ model is useful in color TV broadcasting and is a simple linear transform of RCB representation.
a) CMY b) YIQ c) HIS d) None of the options

2) _____ is used when finding optimal illumination conditions for capturing an image, gray-scale transformations and image segmentation to objects and background.
a) Histogram b) Segmentation
c) Visual perception of the image d) None of the options

3) An image might be degraded during
a) Capture b) Transmission c) Processing d) All of the options

4) Which of the following level represents knowledge about 2D and 3D shapes ?
a) Iconic images b) Segmented images
c) Relational model d) Geometric representation

5) Which of the following is the local preprocessing method ?
a) Smoothing b) Gradient operators
c) Both a and b d) None of the options

6) Prewitt operator is similarly to the _____ operators.
a) Sobel b) Kirsch c) Robinson d) All of the options

7) Which one of the following is image restoration technique ?
a) Deterministic b) Stochastic
c) Both a and b d) None of the options

8) The most common problem of edge based segmentation, caused by image noise or unsuitable information in an image is/are
a) An edge presence in locations where there is no border
b) No edge presence where a real border exists
c) Both a and b
d) None of the above options

P.T.O.

9) Image is represented as a pyramid data structure in _____ algorithm.
   a) Hierarchical thresholding
   b) Non maximal suppression of directional edge data
   c) Hysteresis to filter output of an edge detector
   d) All of the above

10) Edge relaxation is an iterative method with edge confidences converging to
   a) Edge termination b) Edge forms a border
   c) Both a and b d) None of the options

11) A _____ method of image enhancement is based on direct manipulation of pixels.
   a) Spatial domain b) Frequency domain
   c) Both a and b d) None of the above

12) Which of the following is type of fidelity criteria ?
   a) Objective b) Subjective c) Both a and b d) None of the above

13) Image compression standards; define procedures for compressing and decompressing images
   a) True b) False c) Can't say d) None of the above

14) Which one of the following is a video compression standard ?
   a) DV b) MPEG – 1 c) MPEG – 2 d) All of the above

15) Which of the following is type of data redundancy ?
   a) Coding b) Spatial and temporal
   c) Irrelevant information d) All

16) _____ filtering is the method of choice in situations when only additive random noise is present.
   a) Spatial b) Temporal c) Can't says d) None of the above

17) The shape of the histogram identifies the closest PDF match
   a) True b) False c) Can't say d) None of the above

18) A _____ filter performs the opposite operation of a band reject filter.
   a) Band pass b) Broadband c) Optimal d) None of the above

19) Image enhancement in frequency domain uses
   a) DFT b) Handmard Transform
   c) DST d) All

20) Which one of the following is the method of reorientation ?
   a) B-Spline b) Pager c) Video d) All

_____

SLR-TJ – 279

Seat No.	

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
IMAGE PROCESSING (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   a) Write a note on quantization.
   b) Define the following models :
      RGB, CMY, YIQ and HIS.
   c) Explain pixel coordinate transformation.
   d) Explain smoothing using a rotating mask algorithm.
   e) Explain curve detection using the Hough transform algorithm.

3. What is additive noise ? Explain generate additive and zero mean Gaussian noise algorithm.

   OR

   Write a note on nearest neighborhood interpolation, linear interpolation and bicubic interpolation. **10**

4. Explain the following algorithm : **10**
   a) Split and merge.
   b) Split and link to the segmentation tree.
   c) Single pass split and merge.

SECTION – II

5. Answer **any four** of the following : **(4×5=20)**
   1) List and explain applications of Image Transform.
   2) Describe the concept of region identification.
   3) Write a note on – Binary Still Image Standard.
   4) Describe the concept of error free compression.
   5) What is image compression ? Describe its applications.

6. Attempt **any two** : **(2×10=20)**
   1) Explain Handmard Transform used in image enhancement.
   2) Describe the concept of Chain Codes in detail.
   3) List different formats of Video Image compression standards and explain it.

Set P

Set P

SLR-TJ – 279

Seat No.	

Set Q

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
IMAGE PROCESSING (Elective – III)

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) _____ filtering is the method of choice in situations when only additive random noise is present.
a) Spatial b) Temporal c) Can't says d) None of the above

2) The shape of the histogram identifies the closest PDF match
a) True b) False c) Can't say d) None of the above

3) A _____ filter performs the opposite operation of a band reject filter.
a) Band pass b) Broadband c) Optimal d) None of the above

4) Image enhancement in frequency domain uses
a) DFT b) Handmard Transform
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5) Which one of the following is the method of reorientation ?
a) B-Spline b) Pager c) Video d) All

6) _____ model is useful in color TV broadcasting and is a simple linear transform of RCB representation.
a) CMY b) YIQ c) HIS d) None of the options

7) _____ is used when finding optimal illumination conditions for capturing an image, gray-scale transformations and image segmentation to objects and background.
a) Histogram b) Segmentation
c) Visual perception of the image d) None of the options

8) An image might be degraded during
a) Capture b) Transmission c) Processing d) All of the options

9) Which of the following level represents knowledge about 2D and 3D shapes ?
a) Iconic images b) Segmented images
c) Relational model d) Geometric representation

P.T.O.

10) Which of the following is the local preprocessing method ?
   a) Smoothing
   b) Gradient operators
   c) Both a and b
   d) None of the options

11) Prewitt operator is similarly to the _____ operators.
   a) Sobel
   b) Kirsch
   c) Robinson
   d) All of the options

12) Which one of the following is image restoration technique ?
   a) Deterministic
   b) Stochastic
   c) Both a and b
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13) The most common problem of edge based segmentation, caused by image noise or unsuitable information in an image is/are
   a) An edge presence in locations where there is no border
   b) No edge presence where a real border exists
   c) Both a and b
   d) None of the above options

14) Image is represented as a pyramid data structure in _____ algorithm.
   a) Hierarchical thresholding
   b) Non maximal suppression of directional edge data
   c) Hysteresis to filter output of an edge detector
   d) All of the above

15) Edge relaxation is an iterative method with edge confidences converging to
   a) Edge termination
   b) Edge forms a border
   c) Both a and b
   d) None of the options

16) A _____ method of image enhancement is based on direct manipulation of pixels.
   a) Spatial domain
   b) Frequency domain
   c) Both a and b
   d) None of the above

17) Which of the following is type of fidelity criteria ?
   a) Objective
   b) Subjective
   c) Both a and b
   d) None of the above

18) Image compression standards; define procedures for compressing and decompressing images
   a) True
   b) False
   c) Can't say
   d) None of the above

19) Which one of the following is a video compression standard ?
   a) DV
   b) MPEG – 1
   c) MPEG – 2
   d) All of the above

20) Which of the following is type of data redundancy ?
   a) Coding
   b) Spatial and temporal
   c) Irrelevant information
   d) All

SLR-TJ – 279

Seat No.	

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
IMAGE PROCESSING (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   a) Write a note on quantization.
   b) Define the following models :
      RGB, CMY, YIQ and HIS.
   c) Explain pixel coordinate transformation.
   d) Explain smoothing using a rotating mask algorithm.
   e) Explain curve detection using the Hough transform algorithm.

3. What is additive noise ? Explain generate additive and zero mean Gaussian noise algorithm.

   OR

   Write a note on nearest neighborhood interpolation, linear interpolation and bicubic interpolation. **10**

4. Explain the following algorithm : **10**
   a) Split and merge.
   b) Split and link to the segmentation tree.
   c) Single pass split and merge.

SECTION – II

5. Answer **any four** of the following : **(4×5=20)**
   1) List and explain applications of Image Transform.
   2) Describe the concept of region identification.
   3) Write a note on – Binary Still Image Standard.
   4) Describe the concept of error free compression.
   5) What is image compression ? Describe its applications.

6. Attempt **any two** : **(2×10=20)**
   1) Explain Handmard Transform used in image enhancement.
   2) Describe the concept of Chain Codes in detail.
   3) List different formats of Video Image compression standards and explain it.

Set Q

Set Q

SLR-TJ – 279

Seat No.	

Set R

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
IMAGE PROCESSING (Elective – III)

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) A _____ method of image enhancement is based on direct manipulation of pixels.
a) Spatial domain b) Frequency domain
c) Both a and b d) None of the above

2) Which of the following is type of fidelity criteria ?
a) Objective b) Subjective c) Both a and b d) None of the above

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6) _____ filtering is the method of choice in situations when only additive random noise is present.
a) Spatial b) Temporal c) Can't says d) None of the above

7) The shape of the histogram identifies the closest PDF match
a) True b) False c) Can't say d) None of the above

8) A _____ filter performs the opposite operation of a band reject filter.
a) Band pass b) Broadband c) Optimal d) None of the above

9) Image enhancement in frequency domain uses
a) DFT b) Handmard Transform
c) DST d) All

10) Which one of the following is the method of reorientation ?
a) B-Spline b) Pager c) Video d) All

P.T.O.

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_____

SLR-TJ – 279

Seat No.	

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
IMAGE PROCESSING (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   a) Write a note on quantization.
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   Write a note on nearest neighborhood interpolation, linear interpolation and bicubic interpolation. **10**

4. Explain the following algorithm : **10**
   a) Split and merge.
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SECTION – II

5. Answer **any four** of the following : **(4×5=20)**
   1) List and explain applications of Image Transform.
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   3) Write a note on – Binary Still Image Standard.
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6. Attempt **any two** : **(2×10=20)**
   1) Explain Handmard Transform used in image enhancement.
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Set R

Set R

SLR-TJ – 279

Seat No.	

Set S

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
IMAGE PROCESSING (Elective – III)

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

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   c) Both a and b d) None of the above

7) Which of the following is type of fidelity criteria ?
   a) Objective b) Subjective c) Both a and b d) None of the above

P.T.O.

8) Image compression standards; define procedures for compressing and decompressing images
   a) True b) False c) Can't say d) None of the above
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   a) DV b) MPEG – 1 c) MPEG – 2 d) All of the above
10) Which of the following is type of data redundancy ?
   a) Coding b) Spatial and temporal
   c) Irrelevant information d) All
11) _____ filtering is the method of choice in situations when only additive random noise is present.
   a) Spatial b) Temporal c) Can't says d) None of the above
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   a) Band pass b) Broadband c) Optimal d) None of the above
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   c) DST d) All
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   a) Histogram b) Segmentation
   c) Visual perception of the image d) None of the options
18) An image might be degraded during
   a) Capture b) Transmission c) Processing d) All of the options
19) Which of the following level represents knowledge about 2D and 3D shapes ?
   a) Iconic images b) Segmented images
   c) Relational model d) Geometric representation
20) Which of the following is the local preprocessing method ?
   a) Smoothing b) Gradient operators
   c) Both a and b d) None of the options

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SLR-TJ – 279

Seat No.	

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
IMAGE PROCESSING (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(5×4=20)**
   a) Write a note on quantization.
   b) Define the following models :
      RGB, CMY, YIQ and HIS.
   c) Explain pixel coordinate transformation.
   d) Explain smoothing using a rotating mask algorithm.
   e) Explain curve detection using the Hough transform algorithm.

3. What is additive noise ? Explain generate additive and zero mean Gaussian noise algorithm.

   OR

   Write a note on nearest neighborhood interpolation, linear interpolation and bicubic interpolation. **10**

4. Explain the following algorithm : **10**
   a) Split and merge.
   b) Split and link to the segmentation tree.
   c) Single pass split and merge.

SECTION – II

5. Answer **any four** of the following : **(4×5=20)**
   1) List and explain applications of Image Transform.
   2) Describe the concept of region identification.
   3) Write a note on – Binary Still Image Standard.
   4) Describe the concept of error free compression.
   5) What is image compression ? Describe its applications.

6. Attempt **any two** : **(2×10=20)**
   1) Explain Handmard Transform used in image enhancement.
   2) Describe the concept of Chain Codes in detail.
   3) List different formats of Video Image compression standards and explain it.

Set S

Set S

SLR-TJ – 280

Seat No.	

Set P

B.E. (CSE) (Part – II) Examination, 2017
INFORMATION RETRIEVAL (Elective – III)

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

N. B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate marks.*
3) Support your answers with neat figures ***wherever*** *necessary.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) 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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) Probabilistic model is also known as _____ model.
a) Binary Independence Retrieval (BIR) b) Self Actualization
c) Vector d) None of these

2) Trying all possible pattern positions in the text for retrieval is exhibited by _____ algorithm.
a) Knuth-Morris Pratt b) Boyer-Moore family
c) Brute Force d) None of these

3) The Shift-Or technique of sequential searching is based on _____
a) Suffix automation b) Bit-parallelism
c) Prefix patterns d) Suffix parallelism

4) An inverted file is a _____ oriented mechanism.
a) sentence b) data c) word d) letter

5) Abusive availability of commercial information disguised in the form of informational content is termed as _____
a) Web spam b) Web crawling c) Web hosting d) None of these

6) The order in which the words are listed in a dictionary or telephone guide is called
a) lexicographical ordering b) chronological ordering
c) archival ordering d) all of these

7) All the documents in an IR system are stored in
a) Secondary memory b) Central repository
c) Tape drive d) None of these

8) Proximal nodes are _____ nodes.
a) far away b) hierarchical c) very nearby d) intermediate

P.T.O.

9) The inverted file structure is composed of two elements which are _____
   a) phrase and proximity b) words and substrings
   c) vocabulary and occurrences d) patterns and expressions

10) Multimedia system contains _____
   a) only text b) images and graphics
   c) sound and video d) all above '3' options

11) State which is true ?
   Sequential scanning may be slow because
   i) Distance computation might be expensive and database size 'N' might be huge.
   ii) It uses spatial access methods.
   iii) Algorithms are not efficient.
   a) ii b) i c) iii d) None of the above

12) GEMINI approach is based on _____
   a) 'quick-and-dirty' and 'use of spatial access methods' approach
   b) 'quick' test
   c) SGML
   d) HTML

13) Crawlers are also known as _____
   a) robots b) spiders and walkers
   c) wanders and knowbots d) all above '3' options

14) Harvest uses a _____ architecture to gather and distribute data.
   a) Distributed b) Hybrid c) Centralized d) None of these

15) _____ are web servers that send a given query to several search engines, web directories and other database, collect the answer and unify them.
   a) crawlers b) gatherers c) brokers d) meta searchers

16) IBM developed the _____ system for searching images and video.
   a) Content Based Image Retrieval (CBIR) b) Video Watermark
   c) Query By Image Content (QBIC) d) Optical Mark Reader (OMR)

17) Unicode provides a single _____ coding scheme which is suitable for all natural languages.
   a) 32-bit b) 64-bit c) 48-bit d) 16-bit

18) PURLs stands for
   a) Program URLs b) Persistent URLs c) Pickup URLs d) Paid URLs

19) LEXIS-NEXIS is an example of _____
   a) database vendor b) database language
   c) database administrator d) none of these

20) According to Heap's law, the vocabulary grows as _____, where n is no. of keywords or index terms.
   a) O (logn)
   b) O $\left(n^{\beta}\right)$, where β is a constant between 0 and 1
   c) O (m^n), where m is number of levels of partial indices
   d) O (n^2)

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SLR-TJ – 280

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
INFORMATION RETRIEVAL (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

N. B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate marks.*
3) Support your answers with neat figures ***wherever*** *necessary.*

SECTION – I

2. Answer **any four** from the following : **(5×4=20)**
   1) Explain how the World Wide Web changed the search in IR.

      OR

      What are the impacts of web on search ?
   2) What is IR modelling ? Define the following terms :
      i) Ranking function
      ii) Index term
      iii) Ranking
      iv) Spam.
   3) Explain boolean queries and operators used in boolean queries technique.
   4) Explain the Brute Force algorithm with an example.
   5) Explain clearly and briefly the vector model of IR.

3. Answer **any two** from the following : **(10×2=20)**
   1) Explain the process of IR with neat block diagram.
   2) Explain the following clearly in five to eight sentences each.
      a) Single word queries
      b) Context queries
      c) Boolean queries.
   3) Consider the string “This is a text. A text has many words. Words are made from letters.” Prepare inverted index, suffix trie, suffix tree, supra index for the string.

SECTION – II

4. Answer **any four** from the following : **(5×4=20)**

   1) Explain important features of Harvest architecture with diagram.
   2) Explain Spatial Access Methods (SAM) of multimedia IR indexing and searching.
   3) Explain methods of crawling the web.
   4) Explain centralized architecture of search engine with schematic.
   5) Explain architectural issues of digital libraries.

5. Answer **any two** from the following : **(10×2=20)**

   1) What is MULTOS ? Explain in detail the three features of MULTOS.
   2) Explain the various clauses in the general syntax of MULTOS query form, by taking an example.
   3) Explain the basic idea of GEMINI and show how GEMINI overcomes the two disadvantages of sequential searching.

_____

SLR-TJ – 280

Seat No.	

Set Q

B.E. (CSE) (Part – II) Examination, 2017
INFORMATION RETRIEVAL (Elective – III)

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

N. B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate marks.*
3) Support your answers with neat figures ***wherever*** *necessary.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) IBM developed the _____ system for searching images and video.
a) Content Based Image Retrieval (CBIR) b) Video Watermark
c) Query By Image Content (QBIC) d) Optical Mark Reader (OMR)

2) Unicode provides a single _____ coding scheme which is suitable for all natural languages.
a) 32-bit b) 64-bit c) 48-bit d) 16-bit

3) PURLs stands for
a) Program URLs b) Persistent URLs c) Pickup URLs d) Paid URLs

4) LEXIS-NEXIS is an example of _____
a) database vendor b) database language
c) database administrator d) none of these

5) According to Heap's law, the vocabulary grows as _____, where n is no. of keywords or index terms.
a) O (logn)
b) O $\left(n^{\beta}\right)$, where β is a constant between 0 and 1
c) O (m^n), where m is number of levels of partial indices
d) O (n^2)

6) Probabilistic model is also known as _____ model.
a) Binary Independence Retrieval (BIR) b) Self Actualization
c) Vector d) None of these

7) Trying all possible pattern positions in the text for retrieval is exhibited by _____ algorithm.
a) Knuth-Morris Pratt b) Boyer-Moore family
c) Brute Force d) None of these

P.T.O.

8) The Shift-Or technique of sequential searching is based on _____
   a) Suffix automation b) Bit-parallelism
   c) Prefix patterns d) Suffix parallelism

9) An inverted file is a _____ oriented mechanism.
   a) sentence b) data c) word d) letter

10) Abusive availability of commercial information disguised in the form of informational content is termed as _____
   a) Web spam b) Web crawling c) Web hosting d) None of these

11) The order in which the words are listed in a dictionary or telephone guide is called
   a) lexicographical ordering b) chronological ordering
   c) archival ordering d) all of these

12) All the documents in an IR system are stored in
   a) Secondary memory b) Central repository
   c) Tape drive d) None of these

13) Proximal nodes are _____ nodes.
   a) far away b) hierarchical c) very nearby d) intermediate

14) The inverted file structure is composed of two elements which are _____
   a) phrase and proximity b) words and substrings
   c) vocabulary and occurrences d) patterns and expressions

15) Multimedia system contains _____
   a) only text b) images and graphics
   c) sound and video d) all above '3' options

16) State which is true ?
   Sequential scanning may be slow because
   i) Distance computation might be expensive and database size 'N' might be huge.
   ii) It uses spatial access methods.
   iii) Algorithms are not efficient.
   a) ii b) i c) iii d) None of the above

17) GEMINI approach is based on _____
   a) 'quick-and-dirty' and 'use of spatial access methods' approach
   b) 'quick' test
   c) SGML
   d) HTML

18) Crawlers are also known as _____
   a) robots b) spiders and walkers
   c) wanders and knowbots d) all above '3' options

19) Harvest uses a _____ architecture to gather and distribute data.
   a) Distributed b) Hybrid c) Centralized d) None of these

20) _____ are web servers that send a given query to several search engines, web directories and other database, collect the answer and unify them.
   a) crawlers b) gatherers c) brokers d) meta searchers

_____

SLR-TJ – 280

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
INFORMATION RETRIEVAL (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

N. B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate marks.*
3) Support your answers with neat figures ***wherever*** *necessary.*

SECTION – I

2. Answer **any four** from the following : **(5×4=20)**
   1) Explain how the World Wide Web changed the search in IR.

      OR

      What are the impacts of web on search ?
   2) What is IR modelling ? Define the following terms :
      i) Ranking function
      ii) Index term
      iii) Ranking
      iv) Spam.
   3) Explain boolean queries and operators used in boolean queries technique.
   4) Explain the Brute Force algorithm with an example.
   5) Explain clearly and briefly the vector model of IR.

3. Answer **any two** from the following : **(10×2=20)**
   1) Explain the process of IR with neat block diagram.
   2) Explain the following clearly in five to eight sentences each.
      a) Single word queries
      b) Context queries
      c) Boolean queries.
   3) Consider the string “This is a text. A text has many words. Words are made from letters.” Prepare inverted index, suffix trie, suffix tree, supra index for the string.

SECTION – II

4. Answer **any four** from the following : **(5×4=20)**

   1) Explain important features of Harvest architecture with diagram.
   2) Explain Spatial Access Methods (SAM) of multimedia IR indexing and searching.
   3) Explain methods of crawling the web.
   4) Explain centralized architecture of search engine with schematic.
   5) Explain architectural issues of digital libraries.

5. Answer **any two** from the following : **(10×2=20)**

   1) What is MULTOS ? Explain in detail the three features of MULTOS.
   2) Explain the various clauses in the general syntax of MULTOS query form, by taking an example.
   3) Explain the basic idea of GEMINI and show how GEMINI overcomes the two disadvantages of sequential searching.

_____

SLR-TJ – 280

Seat No.	

Set R

B.E. (CSE) (Part – II) Examination, 2017
INFORMATION RETRIEVAL (Elective – III)

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

N. B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate marks.*
3) Support your answers with neat figures ***wherever*** *necessary.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) ***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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) State which is true ?
Sequential scanning may be slow because
i) Distance computation might be expensive and database size 'N' might be huge.
ii) It uses spatial access methods.
iii) Algorithms are not efficient.
a) ii b) i c) iii d) None of the above

2) GEMINI approach is based on _____
a) 'quick-and-dirty' and 'use of spatial access methods' approach
b) 'quick' test
c) SGML
d) HTML

3) Crawlers are also known as _____
a) robots b) spiders and walkers
c) wanders and knowbots d) all above '3' options

4) Harvest uses a _____ architecture to gather and distribute data.
a) Distributed b) Hybrid c) Centralized d) None of these

5) _____ are web servers that send a given query to several search engines, web directories and other database, collect the answer and unify them.
a) crawlers b) gatherers c) brokers d) meta searchers

6) IBM developed the _____ system for searching images and video.
a) Content Based Image Retrieval (CBIR) b) Video Watermark
c) Query By Image Content (QBIC) d) Optical Mark Reader (OMR)

7) Unicode provides a single _____ coding scheme which is suitable for all natural languages.
a) 32-bit b) 64-bit c) 48-bit d) 16-bit

P.T.O.

8) PURLs stands for
   a) Program URLs b) Persistent URLs c) Pickup URLs d) Paid URLs
9) LEXIS-NEXIS is an example of _____
   a) database vendor b) database language
   c) database administrator d) none of these
10) According to Heap's law, the vocabulary grows as _____, where n is no. of keywords or index terms.
   a) O (logn)
   b) O $\left(n^{\beta}\right)$, where β is a constant between 0 and 1
   c) O (m^n), where m is number of levels of partial indices
   d) O (n^2)
11) Probabilistic model is also known as _____ model.
   a) Binary Independence Retrieval (BIR) b) Self Actualization
   c) Vector d) None of these
12) Trying all possible pattern positions in the text for retrieval is exhibited by _____ algorithm.
   a) Knuth-Morris Pratt b) Boyer-Moore family
   c) Brute Force d) None of these
13) The Shift-Or technique of sequential searching is based on _____
   a) Suffix automation b) Bit-parallelism
   c) Prefix patterns d) Suffix parallelism
14) An inverted file is a _____ oriented mechanism.
   a) sentence b) data c) word d) letter
15) Abusive availability of commercial information disguised in the form of informational content is termed as _____
   a) Web spam b) Web crawling c) Web hosting d) None of these
16) The order in which the words are listed in a dictionary or telephone guide is called
   a) lexicographical ordering b) chronological ordering
   c) archival ordering d) all of these
17) All the documents in an IR system are stored in
   a) Secondary memory b) Central repository
   c) Tape drive d) None of these
18) Proximal nodes are _____ nodes.
   a) far away b) hierarchical c) very nearby d) intermediate
19) The inverted file structure is composed of two elements which are _____
   a) phrase and proximity b) words and substrings
   c) vocabulary and occurrences d) patterns and expressions
20) Multimedia system contains _____
   a) only text b) images and graphics
   c) sound and video d) all above '3' options

_____

SLR-TJ – 280

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
INFORMATION RETRIEVAL (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

N. B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate marks.*
3) Support your answers with neat figures ***wherever*** *necessary.*

SECTION – I

2. Answer **any four** from the following : **(5×4=20)**
   1) Explain how the World Wide Web changed the search in IR.

      OR

      What are the impacts of web on search ?
   2) What is IR modelling ? Define the following terms :
      i) Ranking function
      ii) Index term
      iii) Ranking
      iv) Spam.
   3) Explain boolean queries and operators used in boolean queries technique.
   4) Explain the Brute Force algorithm with an example.
   5) Explain clearly and briefly the vector model of IR.

3. Answer **any two** from the following : **(10×2=20)**
   1) Explain the process of IR with neat block diagram.
   2) Explain the following clearly in five to eight sentences each.
      a) Single word queries
      b) Context queries
      c) Boolean queries.
   3) Consider the string “This is a text. A text has many words. Words are made from letters.” Prepare inverted index, suffix trie, suffix tree, supra index for the string.

SECTION – II

4. Answer **any four** from the following : **(5×4=20)**

   1) Explain important features of Harvest architecture with diagram.
   2) Explain Spatial Access Methods (SAM) of multimedia IR indexing and searching.
   3) Explain methods of crawling the web.
   4) Explain centralized architecture of search engine with schematic.
   5) Explain architectural issues of digital libraries.

5. Answer **any two** from the following : **(10×2=20)**

   1) What is MULTOS ? Explain in detail the three features of MULTOS.
   2) Explain the various clauses in the general syntax of MULTOS query form, by taking an example.
   3) Explain the basic idea of GEMINI and show how GEMINI overcomes the two disadvantages of sequential searching.

_____

SLR-TJ – 280

Seat No.	

Set S

B.E. (CSE) (Part – II) Examination, 2017
INFORMATION RETRIEVAL (Elective – III)

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

N. B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate marks.*
3) Support your answers with neat figures ***wherever*** *necessary.*
4) Q. No. ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
5) 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.

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) The order in which the words are listed in a dictionary or telephone guide is called
   a) lexicographical ordering b) chronological ordering
   c) archival ordering d) all of these

2) All the documents in an IR system are stored in
   a) Secondary memory b) Central repository
   c) Tape drive d) None of these

3) Proximal nodes are _____ nodes.
   a) far away b) hierarchical c) very nearby d) intermediate

4) The inverted file structure is composed of two elements which are _____
   a) phrase and proximity b) words and substrings
   c) vocabulary and occurrences d) patterns and expressions

5) Multimedia system contains _____
   a) only text b) images and graphics
   c) sound and video d) all above '3' options

6) State which is true ?
   Sequential scanning may be slow because
   i) Distance computation might be expensive and database size 'N' might be huge.
   ii) It uses spatial access methods.
   iii) Algorithms are not efficient.
   a) ii b) i c) iii d) None of the above

7) GEMINI approach is based on _____
   a) 'quick-and-dirty' and 'use of spatial access methods' approach
   b) 'quick' test
   c) SGML
   d) HTML

P.T.O.

8) Crawlers are also known as _____
   a) robots b) spiders and walkers
   c) wanders and knowbots d) all above '3' options

9) Harvest uses a _____ architecture to gather and distribute data.
   a) Distributed b) Hybrid c) Centralized d) None of these

10) _____ are web servers that send a given query to several search engines, web directories and other database, collect the answer and unify them.
   a) crawlers b) gatherers c) brokers d) meta searchers

11) IBM developed the _____ system for searching images and video.
   a) Content Based Image Retrieval (CBIR) b) Video Watermark
   c) Query By Image Content (QBIC) d) Optical Mark Reader (OMR)

12) Unicode provides a single _____ coding scheme which is suitable for all natural languages.
   a) 32-bit b) 64-bit c) 48-bit d) 16-bit

13) PURLs stands for
   a) Program URLs b) Persistent URLs c) Pickup URLs d) Paid URLs

14) LEXIS-NEXIS is an example of _____
   a) database vendor b) database language
   c) database administrator d) none of these

15) According to Heap's law, the vocabulary grows as _____, where n is no. of keywords or index terms.
   a) O (logn)
   b) O $\left(n^{\beta}\right)$, where β is a constant between 0 and 1
   c) O (m^n), where m is number of levels of partial indices
   d) O (n^2)

16) Probabilistic model is also known as _____ model.
   a) Binary Independence Retrieval (BIR) b) Self Actualization
   c) Vector d) None of these

17) Trying all possible pattern positions in the text for retrieval is exhibited by _____ algorithm.
   a) Knuth-Morris Pratt b) Boyer-Moore family
   c) Brute Force d) None of these

18) The Shift-Or technique of sequential searching is based on _____
   a) Suffix automation b) Bit-parallelism
   c) Prefix patterns d) Suffix parallelism

19) An inverted file is a _____ oriented mechanism.
   a) sentence b) data c) word d) letter

20) Abusive availability of commercial information disguised in the form of informational content is termed as _____
   a) Web spam b) Web crawling c) Web hosting d) None of these

_____

SLR-TJ – 280

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
INFORMATION RETRIEVAL (Elective – III)

Day and Date : Thursday, 23-11-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

N. B. *: 1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicate marks.*
3) Support your answers with neat figures ***wherever*** *necessary.*

SECTION – I

2. Answer **any four** from the following : **(5×4=20)**
   1) Explain how the World Wide Web changed the search in IR.

      OR

      What are the impacts of web on search ?
   2) What is IR modelling ? Define the following terms :
      i) Ranking function
      ii) Index term
      iii) Ranking
      iv) Spam.
   3) Explain boolean queries and operators used in boolean queries technique.
   4) Explain the Brute Force algorithm with an example.
   5) Explain clearly and briefly the vector model of IR.

3. Answer **any two** from the following : **(10×2=20)**
   1) Explain the process of IR with neat block diagram.
   2) Explain the following clearly in five to eight sentences each.
      a) Single word queries
      b) Context queries
      c) Boolean queries.
   3) Consider the string “This is a text. A text has many words. Words are made from letters.” Prepare inverted index, suffix trie, suffix tree, supra index for the string.

SECTION – II

4. Answer **any four** from the following : **(5×4=20)**

   1) Explain important features of Harvest architecture with diagram.
   2) Explain Spatial Access Methods (SAM) of multimedia IR indexing and searching.
   3) Explain methods of crawling the web.
   4) Explain centralized architecture of search engine with schematic.
   5) Explain architectural issues of digital libraries.

5. Answer **any two** from the following : **(10×2=20)**

   1) What is MULTOS ? Explain in detail the three features of MULTOS.
   2) Explain the various clauses in the general syntax of MULTOS query form, by taking an example.
   3) Explain the basic idea of GEMINI and show how GEMINI overcomes the two disadvantages of sequential searching.

SLR-TJ – 281

Seat No.	

Set P

B.E. CSE (Part – II) Examination, 2017
Elective – III : CLOUD COMPUTING

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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) ***Each*** *Section carries* ***40*** *marks.*
4) Attempt ***all*** *question in* ***each*** *Section.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative :

1) What is private cloud ?
   a) A standard cloud service offered via the Internet
   b) A cloud architecture maintained within an enterprise data center
   c) A cloud service accessible to anyone
   d) Cloud servers

2) What is the requirement of virtualization platform in implementing cloud ?
   a) Manage the service level policies
   b) Cloud operating system
   c) Virtualization platforms helps to keep the backend level and user level concepts different from each other
   d) All of the above

3) What is Cloud Computing replacing ?
   a) Corporate data centers b) Expensive personal computer hardware
   c) Expensive software upgrades d) All of the above

4) S1 : Google Docs is a type of cloud computing.
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   a) Both S1 and S2 are true b) Both S1 and S2 are false
   c) Only S1 is true d) Only S2 is true

5) Identify the missing word in the following sentence. Private clouds are operated solely for _____ organizations.
   a) A specific b) Several c) Governmental d) For-profit

6) Why does hardware and operating system maintenance take less time with SAAS ?
   a) Because the OS vendor takes care of it
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7) Which of the following type of virtualization is also characteristic of cloud computing ?
   a) Storage b) Application c) CPU d) All of the mentioned

P.T.O.

8) Cloud Services have a _____ relationship with their customer.
   a) Many-to-many b) One-to-many c) One-to-one d) Many-to-one

9) Which resources are typically provided by an Infrastructure as a Service cloud computing delivery model ?
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10) What are the business benefits involved in cloud architecture ?
   a) Zero infrastructure investment b) Just in time infrastructure
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11) "Cloud" in cloud computing represents what ?
   a) Internet b) Hard drives c) People d) Wireless

12) Which of the following is not a security concern in cloud ?
   a) Shared risk b) Policies c) Coding d) Logical security

13) Choose an application that does not fit in public cloud
   a) Public facing web pages b) Data intensive workloads
   c) Health care record d) Public wiki's, blogs

14) _____ service provides a software development environment that enables rapid deployment of new applications.
   a) SaaS b) PaaS c) IaaS d) DaaS

15) What are the main drivers of cloud computing ?
   a) Performance b) Storage capacity c) Resources d) Cost and time

16) _____ allows multiple operating system instances to run as guest on the same server.
   a) Server b) Hypervisor c) Network d) Data

17) What is the name of the organization helping to foster security standards for cloud computing ?
   a) Cloud Security Standards Working b) Cloud Security Alliance
   c) Cloud Security WatchDog d) Security in the Cloud Alliance

18) Which of the following are reasons for deploying a multicloud architecture ?
   1) reducing reliance on any single vendor
   2) increasing flexibility through choice
   3) mitigating against disasters
   a) All above b) 1 only c) 2 only d) 2 and 3 only

19) Which of the following level of privilege of x86 architecture is used for user level applications ?
   a) Ring 0 b) Ring 1 c) Ring 3 d) Ring 2

20) Which statement best describes the Software as a Service cloud delivery model ?
   a) A virtual machine provisioned and provided from the cloud which allows the customer to deploy custom applications
   b) A multitenant storage service provisioned from the cloud which allows the customer to leverage the cloud for storing software data
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SLR-TJ – 281

Seat No.	

B.E. CSE (Part – II) Examination, 2017
Elective – III : CLOUD COMPUTING

Day and Date : Thursday, 23-11-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) **All** questions are **compulsory**.*
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SECTION – I

2. Solve **any four** : **(5×4=20)**
   1) What is virtualization ? Explain virtualization technique.
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   4) Write a short note on Amezon Web Services.
   5) What are security issues of SaaS model in Public cloud ?
   6) Give comparison between public cloud and private cloud.

3. Explain in details SaaS, PassS and IaaS. Discuss challenges in each. **10**

4. What are major security threats in cloud ? Explain flowing : **10**
   a) Data Loss or Leakage
   b) Account or Service Hijacking

OR

4. Explain Server virtualization and its technique in details. **10**

SECTION – II

5. Solve **any four** : **(5×4=20)**
   1) What are Business outcome and corresponding key benefits of Cloud ?
   2) What are the challenges in managing heterogeneous clouds ?
   3) What is future of Cloud computing ? Explain any four essential issues in future cloud.
   4) What are the benefits of Multi-Cloud ?
   5) Explain Big Data Analytics in brief.
   6) What are the issues involved in cloud migration ?

6. Explain as case study, Cloud in
   i) Banking and Financial sector
   ii) Education. **10**

7. What are security and privacy issues in cloud computing ? How to resolve them ? **10**

OR

7. Write a short note on RightScale Cloud Management System. **10**

Set P

Set P

SLR-TJ – 281

Seat No.	

Set Q

B.E. CSE (Part – II) Examination, 2017
Elective – III : CLOUD COMPUTING

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative :

1) _____ allows multiple operating system instances to run as guest on the same server.
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P.T.O.

7) What is the requirement of virtualization platform in implementing cloud ?
   a) Manage the service level policies
   b) Cloud operating system
   c) Virtualization platforms helps to keep the backend level and user level concepts different from each other
   d) All of the above

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13) Cloud Services have a _____ relationship with their customer.
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   c) One-to-one
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   a) Shared risk
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   b) Storage capacity
   c) Resources
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Seat No.	

B.E. CSE (Part – II) Examination, 2017
Elective – III : CLOUD COMPUTING

Day and Date : Thursday, 23-11-2017 Marks : 80

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OR

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Set Q

Set Q

SLR-TJ – 281

Seat No.	

Set R

B.E. CSE (Part – II) Examination, 2017
Elective – III : CLOUD COMPUTING

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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Duration : 30 Minutes Marks : 20

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P.T.O.

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SLR-TJ – 281

Seat No.	

B.E. CSE (Part – II) Examination, 2017
Elective – III : CLOUD COMPUTING

Day and Date : Thursday, 23-11-2017 Marks : 80

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SECTION – II

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OR

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Set R

Set R

SLR-TJ – 281

Seat No.	

Set S

B.E. CSE (Part – II) Examination, 2017
Elective – III : CLOUD COMPUTING

Day and Date : Thursday, 23-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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SLR-TJ – 281

Seat No.	

B.E. CSE (Part – II) Examination, 2017
Elective – III : CLOUD COMPUTING

Day and Date : Thursday, 23-11-2017 Marks : 80

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OR

7. Write a short note on RightScale Cloud Management System. **10**

Set S

Set S

SLR-TJ – 282

Seat No.	

Set P

B.E. (CSE) (Part – II) Examination, 2017
STORAGE AREA NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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3) Figures to the ***right*** *indicates marks of the question.*
4) Assume suitable data ***wherever*** *necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer. **(20×1=20)**

1) Block by Block mirroring is done in
A) RAID0 B) RAID 1 + 0 C) RAID 1 D) None

2) Parity calculation is involved in which of following RAID level
A) RAID 4 B) RAID 5 C) Both the above D) None

3) Cache is associated with
A) Hard Disk B) Raid Controller C) Both the above D) None

4) In which type of Remote Mirroring (RM) disk subsystem does acknowledges write operations until it has saved a block itself and received write confirmation from the second disk subsystem ?
A) Synchronous RM B) Asynchronous RM
C) Both the above D) None

5) Which of the following port describes the capability to participate in the arbitrated loop topology as an end device ?
A) An L-Port B) N Port C) F-Port D) G-Port

6) In Fibre Channel SAN "Physical Interfaces" are managed by
A) FC0 Layer B) FC1 Layer C) FC2 Layer D) FC3 Layer

7) Which of following layer is responsible for the data transfer in Fibre Channel Protocol stack ?
A) FC-0 B) FC-2 C) FC-4 D) All the above

8) The process of distributing the frames of over several ports and thus increase the throughput between the two devices is called as
A) Encryption B) Flow Control C) Stripping D) Mining

9) _____ is an intermediate layer within the operating system between the file system or database and the actual hard disks.
A) The Volume Manager B) File System
C) Drivers D) None

10) _____ is a mechanism that guarantees the consistency of the file system even after a system crash.
A) File System B) Volume Manager
C) Databases D) Journaling

11) In which of following storage virtualization, control flow is separated from data flow ?
A) Asymmetric SV B) Symmetric SV
C) Both the above D) None of the above

12) In which of the following mode of storage virtualization, storage capacity is made available to the operating system or the applications in the form of virtual disks ?
A) File Level B) Block Level C) Network Level D) None

13) End point devices are connected to the storage network through
A) Standardized Interfaces B) Proprietary Interfaces
C) In-band Interfaces D) Out-band Interfaces

14) Which of the following is file oriented protocol ?
A) CIFS B) SCSI C) RDMA D) None

15) Which of the following block oriented protocol ?
A) SCSI B) CIFS C) TCP/IP D) Infiband

16) Which of the following Load Distribution (LD) mechanism partitions the data set ?
A) Dynamic LD B) Normal LD C) Cumulative LD D) Static LD

17) Devices on SCSI are differentiated by means of
A) Target ID B) SCSI ID C) Both the above D) LUN ID

18) Which of following protocol practically implements outband management ?
A) WBEM B) SCSI C) CIM D) Both A) and C)

19) Multipathing software helps in conquering with
A) Failure of IO bus B) Failure of Device
C) Failure of Server D) All the above

20) Which of following is the most flexible and scalable Fibre Channel topology ?
A) Fabric Channel B) Arbitrated Loop C) Point to Point D) All the above

SLR-TJ – 282

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
STORAGE AREA NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
2) Figures to the ***right*** *indicates marks of the question.*
3) Assume suitable data ***wherever*** *necessary.*

SECTION – I

2. Solve the following (**any four**) : **(4×5=20)**
   1) List the functionalities of Volume Manager.
   2) Explain LUN Masking in detail.
   3) Write a short note on JBOD.
   4) Explain storage centric IT architecture with its advantages.
   5) Write a short note on storage virtualization.

3. Solve the following (**any 1**) : **(1×10=10)**
   1) List all the implementation consideration behind storage virtualization.
   2) Explain NAS Server, NAS Gateways.

4. Solve the following : **(1×10=10)**

   Explain file system in detail.

SECTION – II

5. Solve the following (**any four**) : **(4×5=20)**
   1) Explain standardized, proprietary interfaces.
   2) Explain storage network in IO path.
   3) Write a short note on backup clients.
   4) Explain data sharing as an application of SAN.
   5) List all the requirements of good system management.

6. Solve the following (**any 1**) : **(1×10=10)**
   1) Explain all server components.
   2) Explain mechanism to conquer failure of IO Bus.

7. Solve the following : **(1×10=10)**

   Explain In-Band Management in detail.

SLR-TJ – 282

Seat No.	

Set Q

B.E. (CSE) (Part – II) Examination, 2017
STORAGE AREA NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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 marks of the question.*
4) Assume suitable data ***wherever*** *necessary.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer. **(20×1=20)**

1) Which of the following Load Distribution (LD) mechanism partitions the data set ?
A) Dynamic LD B) Normal LD C) Cumulative LD D) Static LD

2) Devices on SCSI are differentiated by means of
A) Target ID B) SCSI ID C) Both the above D) LUN ID

3) Which of following protocol practically implements outband management ?
A) WBEM B) SCSI C) CIM D) Both A) and C)

4) Multipathing software helps in conquering with
A) Failure of IO bus B) Failure of Device
C) Failure of Server D) All the above

5) Which of following is the most flexible and scalable Fibre Channel topology ?
A) Fabric Channel B) Arbitrated Loop C) Point to Point D) All the above

6) Block by Block mirroring is done in
A) RAID0 B) RAID 1 + 0 C) RAID 1 D) None

7) Parity calculation is involved in which of following RAID level
A) RAID 4 B) RAID 5 C) Both the above D) None

8) Cache is associated with
A) Hard Disk B) Raid Controller C) Both the above D) None

9) In which type of Remote Mirroring (RM) disk subsystem does acknowledges write operations until it has saved a block itself and received write confirmation from the second disk subsystem ?
A) Synchronous RM B) Asynchronous RM
C) Both the above D) None

10) Which of the following port describes the capability to participate in the arbitrated loop topology as an end device ?
A) An L-Port B) N Port C) F-Port D) G-Port

11) In Fibre Channel SAN "Physical Interfaces" are managed by
A) FC0 Layer B) FC1 Layer C) FC2 Layer D) FC3 Layer

12) Which of following layer is responsible for the data transfer in Fibre Channel Protocol stack ?
A) FC-0 B) FC-2 C) FC-4 D) All the above

13) The process of distributing the frames of over several ports and thus increase the throughput between the two devices is called as
A) Encryption B) Flow Control C) Stripping D) Mining

14) _____ is an intermediate layer within the operating system between the file system or database and the actual hard disks.
A) The Volume Manager B) File System
C) Drivers D) None

15) _____ is a mechanism that guarantees the consistency of the file system even after a system crash.
A) File System B) Volume Manager
C) Databases D) Journaling

16) In which of following storage virtualization, control flow is separated from data flow ?
A) Asymmetric SV B) Symmetric SV
C) Both the above D) None of the above

17) In which of the following mode of storage virtualization, storage capacity is made available to the operating system or the applications in the form of virtual disks ?
A) File Level B) Block Level C) Network Level D) None

18) End point devices are connected to the storage network through
A) Standardized Interfaces B) Proprietary Interfaces
C) In-band Interfaces D) Out-band Interfaces

19) Which of the following is file oriented protocol ?
A) CIFS B) SCSI C) RDMA D) None

20) Which of the following block oriented protocol ?
A) SCSI B) CIFS C) TCP/IP D) Infiband

SLR-TJ – 282

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
STORAGE AREA NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
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SECTION – I

2. Solve the following (**any four**) : **(4×5=20)**
   1) List the functionalities of Volume Manager.
   2) Explain LUN Masking in detail.
   3) Write a short note on JBOD.
   4) Explain storage centric IT architecture with its advantages.
   5) Write a short note on storage virtualization.

3. Solve the following (**any 1**) : **(1×10=10)**
   1) List all the implementation consideration behind storage virtualization.
   2) Explain NAS Server, NAS Gateways.

4. Solve the following : **(1×10=10)**

   Explain file system in detail.

SECTION – II

5. Solve the following (**any four**) : **(4×5=20)**
   1) Explain standardized, proprietary interfaces.
   2) Explain storage network in IO path.
   3) Write a short note on backup clients.
   4) Explain data sharing as an application of SAN.
   5) List all the requirements of good system management.

6. Solve the following (**any 1**) : **(1×10=10)**
   1) Explain all server components.
   2) Explain mechanism to conquer failure of IO Bus.

7. Solve the following : **(1×10=10)**

   Explain In-Band Management in detail.

SLR-TJ – 282

Seat No.	

Set R

B.E. (CSE) (Part – II) Examination, 2017
STORAGE AREA NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer. **(20×1=20)**

1) In which of following storage virtualization, control flow is separated from data flow ?
A) Asymmetric SV B) Symmetric SV
C) Both the above D) None of the above

2) In which of the following mode of storage virtualization, storage capacity is made available to the operating system or the applications in the form of virtual disks ?
A) File Level B) Block Level C) Network Level D) None

3) End point devices are connected to the storage network through
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4) Which of the following is file oriented protocol ?
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5) Which of the following block oriented protocol ?
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6) Which of the following Load Distribution (LD) mechanism partitions the data set ?
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10) Which of following is the most flexible and scalable Fibre Channel topology ?
A) Fabric Channel B) Arbitrated Loop C) Point to Point D) All the above

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A) RAID0 B) RAID 1 + 0 C) RAID 1 D) None

12) Parity calculation is involved in which of following RAID level
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19) _____ is an intermediate layer within the operating system between the file system or database and the actual hard disks.
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SLR-TJ – 282

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
STORAGE AREA NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
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SECTION – I

2. Solve the following (**any four**) : **(4×5=20)**
   1) List the functionalities of Volume Manager.
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   3) Write a short note on JBOD.
   4) Explain storage centric IT architecture with its advantages.
   5) Write a short note on storage virtualization.

3. Solve the following (**any 1**) : **(1×10=10)**
   1) List all the implementation consideration behind storage virtualization.
   2) Explain NAS Server, NAS Gateways.

4. Solve the following : **(1×10=10)**

   Explain file system in detail.

SECTION – II

5. Solve the following (**any four**) : **(4×5=20)**
   1) Explain standardized, proprietary interfaces.
   2) Explain storage network in IO path.
   3) Write a short note on backup clients.
   4) Explain data sharing as an application of SAN.
   5) List all the requirements of good system management.

6. Solve the following (**any 1**) : **(1×10=10)**
   1) Explain all server components.
   2) Explain mechanism to conquer failure of IO Bus.

7. Solve the following : **(1×10=10)**

   Explain In-Band Management in detail.

SLR-TJ – 282

Seat No.	

Set **S**

B.E. (CSE) (Part – II) Examination, 2017
STORAGE AREA NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer. **(20×1=20)**

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A) FC0 Layer B) FC1 Layer C) FC2 Layer D) FC3 Layer

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C) Databases D) Journaling

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C) Both the above D) None of the above

P.T.O.

7) In which of the following mode of storage virtualization, storage capacity is made available to the operating system or the applications in the form of virtual disks ?
A) File Level B) Block Level C) Network Level D) None

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C) Both the above D) None

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A) An L-Port B) N Port C) F-Port D) G-Port

SLR-TJ – 282

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
STORAGE AREA NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1)* ***All*** *questions are* ***compulsory****.*
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SECTION – I

2. Solve the following (**any four**) : **(4×5=20)**
   1) List the functionalities of Volume Manager.
   2) Explain LUN Masking in detail.
   3) Write a short note on JBOD.
   4) Explain storage centric IT architecture with its advantages.
   5) Write a short note on storage virtualization.

3. Solve the following (**any 1**) : **(1×10=10)**
   1) List all the implementation consideration behind storage virtualization.
   2) Explain NAS Server, NAS Gateways.

4. Solve the following : **(1×10=10)**

   Explain file system in detail.

SECTION – II

5. Solve the following (**any four**) : **(4×5=20)**
   1) Explain standardized, proprietary interfaces.
   2) Explain storage network in IO path.
   3) Write a short note on backup clients.
   4) Explain data sharing as an application of SAN.
   5) List all the requirements of good system management.

6. Solve the following (**any 1**) : **(1×10=10)**
   1) Explain all server components.
   2) Explain mechanism to conquer failure of IO Bus.

7. Solve the following : **(1×10=10)**

   Explain In-Band Management in detail.

SLR-TJ – 283

Seat No.	

Set P

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative : **20**

1) XML stands for
   a) Extensible Markup Language b) Extended Markup Language
   c) Both d) None

2) Which of the following HTTP method more secure ?
   a) GET b) DELETE c) POST d) PUT

3) A piece of icon or image on a web page associated with another web page is called
   a) url b) hyperlink
   c) plugin d) none of the mentioned

4) Validation kind of parsers are
   a) well-formed b) well-documented
   c) non-validating and validating d) none of the above

5) URL stands for
   a) Unique Reference Label b) Uniform Reference Label
   c) Uniform Resource Locator d) Unique Resource Locator

6) SVG stands for
   a) Standard Vector Graphics b) Scalar Vector Graphics
   c) Small Vector Graphics d) Subject Vector Graphics

7) What are all the controls of Ajax ?
   a) Script Manager b) Script
   c) Manager d) None of the above

8) Which of the following jQuery method adds the previous selection to the current selection ?
   a) add(selector) b) andSelf()
   c) append(selector) d) None of the above

9) XPath is used to
   a) Find information in XML document b) Design an XML document
   c) Distinguish parts in XML document d) None of the above

10) Which tag of SVG is used to draw a line ?
   a) 'line' b) 'ellipse' c) 'circle' d) 'rect'

11) Why we used XSLT language ?
   a) use to transport XML documents
   b) use to perform transaction b/w XML documents
   c) use to transform XML documents
   d) use to format XML documents

12) Mashups are generally _____ or hosted online.
   a) Client applications b) Server side
   c) Both a) and b) d) None of the above

13) _____ is to protect data and passwords.
   a) Encryption b) Authentication c) Authorization d) Non-repudiation

14) Message _____ means that the sender and the receiver expect privacy.
   a) Confidentiality b) Integrity
   c) Authentication d) None of the above

15) _____ function creates a message digest out of a message.
   a) Encryption b) Decryption
   c) Hash d) None of the above

16) XPath is a syntax for defining parts of _____
   a) XML document b) HTML document
   c) DTD document d) All of the above

17) Which of the following jQuery selector selects all elements available in a DOM ?
   a) $('*') b) $('?')
   c) $('#') d) None of the above

18) AJAX stands for
   a) Asynchronous Javascript And XML
   b) Abstract JSON And XML
   c) Another Java Abstraction for X-Windows
   d) Another Java and XML Library

19) Which of the HTTP method contains payload ?
   a) GET b) POST c) DELETE d) TRACE

20) What is the name of the DLL that contains Ajax control tool kit ?
   a) Controltoolkit.dll b) Ajaxcontroltoolkit.dll
   c) ajax.dll d) Allcontroltoolkit.dll

_____

SLR-TJ – 283

Seat No.	

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   1) Mention what are the HTTP methods supported by REST ?
   2) What are all the controls of Ajax ?
   3) What is XSLT ? What is the usage of XSLT ?
   4) What is jQuery ? Why jQuery is needed ?
   5) Explain the working of XSLT.

3. Attempt **any one** : **(1×10=10)**
   1) What is AJAX ? What are all the controls of Ajax ?
   2) What is REST ? Explain in brief.

4. Explain syndication and microformats in brief. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   1) What is JSON and how JSON can be served in WS ?
   2) Why we use mashups ? Explain in detail.
   3) Define the Security in Web 2.0.
   4) How digital certificate is used for web security ?
   5) What are the Business Strategies in web 2.0 ?

6. Attempt **any one** : **(1×10=10)**
   1) Define authentication and authorization in Web.
   2) How Web services serve HTML differently ?

7. Explain XQuery and XML Databases. **10**

Set P

Set P

SLR-TJ – 283

Seat No.	

Set Q

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

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MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative : **20**

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P.T.O.

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_____

SLR-TJ – 283

Seat No.	

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

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   2) What is REST ? Explain in brief.

4. Explain syndication and microformats in brief. **10**

SECTION – II

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Set Q

Set Q

SLR-TJ – 283

Seat No.	

Set R

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative : **20**

1) Why we used XSLT language ?
   a) use to transport XML documents
   b) use to perform transaction b/w XML documents
   c) use to transform XML documents
   d) use to format XML documents

2) Mashups are generally _____ or hosted online.
   a) Client applications b) Server side
   c) Both a) and b) d) None of the above

3) _____ is to protect data and passwords.
   a) Encryption b) Authentication c) Authorization d) Non-repudiation

4) Message _____ means that the sender and the receiver expect privacy.
   a) Confidentiality b) Integrity
   c) Authentication d) None of the above

5) _____ function creates a message digest out of a message.
   a) Encryption b) Decryption
   c) Hash d) None of the above

6) XPath is a syntax for defining parts of _____
   a) XML document b) HTML document
   c) DTD document d) All of the above

7) Which of the following jQuery selector selects all elements available in a DOM ?
   a) $('*') b) $('?')
   c) $('#') d) None of the above

8) AJAX stands for
   a) Asynchronous Javascript And XML
   b) Abstract JSON And XML
   c) Another Java Abstraction for X-Windows
   d) Another Java and XML Library

9) Which of the HTTP method contains payload ?
   a) GET b) POST c) DELETE d) TRACE

10) What is the name of the DLL that contains Ajax control tool kit ?
   a) Controltoolkit.dll b) Ajaxcontroltoolkit.dll
   c) ajax.dll d) Allcontroltoolkit.dll

11) XML stands for
   a) Extensible Markup Language b) Extended Markup Language
   c) Both d) None

12) Which of the following HTTP method more secure ?
   a) GET b) DELETE c) POST d) PUT

13) A piece of icon or image on a web page associated with another web page is called
   a) url b) hyperlink
   c) plugin d) none of the mentioned

14) Validation kind of parsers are
   a) well-formed b) well-documented
   c) non-validating and validating d) none of the above

15) URL stands for
   a) Unique Reference Label b) Uniform Reference Label
   c) Uniform Resource Locator d) Unique Resource Locator

16) SVG stands for
   a) Standard Vector Graphics b) Scalar Vector Graphics
   c) Small Vector Graphics d) Subject Vector Graphics

17) What are all the controls of Ajax ?
   a) Script Manager b) Script
   c) Manager d) None of the above

18) Which of the following jQuery method adds the previous selection to the current selection ?
   a) add(selector) b) andSelf()
   c) append(selector) d) None of the above

19) XPath is used to
   a) Find information in XML document b) Design an XML document
   c) Distinguish parts in XML document d) None of the above

20) Which tag of SVG is used to draw a line ?
   a) ‘line’ b) ‘ellipse’ c) ‘circle’ d) ‘rect’

SLR-TJ – 283

Seat No.	

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   1) Mention what are the HTTP methods supported by REST ?
   2) What are all the controls of Ajax ?
   3) What is XSLT ? What is the usage of XSLT ?
   4) What is jQuery ? Why jQuery is needed ?
   5) Explain the working of XSLT.

3. Attempt **any one** : **(1×10=10)**
   1) What is AJAX ? What are all the controls of Ajax ?
   2) What is REST ? Explain in brief.

4. Explain syndication and microformats in brief. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   1) What is JSON and how JSON can be served in WS ?
   2) Why we use mashups ? Explain in detail.
   3) Define the Security in Web 2.0.
   4) How digital certificate is used for web security ?
   5) What are the Business Strategies in web 2.0 ?

6. Attempt **any one** : **(1×10=10)**
   1) Define authentication and authorization in Web.
   2) How Web services serve HTML differently ?

7. Explain XQuery and XML Databases. **10**

Set R

Set R

SLR-TJ – 283

Seat No.	

Set S

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative : **20**

1) SVG stands for
   a) Standard Vector Graphics b) Scalar Vector Graphics
   c) Small Vector Graphics d) Subject Vector Graphics

2) What are all the controls of Ajax ?
   a) Script Manager b) Script
   c) Manager d) None of the above

3) Which of the following jQuery method adds the previous selection to the current selection ?
   a) add(selector) b) andSelf()
   c) append(selector) d) None of the above

4) XPath is used to
   a) Find information in XML document b) Design an XML document
   c) Distinguish parts in XML document d) None of the above

5) Which tag of SVG is used to draw a line ?
   a) 'line' b) 'ellipse' c) 'circle' d) 'rect'

6) Why we used XSLT language ?
   a) use to transport XML documents
   b) use to perform transaction b/w XML documents
   c) use to transform XML documents
   d) use to format XML documents

7) Mashups are generally _____ or hosted online.
   a) Client applications b) Server side
   c) Both a) and b) d) None of the above

8) _____ is to protect data and passwords.
   a) Encryption b) Authentication c) Authorization d) Non-repudiation

P.T.O.

9) Message _____ means that the sender and the receiver expect privacy.
   a) Confidentiality b) Integrity
   c) Authentication d) None of the above

10) _____ function creates a message digest out of a message.
   a) Encryption b) Decryption
   c) Hash d) None of the above

11) XPath is a syntax for defining parts of _____
   a) XML document b) HTML document
   c) DTD document d) All of the above

12) Which of the following jQuery selector selects all elements available in a DOM ?
   a) $('*') b) $('?')
   c) $('#') d) None of the above

13) AJAX stands for
   a) Asynchronous Javascript And XML
   b) Abstract JSON And XML
   c) Another Java Abstraction for X-Windows
   d) Another Java and XML Library

14) Which of the HTTP method contains payload ?
   a) GET b) POST c) DELETE d) TRACE

15) What is the name of the DLL that contains Ajax control tool kit ?
   a) Controltoolkit.dll b) Ajaxcontroltoolkit.dll
   c) ajax.dll d) Allcontroltoolkit.dll

16) XML stands for
   a) Extensible Markup Language b) Extended Markup Language
   c) Both d) None

17) Which of the following HTTP method more secure ?
   a) GET b) DELETE c) POST d) PUT

18) A piece of icon or image on a web page associated with another web page is called
   a) url b) hyperlink
   c) plugin d) none of the mentioned

19) Validation kind of parsers are
   a) well-formed b) well-documented
   c) non-validating and validating d) none of the above

20) URL stands for
   a) Unique Reference Label b) Uniform Reference Label
   c) Uniform Resource Locator d) Unique Resource Locator

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SLR-TJ – 283

Seat No.	

B.E. (Computer Science and Engineering) (Part – II) Examination, 2017
Elective – IV : WEB 2.0 AND RICH INTERNET APPLICATION

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** : **(4×5=20)**
   1) Mention what are the HTTP methods supported by REST ?
   2) What are all the controls of Ajax ?
   3) What is XSLT ? What is the usage of XSLT ?
   4) What is jQuery ? Why jQuery is needed ?
   5) Explain the working of XSLT.

3. Attempt **any one** : **(1×10=10)**
   1) What is AJAX ? What are all the controls of Ajax ?
   2) What is REST ? Explain in brief.

4. Explain syndication and microformats in brief. **10**

SECTION – II

5. Attempt **any four** : **(4×5=20)**
   1) What is JSON and how JSON can be served in WS ?
   2) Why we use mashups ? Explain in detail.
   3) Define the Security in Web 2.0.
   4) How digital certificate is used for web security ?
   5) What are the Business Strategies in web 2.0 ?

6. Attempt **any one** : **(1×10=10)**
   1) Define authentication and authorization in Web.
   2) How Web services serve HTML differently ?

7. Explain XQuery and XML Databases. **10**

Set S

Set S

SLR-TJ – 284

Seat No.	

Set P

B.E. (CSE) (Part – II) Examination, 2017
ARTIFICIAL NEURAL NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

1) In brain, there is a central control mechanism to process the information.
   a) True b) False c) Can't say d) None

2) _____ is special case of delta learning law.
   a) Hebbian b) Delta c) Perceptron d) Widrow Hoff

3) In Perceptron neutral network _____ activation function is used to calculate output of neuron.
   a) Sigmoid b) Hardlimit c) Linear d) None

4) In _____ network connection between neurons do not form cycle.
   a) Feedforward b) Feedback c) Competitive d) None

5) XOR is an example of linearly separable problem.
   a) True b) False c) Can't say d) None

6) In Mcculloch-pitts model, weights are fixed.
   a) True b) False c) Can't say d) None

7) Perceptron model is proposed by
   a) Widrow b) Rosenblatt c) McCulloh d) None

8) _____ network is used for pattern grouping/clustering.
   a) Feedforward b) Feedback c) Competitive d) None

9) Hamming network is _____ network.
   a) Feedforward b) Feedback c) Competitive d) None

10) Backpropagation learning algorithm is also called as generalized delta rule.
a) True b) False c) Can't say d) None

11) In _____ training for every set of input, desired output is not known.
a) Unsupervised b) Supervised c) Parallel d) None

12) _____ law is valid only for differentiable activation function.
a) Hebbian b) Perceptron c) Delta d) None

13) In _____ training similar inputs are grouped into clusters.
a) Unsupervised b) Supervised c) Parallel d) None

14) Perceptron can be trained using _____ learning law.
a) Hebbian b) Correlation c) Instar d) None

15) In backpropagation algorithm, error gets propagated backwards to modify the weights.
a) True b) False c) Can't say d) None

16) _____ is unsupervised learning law.
a) Hebbian b) Delta c) Perceptron d) Widrow Hoff

17) _____ network is used for pattern storage.
a) Feedforward b) Feedback c) Competitive d) None

18) Axon sums all incoming signal and perform nonlinear operation on it.
a) True b) False c) Can't say d) None

19) Multi Layer Perceptron can solve problems which are not linearly separable.
a) True b) False c) Can't say d) None

20) NETtalk is
a) a multilayer feedforward neural network
b) a single layer feedforward neural network
c) feedback network
d) none

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SLR-TJ – 284

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
ARTIFICIAL NEURAL NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** : **(4×5=20)**

   1) Explain Adaline model.

   2) What is Perceptron ? Explain.

   3) Differentiate between brain and computer.

   4) Explain Perceptron learning law.

   5) Explain features of biological neural network.

3. Which are the types of training/learning used to train neural network ? Explain. **10**

   OR

   Explain Backpropagation algorithm in detail. **10**

4. Explain Mcculloch-pitts model. Also write limitations of this model. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**

   1) Write a note on Competitive network.

   2) Differentiate between feedforward and feedback network.

   3) Explain application of ANN in Olympic game symbol recognition.

4) Write a note on activation dynamics model.

5) Explain Pattern classification.

6. Explain Pattern association and Pattern mapping. **10**

OR

Explain applications of ANN in conversion of text to speech. **10**

7. Explain application of ANN in recognition of handwritten characters. **10**

SLR-TJ – 284

Seat No.	

Set Q

B.E. (CSE) (Part – II) Examination, 2017
ARTIFICIAL NEURAL NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

1) _____ is unsupervised learning law.
   a) Hebbian b) Delta c) Perceptron d) Widrow Hoff

2) _____ network is used for pattern storage.
   a) Feedforward b) Feedback c) Competitive d) None

3) Axon sums all incoming signal and perform nonlinear operation on it.
   a) True b) False c) Can't say d) None

4) Multi Layer Perceptron can solve problems which are not linearly separable.
   a) True b) False c) Can't say d) None

5) NETtalk is
   a) a multilayer feedforward neural network
   b) a single layer feedforward neural network
   c) feedback network
   d) none

6) In brain, there is a central control mechanism to process the information.
   a) True b) False c) Can't say d) None

7) _____ is special case of delta learning law.
   a) Hebbian b) Delta c) Perceptron d) Widrow Hoff

8) In Perceptron neutral network _____ activation function is used to calculate output of neuron.
   a) Sigmoid b) Hardlimit c) Linear d) None
9) In _____ network connection between neurons do not form cycle.
   a) Feedforward b) Feedback c) Competitive d) None
10) XOR is an example of linearly separable problem.
   a) True b) False c) Can't say d) None
11) In Mcculloch-pitts model, weights are fixed.
   a) True b) False c) Can't say d) None
12) Perceptron model is proposed by
   a) Widrow b) Rosenblatt c) McCulloh d) None
13) _____ network is used for pattern grouping/clustering.
   a) Feedforward b) Feedback c) Competitive d) None
14) Hamming network is _____ network.
   a) Feedforward b) Feedback c) Competitive d) None
15) Backpropagation learning algorithm is also called as generalized delta rule.
   a) True b) False c) Can't say d) None
16) In _____ training for every set of input, desired output is not known.
   a) Unsupervised b) Supervised c) Parallel d) None
17) _____ law is valid only for differentiable activation function.
   a) Hebbian b) Perceptron c) Delta d) None
18) In _____ training similar inputs are grouped into clusters.
   a) Unsupervised b) Supervised c) Parallel d) None
19) Perceptron can be trained using _____ learning law.
   a) Hebbian b) Correlation c) Instar d) None
20) In backpropagation algorithm, error gets propagated backwards to modify the weights.
   a) True b) False c) Can't say d) None

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SLR-TJ – 284

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
ARTIFICIAL NEURAL NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** : **(4×5=20)**

   1) Explain Adaline model.

   2) What is Perceptron ? Explain.

   3) Differentiate between brain and computer.

   4) Explain Perceptron learning law.

   5) Explain features of biological neural network.

3. Which are the types of training/learning used to train neural network ? Explain. **10**

   OR

   Explain Backpropagation algorithm in detail. **10**

4. Explain Mcculloch-pitts model. Also write limitations of this model. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**

   1) Write a note on Competitive network.

   2) Differentiate between feedforward and feedback network.

   3) Explain application of ANN in Olympic game symbol recognition.

4) Write a note on activation dynamics model.

5) Explain Pattern classification.

6. Explain Pattern association and Pattern mapping. **10**

OR

Explain applications of ANN in conversion of text to speech. **10**

7. Explain application of ANN in recognition of handwritten characters. **10**

SLR-TJ – 284

Seat No.	

Set R

B.E. (CSE) (Part – II) Examination, 2017
ARTIFICIAL NEURAL NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

1) In _____ training for every set of input, desired output is not known.
   a) Unsupervised b) Supervised c) Parallel d) None

2) _____ law is valid only for differentiable activation function.
   a) Hebbian b) Perceptron c) Delta d) None

3) In _____ training similar inputs are grouped into clusters.
   a) Unsupervised b) Supervised c) Parallel d) None

4) Perceptron can be trained using _____ learning law.
   a) Hebbian b) Correlation c) Instar d) None

5) In backpropagation algorithm, error gets propagated backwards to modify the weights.
   a) True b) False c) Can't say d) None

6) _____ is unsupervised learning law.
   a) Hebbian b) Delta c) Perceptron d) Widrow Hoff

7) _____ network is used for pattern storage.
   a) Feedforward b) Feedback c) Competitive d) None

8) Axon sums all incoming signal and perform nonlinear operation on it.
   a) True b) False c) Can't say d) None

9) Multi Layer Perceptron can solve problems which are not linearly separable.
   a) True b) False c) Can't say d) None
10) NETtalk is
   a) a multilayer feedforward neural network
   b) a single layer feedforward neural network
   c) feedback network
   d) none
11) In brain, there is a central control mechanism to process the information.
   a) True b) False c) Can't say d) None
12) _____ is special case of delta learning law.
   a) Hebbian b) Delta c) Perceptron d) Widrow Hoff
13) In Perceptron neutral network _____ activation function is used to calculate output of neuron.
   a) Sigmoid b) Hardlimit c) Linear d) None
14) In _____ network connection between neurons do not form cycle.
   a) Feedforward b) Feedback c) Competitive d) None
15) XOR is an example of linearly separable problem.
   a) True b) False c) Can't say d) None
16) In Mcculloch-pitts model, weights are fixed.
   a) True b) False c) Can't say d) None
17) Perceptron model is proposed by
   a) Widrow b) Rosenblatt c) McCulloh d) None
18) _____ network is used for pattern grouping/clustering.
   a) Feedforward b) Feedback c) Competitive d) None
19) Hamming network is _____ network.
   a) Feedforward b) Feedback c) Competitive d) None
20) Backpropagation learning algorithm is also called as generalized delta rule.
   a) True b) False c) Can't say d) None

_____

SLR-TJ – 284

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
ARTIFICIAL NEURAL NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** : **(4×5=20)**

   1) Explain Adaline model.

   2) What is Perceptron ? Explain.

   3) Differentiate between brain and computer.

   4) Explain Perceptron learning law.

   5) Explain features of biological neural network.

3. Which are the types of training/learning used to train neural network ? Explain. **10**

   OR

   Explain Backpropagation algorithm in detail. **10**

4. Explain Mcculloch-pitts model. Also write limitations of this model. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**

   1) Write a note on Competitive network.

   2) Differentiate between feedforward and feedback network.

   3) Explain application of ANN in Olympic game symbol recognition.

Set R

4) Write a note on activation dynamics model.

5) Explain Pattern classification.

6. Explain Pattern association and Pattern mapping. **10**

OR

Explain applications of ANN in conversion of text to speech. **10**

7. Explain application of ANN in recognition of handwritten characters. **10**

SLR-TJ – 284

Seat No.	

Set S

B.E. (CSE) (Part – II) Examination, 2017
ARTIFICIAL NEURAL NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(20×1=20)**

1) In Mcculloch-pitts model, weights are fixed.
a) True b) False c) Can't say d) None

2) Perceptron model is proposed by
a) Widrow b) Rosenblatt c) McCulloh d) None

3) _____ network is used for pattern grouping/clustering.
a) Feedforward b) Feedback c) Competitive d) None

4) Hamming network is _____ network.
a) Feedforward b) Feedback c) Competitive d) None

5) Backpropagation learning algorithm is also called as generalized delta rule.
a) True b) False c) Can't say d) None

6) In _____ training for every set of input, desired output is not known.
a) Unsupervised b) Supervised c) Parallel d) None

7) _____ law is valid only for differentiable activation function.
a) Hebbian b) Perceptron c) Delta d) None

8) In _____ training similar inputs are grouped into clusters.
a) Unsupervised b) Supervised c) Parallel d) None

9) Perceptron can be trained using _____ learning law.
a) Hebbian b) Correlation c) Instar d) None

10) In backpropagation algorithm, error gets propagated backwards to modify the weights.
a) True b) False c) Can't say d) None

11) _____ is unsupervised learning law.
a) Hebbian b) Delta c) Perceptron d) Widrow Hoff

12) _____ network is used for pattern storage.
a) Feedforward b) Feedback c) Competitive d) None

13) Axon sums all incoming signal and perform nonlinear operation on it.
a) True b) False c) Can't say d) None

14) Multi Layer Perceptron can solve problems which are not linearly separable.
a) True b) False c) Can't say d) None

15) NETtalk is
a) a multilayer feedforward neural network
b) a single layer feedforward neural network
c) feedback network
d) none

16) In brain, there is a central control mechanism to process the information.
a) True b) False c) Can't say d) None

17) _____ is special case of delta learning law.
a) Hebbian b) Delta c) Perceptron d) Widrow Hoff

18) In Perceptron neutral network _____ activation function is used to calculate output of neuron.
a) Sigmoid b) Hardlimit c) Linear d) None

19) In _____ network connection between neurons do not form cycle.
a) Feedforward b) Feedback c) Competitive d) None

20) XOR is an example of linearly separable problem.
a) True b) False c) Can't say d) None

_____

SLR-TJ – 284

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017
ARTIFICIAL NEURAL NETWORK (Elective – IV)

Day and Date : Friday, 24-11-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Solve **any four** : **(4×5=20)**

   1) Explain Adaline model.

   2) What is Perceptron ? Explain.

   3) Differentiate between brain and computer.

   4) Explain Perceptron learning law.

   5) Explain features of biological neural network.

3. Which are the types of training/learning used to train neural network ? Explain. **10**

   OR

   Explain Backpropagation algorithm in detail. **10**

4. Explain Mcculloch-pitts model. Also write limitations of this model. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**

   1) Write a note on Competitive network.

   2) Differentiate between feedforward and feedback network.

   3) Explain application of ANN in Olympic game symbol recognition.

4) Write a note on activation dynamics model.

5) Explain Pattern classification.

6. Explain Pattern association and Pattern mapping. **10**

OR

Explain applications of ANN in conversion of text to speech. **10**

7. Explain application of ANN in recognition of handwritten characters. **10**

SLR-TJ – 285

Seat No.	

Set **P**

B.E. (CSE) (Part – II) Examination, 2017
Elective – IV : BIG DATA ANALYTICS

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative : **(20×1=20)**

1) What was Hadoop named after ?
   a) Creator Doug cutting's favorite circus act
   b) Cutting's high school rock band
   c) The toy elephant of Cutting's son
   d) A sound Cutting's laptop made during Hadoop's development

2) A _____ serves as the master and there is only one NameNode per cluster.
   a) Data Node b) NameNode c) Data block d) Replication

3) CCTV footage is which type of data ?
   a) Structured data b) Unstructured data
   c) Semi-structured data d) All three

4) _____ NameNode is used when the Primary NameNode goes down.
   a) Rack b) Data c) Secondary d) None of these

5) What is the default HDFS block size ?
   a) 32 MB b) 64 KB c) 128 KB d) 64 MB

6) What is the default HDFS replication factor ?
   a) 4 b) 1 c) 3 d) 2

7) Which one is not one of the big data feature ?
   a) Velocity b) Veracity c) Volume d) Variety

8) NameNode in HDFS uses _____ to store file system name space.
   a) EditLog b) FsImage c) Data node d) Map reduce

9) How many blocks will be created for a file that is 300 MB ? The default block size is 64 MB and the replication factor is 3.
   a) 30 b) 15 c) 5 d) 100

10) What does job tracker do ?
a) Stores block of data
b) Store metadata
c) Coordinate and schedule the job
d) Act as mini reducer

11) HDFS is based on
a) Facebook file system
b) Google file system
c) IBM file system
d) Yahoo file system

12) MongoDB is
a) RDBMS
b) Document-oriented DBMS
c) Object Oriented DBMS
d) Key-value store

13) The hadoop frame work is written in
a) C++
b) Python
c) Java
d) C

14) Apache Cassandra was born at
a) Google
b) Facebook
c) IBM
d) Yahoo

15) The 3 types of collections used in Cassandra are
a) Array, List, Map
b) List, Map, Struct
c) List, Set, Map
d) Set, Map, Array

16) The metastore in Hive consist of _____ and _____
a) Driver, services
b) Metaservices, database
c) Driver, database
d) Metaservices, driver

17) Pig is
a) Data Flow language
b) No SQL database
c) Import export tool
d) Scheduling engine

18) Which of the following is a valid flow in Hadoop ?
a) Input -> Reducer-> Mapper-> Combiner-> Output
b) Input -> Mapper-> Reducer-> Combiner-> Output
c) Input -> Mapper-> Combiner-> Reducer-> Output
d) Input -> Reducer -> Combiner-> Mapper-> Output

19) Hive is used as
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c) Workflow Language
d) Scheduling Language

20) MapReduce was devised by
a) Apple
b) Google
c) Microsoft
d) Samsung

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SLR-TJ – 285

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017

Elective – IV : BIG DATA ANALYTICS

Day and Date : Friday, 24-11-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four**. **(4×5=20)**

   1) Define structured data and give different sources of structured data.

   2) What is Big data and explain different V's of big data ?

   3) Give different HDFS commands.

   4) What are the different key aspects of Hadoop ?

   5) Give difference between Hadoop 1.0 and Hadoop 2.0.

3. Answer **any two**. **(2×10=20)**

   1) What is MapReduce ? Explain how MapReduce works with an example of word count.

   2) Explain High level Architecture of Hadoop with the help of suitable diagram.

   3) What is HDFS ? Explain with the help of Block Diagram/Architecture.

SECTION – II

4. Answer **any four**. **(4×5=20)**

   1) Give difference between MongoDB and SQL.
   2) Explain different CRUD operations in Cassandra.
   3) Explain Pig Latin statements.
   4) Explain Architecture of Hive with suitable diagram.
   5) Explain different Anatomy (components) of PIG.

5. Answer **any two**. **(2×10=20)**

   1) Give different features of MongoDB and explain MapReduce programming in MongoDB with suitable example.
   2) Explain different features of Cassandra in detail.
   3) Give different key features of Pig. Explain ETL processing of Pig with suitable diagram.

_____

SLR-TJ – 285

Seat No.	

Set Q

B.E. (CSE) (Part – II) Examination, 2017
Elective – IV : BIG DATA ANALYTICS

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative : **(20×1=20)**

1) The metastore in Hive consist of _____ and _____
   a) Driver, services b) Metaservices, database
   c) Driver, database d) Metaservices, driver

2) Pig is
   a) Data Flow language b) No SQL database
   c) Import export tool d) Scheduling engine

3) Which of the following is a valid flow in Hadoop ?
   a) Input -> Reducer-> Mapper-> Combiner-> Output
   b) Input -> Mapper-> Reducer-> Combiner-> Output
   c) Input -> Mapper-> Combiner-> Reducer-> Output
   d) Input -> Reducer -> Combiner-> Mapper-> Output

4) Hive is used as
   a) Data Flow Language b) Data Warehousing Language
   c) Workflow Language d) Scheduling Language

5) MapReduce was devised by
   a) Apple b) Google c) Microsoft d) Samsung

6) What was Hadoop named after ?
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8) CCTV footage is which type of data ?
   a) Structured data
   b) Unstructured data
   c) Semi-structured data
   d) All three

9) _____ NameNode is used when the Primary NameNode goes down.
   a) Rack
   b) Data
   c) Secondary
   d) None of these

10) What is the default HDFS block size ?
   a) 32 MB
   b) 64 KB
   c) 128 KB
   d) 64 MB

11) What is the default HDFS replication factor ?
   a) 4
   b) 1
   c) 3
   d) 2

12) Which one is not one of the big data feature ?
   a) Velocity
   b) Veracity
   c) Volume
   d) Variety

13) NameNode in HDFS uses _____ to store file system name space.
   a) EditLog
   b) FsImage
   c) Data node
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14) How many blocks will be created for a file that is 300 MB ? The default block size is 64 MB and the replication factor is 3.
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18) The hadoop frame work is written in
   a) C++
   b) Python
   c) Java
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19) Apache Cassandra was born at
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   b) Facebook
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   b) List, Map, Struct
   c) List, Set, Map
   d) Set, Map, Array

_____

SLR-TJ – 285

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017

Elective – IV : BIG DATA ANALYTICS

Day and Date : Friday, 24-11-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four**. **(4×5=20)**

   1) Define structured data and give different sources of structured data.

   2) What is Big data and explain different V's of big data ?

   3) Give different HDFS commands.

   4) What are the different key aspects of Hadoop ?

   5) Give difference between Hadoop 1.0 and Hadoop 2.0.

3. Answer **any two**. **(2×10=20)**

   1) What is MapReduce ? Explain how MapReduce works with an example of word count.

   2) Explain High level Architecture of Hadoop with the help of suitable diagram.

   3) What is HDFS ? Explain with the help of Block Diagram/Architecture.

SECTION – II

4. Answer **any four**. **(4×5=20)**

   1) Give difference between MongoDB and SQL.
   2) Explain different CRUD operations in Cassandra.
   3) Explain Pig Latin statements.
   4) Explain Architecture of Hive with suitable diagram.
   5) Explain different Anatomy (components) of PIG.

5. Answer **any two**. **(2×10=20)**

   1) Give different features of MongoDB and explain MapReduce programming in MongoDB with suitable example.
   2) Explain different features of Cassandra in detail.
   3) Give different key features of Pig. Explain ETL processing of Pig with suitable diagram.

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SLR-TJ – 285

Seat No.	

Set R

B.E. (CSE) (Part – II) Examination, 2017
Elective – IV : BIG DATA ANALYTICS

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative : **(20×1=20)**

1) HDFS is based on
   a) Facebook file system b) Google file system
   c) IBM file system d) Yahoo file system

2) MongoDB is
   a) RDBMS b) Document-oriented DBMS
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3) The hadoop frame work is written in
   a) C++ b) Python c) Java d) C

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   a) Google b) Facebook c) IBM d) Yahoo

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   a) Array, List, Map b) List, Map, Struct
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6) The metastore in Hive consist of _____ and _____
   a) Driver, services b) Metaservices, database
   c) Driver, database d) Metaservices, driver

7) Pig is
   a) Data Flow language b) No SQL database
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8) Which of the following is a valid flow in Hadoop ?
   a) Input -> Reducer-> Mapper-> Combiner-> Output
   b) Input -> Mapper-> Reducer-> Combiner-> Output
   c) Input -> Mapper-> Combiner-> Reducer-> Output
   d) Input -> Reducer -> Combiner-> Mapper-> Output

9) Hive is used as
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11) What was Hadoop named after ?
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12) A _____ serves as the master and there is only one NameNode per cluster.
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13) CCTV footage is which type of data ?
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   b) Unstructured data
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   d) All three

14) _____ NameNode is used when the Primary NameNode goes down.
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15) What is the default HDFS block size ?
   a) 32 MB
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   c) 128 KB
   d) 64 MB

16) What is the default HDFS replication factor ?
   a) 4
   b) 1
   c) 3
   d) 2

17) Which one is not one of the big data feature ?
   a) Velocity
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   c) Volume
   d) Variety

18) NameNode in HDFS uses _____ to store file system name space.
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   b) FsImage
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19) How many blocks will be created for a file that is 300 MB ? The default block size is 64 MB and the replication factor is 3.
   a) 30
   b) 15
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   d) 100

20) What does job tracker do ?
   a) Stores block of data
   b) Store metadata
   c) Coordinate and schedule the job
   d) Act as mini reducer

_____

SLR-TJ – 285

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017

Elective – IV : BIG DATA ANALYTICS

Day and Date : Friday, 24-11-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four**. **(4×5=20)**

   1) Define structured data and give different sources of structured data.

   2) What is Big data and explain different V's of big data ?

   3) Give different HDFS commands.

   4) What are the different key aspects of Hadoop ?

   5) Give difference between Hadoop 1.0 and Hadoop 2.0.

3. Answer **any two**. **(2×10=20)**

   1) What is MapReduce ? Explain how MapReduce works with an example of word count.

   2) Explain High level Architecture of Hadoop with the help of suitable diagram.

   3) What is HDFS ? Explain with the help of Block Diagram/Architecture.

SECTION – II

4. Answer **any four**. **(4×5=20)**

   1) Give difference between MongoDB and SQL.
   2) Explain different CRUD operations in Cassandra.
   3) Explain Pig Latin statements.
   4) Explain Architecture of Hive with suitable diagram.
   5) Explain different Anatomy (components) of PIG.

5. Answer **any two**. **(2×10=20)**

   1) Give different features of MongoDB and explain MapReduce programming in MongoDB with suitable example.
   2) Explain different features of Cassandra in detail.
   3) Give different key features of Pig. Explain ETL processing of Pig with suitable diagram.

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SLR-TJ – 285

Seat No.	

Set S

B.E. (CSE) (Part – II) Examination, 2017
Elective – IV : BIG DATA ANALYTICS

Day and Date : Friday, 24-11-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct alternative : **(20×1=20)**

1) What is the default HDFS replication factor ?
a) 4 b) 1 c) 3 d) 2

2) Which one is not one of the big data feature ?
a) Velocity b) Veracity c) Volume d) Variety

3) NameNode in HDFS uses _____ to store file system name space.
a) EditLog b) FsImage c) Data node d) Map reduce

4) How many blocks will be created for a file that is 300 MB ? The default block size is 64 MB and the replication factor is 3.
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a) Facebook file system b) Google file system
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a) C++ b) Python c) Java d) C

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   a) Array, List, Map
   b) List, Map, Struct
   c) List, Set, Map
   d) Set, Map, Array

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   a) Driver, services
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12) Pig is
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   a) Structured data
   b) Unstructured data
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   d) All three

19) _____ NameNode is used when the Primary NameNode goes down.
   a) Rack
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   c) Secondary
   d) None of these

20) What is the default HDFS block size ?
   a) 32 MB
   b) 64 KB
   c) 128 KB
   d) 64 MB

_____

SLR-TJ – 285

Seat No.	

B.E. (CSE) (Part – II) Examination, 2017

Elective – IV : BIG DATA ANALYTICS

Day and Date : Friday, 24-11-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Answer **any four**. **(4×5=20)**

   1) Define structured data and give different sources of structured data.

   2) What is Big data and explain different V's of big data ?

   3) Give different HDFS commands.

   4) What are the different key aspects of Hadoop ?

   5) Give difference between Hadoop 1.0 and Hadoop 2.0.

3. Answer **any two**. **(2×10=20)**

   1) What is MapReduce ? Explain how MapReduce works with an example of word count.

   2) Explain High level Architecture of Hadoop with the help of suitable diagram.

   3) What is HDFS ? Explain with the help of Block Diagram/Architecture.

SECTION – II

4. Answer **any four**. **(4×5=20)**

   1) Give difference between MongoDB and SQL.
   2) Explain different CRUD operations in Cassandra.
   3) Explain Pig Latin statements.
   4) Explain Architecture of Hive with suitable diagram.
   5) Explain different Anatomy (components) of PIG.

5. Answer **any two**. **(2×10=20)**

   1) Give different features of MongoDB and explain MapReduce programming in MongoDB with suitable example.
   2) Explain different features of Cassandra in detail.
   3) Give different key features of Pig. Explain ETL processing of Pig with suitable diagram.

_____

SLR-TJ – 286

Seat No.	

Set P

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE COMPUTING

Day and Date : Wednesday, 13-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) _____ is the basic scheme/schemes of analog modulation.
   a) Amplitude modulation b) Frequency modulation
   c) Phase modulation d) All of the options

2) Radio waves can exhibit _____ fundamental propagation behavior depending on their frequency.
   a) Ground wave b) Sky wave c) Line of sight d) All of the options

3) A $\lambda/2$ dipole has a _____ radiation pattern in one plane.
   a) Omni-directional b) Uniform
   c) Omni-directional or uniform d) None of the options

4) _____ frequencies are used for directed microwave links and fixed satellite services.
   a) Super High Frequencies b) Extremely High Frequency
   c) Infrared d) Medium Frequency

5) Waves in the _____ range are used by submarines, because they can penetrate water and can follow the earth's surface.
   a) Low frequency b) High frequency
   c) Very high frequency d) Infrared

6) Demand assigned multiple access (DAMA) is also called
   a) Reservation aloha b) Explicit reservation scheme
   c) Both a) and b) d) None of the options

7) The idea of FDMA is
   a) Spread the spectrum using orthogonal codes
   b) Segments frequency band into disjoint sub bands
   c) Segments space into cells/sectors
   d) All of the options

P.T.O.

8) Which of the following statement is true for CDMA ?
   a) All terminals can be active at the same place at the same moment, uninterrupted
   b) Every terminals has its own frequency, uninterrupted
   c) All terminals are active for shorts periods of time on the same frequency
   d) Only one terminal can be active in one cell/one sector

9) Using _____ services, GSM specifies several bearer services for interworking with PSTN, ISDN and packet switched public data networks.
   a) Transparent b) Non transparent
   c) Both a) and b) d) None of the options

10) Handover management is done by
   a) BSC b) BTS c) MSC d) GMSC

11) _____ technology uses diffuse light reflected at walls, furniture, etc.
   a) Infrared b) Radio transmission
   c) Infrastructure d) Ad hoc network

12) In which network, each node can communicate directly with other nodes ?
   a) Infra red network b) Ad-hoc network
   c) LAN d) WAN

13) Ad-hoc network might only have _____ nodes with the capabilities of forwarding data.
   a) All b) Selected c) One d) One-ten

14) The _____ specifies the most famous families of WLAN, in which many products are available.
   a) IEEE 802.11 b) IEEE 803.11 c) 804.11 d) 805.11

15) In IEEE standard, several nodes called stations that are connected to _____
   a) Distribution system b) Access nodes
   c) Portal d) Another station

16) _____ is a collection of Bluetooth devices which are synchronized to the same hopping sequence.
   a) Master b) Piconet c) Slave d) Peripheral devices

17) All users within one piconet have the same hopping sequence and share the same _____ channel.
   a) 1 MHz b) 8 MHz c) 80 MHz d) 7 MHz

18) In mobile IP, the problem of changing the IP address while still having a TCP connection open means connection will _____
   a) Sleep b) Breaks
   c) Still connected d) Disconnected the network

19) A _____ is an end-system router that can change its point of attachment to the internet using mobile IP.
   a) Mobile node b) Correspondent node
   c) Foreign node d) Home node

20) The _____ is the subnet the MN belongs to with respect to its RP address.
   a) Home network b) Foreign network
   c) Foreign agent d) Idone agent

_____

SLR-TJ – 286

Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017

MOBILE COMPUTING

Day and Date : Wednesday, 13-12-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any 4** : **(4×5=20)**

   a) Define the following services :

   Follow on services, Location aware services and Information services.

   b) Explain any two applications of wireless communication.

   c) What is antenna ? Draw and explain the radiation pattern of an isotropic radiator and simple dipole.

   d) Define the following terms :

   Duplex channel, frequency division duplex, Uplink, Downlink and Time division duplex.

   e) What are the functions of BTS and BSC ?

3. With neat diagram explain the following terms :

   Minimum Shift Keying (MSK), BPSK and QPSK in the phase domain, QPSK in time domain and 16 quadrature amplitude modulation and hierarchical 64 QAM. **10**

   OR

   Compare the SDMA, TDMA, FDMA, CDMA mechanisms.

4. What is handover ? Explain four possible handover scenarios in GSM with diagram. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
   1) Explain advantage and disadvantage of WLAN.
   2) Write short note on Bluetooth.
   3) Explain IEEE 802.11 protocol architecture.
   4) Explain short note on DHCP.
   5) Discuss indirect TCP.

6. Explain transaction oriented TCP. **10**

   OR

   What is wireless LAN ? Discuss infrared Vs radio transmission.

7. Explain Bluetooth piconet and Bluetooth scatternet in details. **10**

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SLR-TJ – 286

Seat No.	

Set Q

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE COMPUTING

Day and Date : Wednesday, 13-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) _____ is a collection of Bluetooth devices which are synchronized to the same hopping sequence.
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a) Home network b) Foreign network
c) Foreign agent d) Idone agent

6) _____ is the basic scheme/schemes of analog modulation.
a) Amplitude modulation b) Frequency modulation
c) Phase modulation d) All of the options

7) Radio waves can exhibit _____ fundamental propagation behavior depending on their frequency.
a) Ground wave b) Sky wave c) Line of sight d) All of the options

8) A $\lambda/2$ dipole has a _____ radiation pattern in one plane.
a) Omni-directional b) Uniform
c) Omni-directional or uniform d) None of the options

P.T.O.

9) _____ frequencies are used for directed microwave links and fixed satellite services.
   a) Super High Frequencies
   b) Extremely High Frequency
   c) Infrared
   d) Medium Frequency

10) Waves in the _____ range are used by submarines, because they can penetrate water and can follow the earth's surface.
   a) Low frequency
   b) High frequency
   c) Very high frequency
   d) Infrared

11) Demand assigned multiple access (DAMA) is also called
   a) Reservation aloha
   b) Explicit reservation scheme
   c) Both a) and b)
   d) None of the options

12) The idea of FDMA is
   a) Spread the spectrum using orthogonal codes
   b) Segments frequency band into disjoint sub bands
   c) Segments space into cells/sectors
   d) All of the options

13) Which of the following statement is true for CDMA ?
   a) All terminals can be active at the same place at the same moment, uninterrupted
   b) Every terminals has its own frequency, uninterrupted
   c) All terminals are active for shorts periods of time on the same frequency
   d) Only one terminal can be active in one cell/one sector

14) Using _____ services, GSM specifies several bearer services for interworking with PSTN, ISDN and packet switched public data networks.
   a) Transparent
   b) Non transparent
   c) Both a) and b)
   d) None of the options

15) Handover management is done by
   a) BSC
   b) BTS
   c) MSC
   d) GMSC

16) _____ technology uses diffuse light reflected at walls, furniture, etc.
   a) Infrared
   b) Radio transmission
   c) Infrastructure
   d) Ad hoc network

17) In which network, each node can communicate directly with other nodes ?
   a) Infra red network
   b) Ad-hoc network
   c) LAN
   d) WAN

18) Ad-hoc network might only have _____ nodes with the capabilities of forwarding data.
   a) All
   b) Selected
   c) One
   d) One-ten

19) The _____ specifies the most famous families of WLAN, in which many products are available.
   a) IEEE 802.11
   b) IEEE 803.11
   c) 804.11
   d) 805.11

20) In IEEE standard, several nodes called stations that are connected to _____
   a) Distribution system
   b) Access nodes
   c) Portal
   d) Another station

_____

SLR-TJ – 286

Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017

MOBILE COMPUTING

Day and Date : Wednesday, 13-12-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any 4** : **(4×5=20)**

   a) Define the following services :

   Follow on services, Location aware services and Information services.

   b) Explain any two applications of wireless communication.

   c) What is antenna ? Draw and explain the radiation pattern of an isotropic radiator and simple dipole.

   d) Define the following terms :

   Duplex channel, frequency division duplex, Uplink, Downlink and Time division duplex.

   e) What are the functions of BTS and BSC ?

3. With neat diagram explain the following terms :

   Minimum Shift Keying (MSK), BPSK and QPSK in the phase domain, QPSK in time domain and 16 quadrature amplitude modulation and hierarchical 64 QAM. **10**

   OR

   Compare the SDMA, TDMA, FDMA, CDMA mechanisms.

4. What is handover ? Explain four possible handover scenarios in GSM with diagram. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
   1) Explain advantage and disadvantage of WLAN.
   2) Write short note on Bluetooth.
   3) Explain IEEE 802.11 protocol architecture.
   4) Explain short note on DHCP.
   5) Discuss indirect TCP.

6. Explain transaction oriented TCP. **10**

   OR

   What is wireless LAN ? Discuss infrared Vs radio transmission.

7. Explain Bluetooth piconet and Bluetooth scatternet in details. **10**

_____

SLR-TJ – 286

Seat No.	

Set R

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE COMPUTING

Day and Date : Wednesday, 13-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) _____ technology uses diffuse light reflected at walls, furniture, etc.
a) Infrared b) Radio transmission
c) Infrastructure d) Ad hoc network

2) In which network, each node can communicate directly with other nodes ?
a) Infra red network b) Ad-hoc network
c) LAN d) WAN

3) Ad-hoc network might only have _____ nodes with the capabilities of forwarding data.
a) All b) Selected c) One d) One-ten

4) The _____ specifies the most famous families of WLAN, in which many products are available.
a) IEEE 802.11 b) IEEE 803.11 c) 804.11 d) 805.11

5) In IEEE standard, several nodes called stations that are connected to _____
a) Distribution system b) Access nodes
c) Portal d) Another station

6) _____ is a collection of Bluetooth devices which are synchronized to the same hopping sequence.
a) Master b) Piconet c) Slave d) Peripheral devices

7) All users within one piconet have the same hopping sequence and share the same _____ channel.
a) 1 MHz b) 8 MHz c) 80 MHz d) 7 MHz

8) In mobile IP, the problem of changing the IP address while still having a TCP connection open means connection will _____
a) Sleep b) Breaks
c) Still connected d) Disconnected the network

P.T.O.

9) A _____ is an end-system router that can change its point of attachment to the internet using mobile IP.
   a) Mobile node b) Correspondent node
   c) Foreign node d) Home node

10) The _____ is the subnet the MN belongs to with respect to its RP address.
   a) Home network b) Foreign network
   c) Foreign agent d) Idone agent

11) _____ is the basic scheme/schemes of analog modulation.
   a) Amplitude modulation b) Frequency modulation
   c) Phase modulation d) All of the options

12) Radio waves can exhibit _____ fundamental propagation behavior depending on their frequency.
   a) Ground wave b) Sky wave c) Line of sight d) All of the options

13) A $\lambda/2$ dipole has a _____ radiation pattern in one plane.
   a) Omni-directional b) Uniform
   c) Omni-directional or uniform d) None of the options

14) _____ frequencies are used for directed microwave links and fixed satellite services.
   a) Super High Frequencies b) Extremely High Frequency
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15) Waves in the _____ range are used by submarines, because they can penetrate water and can follow the earth's surface.
   a) Low frequency b) High frequency
   c) Very high frequency d) Infrared

16) Demand assigned multiple access (DAMA) is also called
   a) Reservation aloha b) Explicit reservation scheme
   c) Both a) and b) d) None of the options

17) The idea of FDMA is
   a) Spread the spectrum using orthogonal codes
   b) Segments frequency band into disjoint sub bands
   c) Segments space into cells/sectors
   d) All of the options

18) Which of the following statement is true for CDMA ?
   a) All terminals can be active at the same place at the same moment, uninterrupted
   b) Every terminals has its own frequency, uninterrupted
   c) All terminals are active for shorts periods of time on the same frequency
   d) Only one terminal can be active in one cell/one sector

19) Using _____ services, GSM specifies several bearer services for interworking with PSTN, ISDN and packet switched public data networks.
   a) Transparent b) Non transparent
   c) Both a) and b) d) None of the options

20) Handover management is done by
   a) BSC b) BTS c) MSC d) GMSC

_____

SLR-TJ – 286

Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017

MOBILE COMPUTING

Day and Date : Wednesday, 13-12-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any 4** : **(4×5=20)**

   a) Define the following services :

   Follow on services, Location aware services and Information services.

   b) Explain any two applications of wireless communication.

   c) What is antenna ? Draw and explain the radiation pattern of an isotropic radiator and simple dipole.

   d) Define the following terms :

   Duplex channel, frequency division duplex, Uplink, Downlink and Time division duplex.

   e) What are the functions of BTS and BSC ?

3. With neat diagram explain the following terms :

   Minimum Shift Keying (MSK), BPSK and QPSK in the phase domain, QPSK in time domain and 16 quadrature amplitude modulation and hierarchical 64 QAM. **10**

   OR

   Compare the SDMA, TDMA, FDMA, CDMA mechanisms.

4. What is handover ? Explain four possible handover scenarios in GSM with diagram. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
   1) Explain advantage and disadvantage of WLAN.
   2) Write short note on Bluetooth.
   3) Explain IEEE 802.11 protocol architecture.
   4) Explain short note on DHCP.
   5) Discuss indirect TCP.

6. Explain transaction oriented TCP. **10**

   OR

   What is wireless LAN ? Discuss infrared Vs radio transmission.

7. Explain Bluetooth piconet and Bluetooth scatternet in details. **10**

_____

SLR-TJ – 286

Seat No.	

Set S

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE COMPUTING

Day and Date : Wednesday, 13-12-2017 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) Demand assigned multiple access (DAMA) is also called
   a) Reservation aloha b) Explicit reservation scheme
   c) Both a) and b) d) None of the options

2) The idea of FDMA is
   a) Spread the spectrum using orthogonal codes
   b) Segments frequency band into disjoint sub bands
   c) Segments space into cells/sectors
   d) All of the options

3) Which of the following statement is true for CDMA ?
   a) All terminals can be active at the same place at the same moment, uninterrupted
   b) Every terminals has its own frequency, uninterrupted
   c) All terminals are active for shorts periods of time on the same frequency
   d) Only one terminal can be active in one cell/one sector

4) Using _____ services, GSM specifies several bearer services for interworking with PSTN, ISDN and packet switched public data networks.
   a) Transparent b) Non transparent
   c) Both a) and b) d) None of the options

5) Handover management is done by
   a) BSC b) BTS c) MSC d) GMSC

6) _____ technology uses diffuse light reflected at walls, furniture, etc.
   a) Infrared b) Radio transmission
   c) Infrastructure d) Ad hoc network

7) In which network, each node can communicate directly with other nodes ?
   a) Infra red network b) Ad-hoc network
   c) LAN d) WAN

P.T.O.

8) Ad-hoc network might only have _____ nodes with the capabilities of forwarding data.
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9) The _____ specifies the most famous families of WLAN, in which many products are available.
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10) In IEEE standard, several nodes called stations that are connected to _____
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11) _____ is a collection of Bluetooth devices which are synchronized to the same hopping sequence.
a) Master b) Piconet c) Slave d) Peripheral devices

12) All users within one piconet have the same hopping sequence and share the same _____ channel.
a) 1 MHz b) 8 MHz c) 80 MHz d) 7 MHz

13) In mobile IP, the problem of changing the IP address while still having a TCP connection open means connection will _____
a) Sleep b) Breaks
c) Still connected d) Disconnected the network

14) A _____ is an end-system router that can change its point of attachment to the internet using mobile IP.
a) Mobile node b) Correspondent node
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15) The _____ is the subnet the MN belongs to with respect to its RP address.
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c) Foreign agent d) Idone agent

16) _____ is the basic scheme/schemes of analog modulation.
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17) Radio waves can exhibit _____ fundamental propagation behavior depending on their frequency.
a) Ground wave b) Sky wave c) Line of sight d) All of the options

18) A $\lambda/2$ dipole has a _____ radiation pattern in one plane.
a) Omni-directional b) Uniform
c) Omni-directional or uniform d) None of the options

19) _____ frequencies are used for directed microwave links and fixed satellite services.
a) Super High Frequencies b) Extremely High Frequency
c) Infrared d) Medium Frequency

20) Waves in the _____ range are used by submarines, because they can penetrate water and can follow the earth's surface.
a) Low frequency b) High frequency
c) Very high frequency d) Infrared

_____

SLR-TJ – 286

Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017

MOBILE COMPUTING

Day and Date : Wednesday, 13-12-2017 Marks : 80

Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any 4** : **(4×5=20)**

   a) Define the following services :

   Follow on services, Location aware services and Information services.

   b) Explain any two applications of wireless communication.

   c) What is antenna ? Draw and explain the radiation pattern of an isotropic radiator and simple dipole.

   d) Define the following terms :

   Duplex channel, frequency division duplex, Uplink, Downlink and Time division duplex.

   e) What are the functions of BTS and BSC ?

3. With neat diagram explain the following terms :

   Minimum Shift Keying (MSK), BPSK and QPSK in the phase domain, QPSK in time domain and 16 quadrature amplitude modulation and hierarchical 64 QAM. **10**

   OR

   Compare the SDMA, TDMA, FDMA, CDMA mechanisms.

4. What is handover ? Explain four possible handover scenarios in GSM with diagram. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**
   1) Explain advantage and disadvantage of WLAN.
   2) Write short note on Bluetooth.
   3) Explain IEEE 802.11 protocol architecture.
   4) Explain short note on DHCP.
   5) Discuss indirect TCP.

6. Explain transaction oriented TCP. **10**

   OR

   What is wireless LAN ? Discuss infrared Vs radio transmission.

7. Explain Bluetooth piconet and Bluetooth scatternet in details. **10**

_____

SLR-TJ – 287

Seat No.	

Set P

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA MINING (Elective – II) (Old)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) "Find nearest fire station to Bombay Stock Exchange" is a _____ type of query.
   a) Temporal b) Spatial c) Transactional d) None of these

2) _____ is an approach to handle missing data.
   a) Assume a value for missing data b) Fill missing value manually
   c) Ignore the missing value d) All the above

3) _____ is a spatial database primitive.
   a) Time b) Direction c) Transaction item d) None

4) A data structure called _____ is used to represent process of hierarchical clustering.
   a) B-tree b) Dendrogram c) MST d) B+ tree

5) _____ is an approach to index spatial data represented as MBRs.
   a) Quad Tree b) B-Tree c) R-Tree d) None of these

6) The "IF" – part of a rule is known as
   a) Rule Antecedent b) Rule Consequent
   c) Action d) None of these

7) In data mining the query is well formed and precisely stated
   a) True b) False

8) Trend Analysis is done on _____ type of data.
   a) Transactional b) Spatial c) Timeseries d) None

9) _____ algorithm is called as lazy learner algorithm.
   a) KNN b) FP tree
   c) Bayesian classification d) K-means

P.T.O.

10) _____ technique is designed to increase the effectiveness of search engines and improve their efficiency.
a) PageRank b) Harvest c) Clever d) None of these

11) _____ means itemsets whose number of occurrences are above a threshold S.
a) Confidence b) Support
c) Large itemset d) None of the above

12) Apriori algorithm uses _____ property.
a) Support b) Large itemset c) Confidence d) All of the above

13) _____ are important issues in classification by decision tree method.
a) Choosing splitting attribute b) Pruning
c) Ordering of splitting attributes d) All of the above

14) In classification by decision tree method, each leaf node holds a
a) Splitting condition b) Splitting attribute
c) Class label d) None of the above

15) The _____ system is based on the use of caching, indexing and crawling.
a) Clever b) Harvest
c) PageRank d) None of the above

16) K-means clustering is a _____ clustering method.
a) Partitioning b) Hierarchical c) Density Based d) Grid Based

17) _____ is a supervised learning.
a) Classification b) Clustering c) Transformation d) Reduction

18) Bond energy algorithm is a
a) Sampling clustering b) Partitional clustering
c) Hierarchical clustering d) None of these

19) Full form of BIRCH is
a) Balanced Itemset Reducing and Clustering using Hierarchies
b) Balanced Iterative Reducing and Clustering using Hierarchies
c) Balanced Iterative Redundancy and Clustering using Hierarchies
d) Balanced Itemset Redundancy and Clustering using Hierarchies

20) Full form of SPADEC is
a) Series Program Discovery using Equivalent Classification
b) Sequence Pattern Discovery using Event Classification
c) Sequential Pattern Discovery using Equivalent Classes
d) Sequential Pattern Discovery using Event Classification

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA MINING (Elective – II) (Old)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instruction : ***All*** *questions are* ***compulsory****.*

SECTION – I

2. Solve **any four** : **(4×5=20)**

   a) Explain KDD process in detail.

   b) Explain in detail classification by decision tree induction method.

   c) Explain bond energy algorithm.

   d) Write a note on BIRCH algorithm.

   e) Write KNN algorithm for classification.

3. Why there is a need of data preprocessing ? Explain data preprocessing in detail. **10**

OR

Using the following transaction data set, explain the association rule problem and generate the association rule considering support = 30% and confidence = 50%. **10**

Transaction	Items
t_1	Bread, Jelly, Peanut Butter
t_2	Bread, Peanut Butter
t_3	Bread, Milk, Peanut Butter
t_4	Beer, Bread
t_5	Beer, Milk

4. Explain K-means clustering algorithm with example. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**

   a) Write in detail note on time-series data mining.

   b) Write a note on Apriori algorithm.

   c) Write a note on Crawlers.

   d) Explain spatial data structure, MBR.

   e) Write a note on spatial query language.

6. Explain with example, generating large itemsets using partitioning method. **10**

   OR

   Explain web structure mining, using PageRank and Clever.

7. Write short notes on : **10**

   a) R-Tree and k-D Tree.

   b) Spatial data mining primitives.

SLR-TJ – 287

Seat No.	

Set Q

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA MINING (Elective – II) (Old)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) K-means clustering is a _____ clustering method.
   a) Partitioning b) Hierarchical c) Density Based d) Grid Based

2) _____ is a supervised learning.
   a) Classification b) Clustering c) Transformation d) Reduction

3) Bond energy algorithm is a
   a) Sampling clustering b) Partitional clustering
   c) Hierarchical clustering d) None of these

4) Full form of BIRCH is
   a) Balanced Itemset Reducing and Clustering using Hierarchies
   b) Balanced Iterative Reducing and Clustering using Hierarchies
   c) Balanced Iterative Redundancy and Clustering using Hierarchies
   d) Balanced Itemset Redundancy and Clustering using Hierarchies

5) Full form of SPADEC is
   a) Series Program Discovery using Equivalent Classification
   b) Sequence Pattern Discovery using Event Classification
   c) Sequential Pattern Discovery using Equivalent Classes
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6) "Find nearest fire station to Bombay Stock Exchange" is a _____ type of query.
   a) Temporal b) Spatial c) Transactional d) None of these

7) _____ is an approach to handle missing data.
   a) Assume a value for missing data b) Fill missing value manually
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P.T.O.

8) _____ is a spatial database primitive.
a) Time b) Direction c) Transaction item d) None

9) A data structure called _____ is used to represent process of hierarchical clustering.
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c) Action d) None of these

12) In data mining the query is well formed and precisely stated
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13) Trend Analysis is done on _____ type of data.
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14) _____ algorithm is called as lazy learner algorithm.
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c) Bayesian classification d) K-means

15) _____ technique is designed to increase the effectiveness of search engines and improve their efficiency.
a) PageRank b) Harvest c) Clever d) None of these

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17) Apriori algorithm uses _____ property.
a) Support b) Large itemset c) Confidence d) All of the above

18) _____ are important issues in classification by decision tree method.
a) Choosing splitting attribute b) Pruning
c) Ordering of splitting attributes d) All of the above

19) In classification by decision tree method, each leaf node holds a
a) Splitting condition b) Splitting attribute
c) Class label d) None of the above

20) The _____ system is based on the use of caching, indexing and crawling.
a) Clever b) Harvest
c) PageRank d) None of the above

SLR-TJ – 287

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA MINING (Elective – II) (Old)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instruction : ***All*** *questions are* ***compulsory****.*

SECTION – I

2. Solve **any four** : **(4×5=20)**

   a) Explain KDD process in detail.

   b) Explain in detail classification by decision tree induction method.

   c) Explain bond energy algorithm.

   d) Write a note on BIRCH algorithm.

   e) Write KNN algorithm for classification.

3. Why there is a need of data preprocessing ? Explain data preprocessing in detail. **10**

OR

Using the following transaction data set, explain the association rule problem and generate the association rule considering support = 30% and confidence = 50%. **10**

Transaction	Items
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t_3	Bread, Milk, Peanut Butter
t_4	Beer, Bread
t_5	Beer, Milk

4. Explain K-means clustering algorithm with example. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**

   a) Write in detail note on time-series data mining.

   b) Write a note on Apriori algorithm.

   c) Write a note on Crawlers.

   d) Explain spatial data structure, MBR.

   e) Write a note on spatial query language.

6. Explain with example, generating large itemsets using partitioning method. **10**

   OR

   Explain web structure mining, using PageRank and Clever.

7. Write short notes on : **10**

   a) R-Tree and k-D Tree.

   b) Spatial data mining primitives.

SLR-TJ – 287

Seat No.	

Set R

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA MINING (Elective – II) (Old)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) _____ means itemsets whose number of occurrences are above a threshold S.
   a) Confidence b) Support
   c) Large itemset d) None of the above

2) Apriori algorithm uses _____ property.
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3) _____ are important issues in classification by decision tree method.
   a) Choosing splitting attribute b) Pruning
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7) _____ is a supervised learning.
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8) Bond energy algorithm is a
   a) Sampling clustering b) Partitional clustering
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P.T.O.

9) Full form of BIRCH is
   a) Balanced Itemset Reducing and Clustering using Hierarchies
   b) Balanced Iterative Reducing and Clustering using Hierarchies
   c) Balanced Iterative Redundancy and Clustering using Hierarchies
   d) Balanced Itemset Redundancy and Clustering using Hierarchies

10) Full form of SPADEC is
   a) Series Program Discovery using Equivalent Classification
   b) Sequence Pattern Discovery using Event Classification
   c) Sequential Pattern Discovery using Equivalent Classes
   d) Sequential Pattern Discovery using Event Classification

11) "Find nearest fire station to Bombay Stock Exchange" is a _____ type of query.
   a) Temporal b) Spatial c) Transactional d) None of these

12) _____ is an approach to handle missing data.
   a) Assume a value for missing data b) Fill missing value manually
   c) Ignore the missing value d) All the above

13) _____ is a spatial database primitive.
   a) Time b) Direction c) Transaction item d) None

14) A data structure called _____ is used to represent process of hierarchical clustering.
   a) B-tree b) Dendrogram c) MST d) B+ tree

15) _____ is an approach to index spatial data represented as MBRs.
   a) Quad Tree b) B-Tree c) R-Tree d) None of these

16) The "IF" – part of a rule is known as
   a) Rule Antecedent b) Rule Consequent
   c) Action d) None of these

17) In data mining the query is well formed and precisely stated
   a) True b) False

18) Trend Analysis is done on _____ type of data.
   a) Transactional b) Spatial c) Timeseries d) None

19) _____ algorithm is called as lazy learner algorithm.
   a) KNN b) FP tree
   c) Bayesian classification d) K-means

20) _____ technique is designed to increase the effectiveness of search engines and improve their efficiency.
   a) PageRank b) Harvest c) Clever d) None of these

_____

SLR-TJ – 287

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA MINING (Elective – II) (Old)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instruction : ***All*** *questions are* ***compulsory****.*

SECTION – I

2. Solve **any four** : **(4×5=20)**

   a) Explain KDD process in detail.

   b) Explain in detail classification by decision tree induction method.

   c) Explain bond energy algorithm.

   d) Write a note on BIRCH algorithm.

   e) Write KNN algorithm for classification.

3. Why there is a need of data preprocessing ? Explain data preprocessing in detail. **10**

OR

Using the following transaction data set, explain the association rule problem and generate the association rule considering support = 30% and confidence = 50%. **10**

Transaction	Items
t_1	Bread, Jelly, Peanut Butter
t_2	Bread, Peanut Butter
t_3	Bread, Milk, Peanut Butter
t_4	Beer, Bread
t_5	Beer, Milk

4. Explain K-means clustering algorithm with example. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**

   a) Write in detail note on time-series data mining.

   b) Write a note on Apriori algorithm.

   c) Write a note on Crawlers.

   d) Explain spatial data structure, MBR.

   e) Write a note on spatial query language.

6. Explain with example, generating large itemsets using partitioning method. **10**

   OR

   Explain web structure mining, using PageRank and Clever.

7. Write short notes on : **10**

   a) R-Tree and k-D Tree.

   b) Spatial data mining primitives.

SLR-TJ – 287

Seat No.	

Set S

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA MINING (Elective – II) (Old)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **(1×20=20)**

1) The "IF" – part of a rule is known as
   a) Rule Antecedent b) Rule Consequent
   c) Action d) None of these

2) In data mining the query is well formed and precisely stated
   a) True b) False

3) Trend Analysis is done on _____ type of data.
   a) Transactional b) Spatial c) Timeseries d) None

4) _____ algorithm is called as lazy learner algorithm.
   a) KNN b) FP tree
   c) Bayesian classification d) K-means

5) _____ technique is designed to increase the effectiveness of search engines and improve their efficiency.
   a) PageRank b) Harvest c) Clever d) None of these

6) _____ means itemsets whose number of occurrences are above a threshold S.
   a) Confidence b) Support
   c) Large itemset d) None of the above

7) Apriori algorithm uses _____ property.
   a) Support b) Large itemset c) Confidence d) All of the above

8) _____ are important issues in classification by decision tree method.
   a) Choosing splitting attribute b) Pruning
   c) Ordering of splitting attributes d) All of the above

P.T.O.

9) In classification by decision tree method, each leaf node holds a
   a) Splitting condition
   b) Splitting attribute
   c) Class label
   d) None of the above

10) The _____ system is based on the use of caching, indexing and crawling.
   a) Clever
   b) Harvest
   c) PageRank
   d) None of the above

11) K-means clustering is a _____ clustering method.
   a) Partitioning
   b) Hierarchical
   c) Density Based
   d) Grid Based

12) _____ is a supervised learning.
   a) Classification
   b) Clustering
   c) Transformation
   d) Reduction

13) Bond energy algorithm is a
   a) Sampling clustering
   b) Partitional clustering
   c) Hierarchical clustering
   d) None of these

14) Full form of BIRCH is
   a) Balanced Itemset Reducing and Clustering using Hierarchies
   b) Balanced Iterative Reducing and Clustering using Hierarchies
   c) Balanced Iterative Redundancy and Clustering using Hierarchies
   d) Balanced Itemset Redundancy and Clustering using Hierarchies

15) Full form of SPADEC is
   a) Series Program Discovery using Equivalent Classification
   b) Sequence Pattern Discovery using Event Classification
   c) Sequential Pattern Discovery using Equivalent Classes
   d) Sequential Pattern Discovery using Event Classification

16) “Find nearest fire station to Bombay Stock Exchange” is a _____ type of query.
   a) Temporal
   b) Spatial
   c) Transactional
   d) None of these

17) _____ is an approach to handle missing data.
   a) Assume a value for missing data
   b) Fill missing value manually
   c) Ignore the missing value
   d) All the above

18) _____ is a spatial database primitive.
   a) Time
   b) Direction
   c) Transaction item
   d) None

19) A data structure called _____ is used to represent process of hierarchical clustering.
   a) B-tree
   b) Dendrogram
   c) MST
   d) B+ tree

20) _____ is an approach to index spatial data represented as MBRs.
   a) Quad Tree
   b) B-Tree
   c) R-Tree
   d) None of these

SLR-TJ – 287

Seat No.	

B.E. (Computer Science and Engg.) (Part – II) Examination, 2017
DATA MINING (Elective – II) (Old)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

Instruction : ***All*** *questions are* ***compulsory****.*

SECTION – I

2. Solve **any four** : **(4×5=20)**

   a) Explain KDD process in detail.

   b) Explain in detail classification by decision tree induction method.

   c) Explain bond energy algorithm.

   d) Write a note on BIRCH algorithm.

   e) Write KNN algorithm for classification.

3. Why there is a need of data preprocessing ? Explain data preprocessing in detail. **10**

OR

Using the following transaction data set, explain the association rule problem and generate the association rule considering support = 30% and confidence = 50%. **10**

Transaction	Items
t_1	Bread, Jelly, Peanut Butter
t_2	Bread, Peanut Butter
t_3	Bread, Milk, Peanut Butter
t_4	Beer, Bread
t_5	Beer, Milk

4. Explain K-means clustering algorithm with example. **10**

SECTION – II

5. Solve **any four** : **(4×5=20)**

   a) Write in detail note on time-series data mining.

   b) Write a note on Apriori algorithm.

   c) Write a note on Crawlers.

   d) Explain spatial data structure, MBR.

   e) Write a note on spatial query language.

6. Explain with example, generating large itemsets using partitioning method. **10**

   OR

   Explain web structure mining, using PageRank and Clever.

7. Write short notes on : **10**

   a) R-Tree and k-D Tree.

   b) Spatial data mining primitives.

SLR-TJ – 288

Seat No.	

Set **P**

B.E. (CSE) (Part – II) (Old) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (STQA)
(Elective – II)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) Following is one of the view of software quality.
a) Product view b) Sales view c) Consumer view d) Process view

2) SQC means
a) Software Quality Control b) Statistical Quality Control
c) Structural Quality Control d) None of these

3) _____ testing is called as functional testing technique.
a) White box b) Regression c) Black box d) System

4) Shewhart cycle is also called as _____ cycle.
a) Edward cycle b) Software life cycle
c) Juse cycle d) PDCA

5) _____ are a special type of failures where the system ceases to function.
a) Crashes b) Bugs c) Anomalies d) Errors

6) _____ are collection of software related activities.
a) Products b) Processes c) Resources d) None of these

7) _____ system are used to assess an existing entity by numerically characterizing one or more of its attributes.
a) Software b) Prediction c) Measurement d) External

8) _____ is the degree of interdependence between the modules.
a) Cohesion b) Interface c) Binding d) Coupling

9) _____ measures can be defined hierarchically in terms of values for the primes and values associated with various operations.
a) Data structure b) Data field c) Variable d) Constant

10) _____ is a physical size of software product.
a) Functionality b) Length c) Complexity d) Reuse

11) In the _____ approach system integration testing begins with the integration of lowest level modules.
a) top-up b) sequential c) bottom-up d) middle-up

12) In _____ unit testing, code is reviewed by applying techniques commonly known as inspection and walkthroughs.
a) random b) dynamic c) linear d) statistical

13) Test incident report is used to log a _____.
a) bug b) problems c) linear d) requirements

14) _____ bug input indicates how bad the bug is; the likelihood and the degree of impact when the user encounters the bug.
a) Priority b) Severity c) Normal d) Casual

15) Failure intensity is a measure of the _____ of a software system operating in a given environment.
a) flexibility b) mobility c) reliability d) portability

16) The operational profiles are represented in _____ form.
a) circular b) square c) matrix d) tabular

17) _____ test group has the responsibility to develop test automation infrastructure, test libraries and test tools.
a) Automation b) Scalability c) Performance d) Development

18) _____ is one of the phase of effective recruiting process.
a) Job searching b) Decision making
c) Job advertising d) Job performance

19) The _____ view represents a merger of two independent concepts : excellence and worth.
a) User b) Product c) Value-based d) Manufacturing

20) A _____ is an attribute of a quality factor that is related to software development.
a) Quality factor b) Quality assurance
c) Quality d) Quality criterion

_____

SLR-TJ – 288

Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (STQA)
(Elective – II)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** (**each** carries **5** marks): **20**

   1) What are the different objectives of testing ?

   2) Explain in briefly about white box testing and black box testing.

   3) Describe box plot and scatter plot simple analysis technique in software.

   4) Explain about software measurement validation.

   5) Describe about software size, length, reuse in software engineering measurement.

   6) How data structures used in software engineering measurement ?

3. Define software quality. Also explain software quality revolution in detail. **10**

   OR

   Explain in detail about coupling and cohesion concepts used in modularity of software engineering measurement. **10**

4. Write note on (**any two**) : **10**

   a) Central issues in testing.

   b) Measurement in software engineering.

   c) Object oriented metrics in software engineering measurement.

SECTION – II

5. Attempt **any four** (**each** carries **5** marks): **20**

   1) What is unit testing ? Give an example.
   2) Explain in detail about acceptance testing.
   3) What are the different factors influencing software reliability ?
   4) Explain in detail about Software Quality Assurance Groups.
   5) What are the five views of Software Quality ?
   6) Explain ISO 9126 Quality Characteristics in detail.

6. What are the different applications of software reliability ? **10**

   OR

   Explain all McCall's quality factors and quality criterions in detail. **10**

7. Write note on (**any two**) : **10**

   a) Domain Testing.
   b) Recruiting Test Engineers.
   c) Data Flow Testing.

SLR-TJ – 288

Seat No.	

Set **Q**

B.E. (CSE) (Part – II) (Old) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (STQA)
(Elective – II)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) The operational profiles are represented in _____ form.
a) circular b) square c) matrix d) tabular

2) _____ test group has the responsibility to develop test automation infrastructure, test libraries and test tools.
a) Automation b) Scalability c) Performance d) Development

3) _____ is one of the phase of effective recruiting process.
a) Job searching b) Decision making
c) Job advertising d) Job performance

4) The _____ view represents a merger of two independent concepts : excellence and worth.
a) User b) Product c) Value-based d) Manufacturing

5) A _____ is an attribute of a quality factor that is related to software development.
a) Quality factor b) Quality assurance
c) Quality d) Quality criterion

6) Following is one of the view of software quality.
a) Product view b) Sales view c) Consumer view d) Process view

7) SQC means
a) Software Quality Control b) Statistical Quality Control
c) Structural Quality Control d) None of these

P.T.O.

8) _____ testing is called as functional testing technique.
a) White box b) Regression c) Black box d) System

9) Shewhart cycle is also called as _____ cycle.
a) Edward cycle b) Software life cycle
c) Juse cycle d) PDCA

10) _____ are a special type of failures where the system ceases to function.
a) Crashes b) Bugs c) Anomalies d) Errors

11) _____ are collection of software related activities.
a) Products b) Processes c) Resources d) None of these

12) _____ system are used to assess an existing entity by numerically characterizing one or more of its attributes.
a) Software b) Prediction c) Measurement d) External

13) _____ is the degree of interdependence between the modules.
a) Cohesion b) Interface c) Binding d) Coupling

14) _____ measures can be defined hierarchically in terms of values for the primes and values associated with various operations.
a) Data structure b) Data field c) Variable d) Constant

15) _____ is a physical size of software product.
a) Functionality b) Length c) Complexity d) Reuse

16) In the _____ approach system integration testing begins with the integration of lowest level modules.
a) top-up b) sequential c) bottom-up d) middle-up

17) In _____ unit testing, code is reviewed by applying techniques commonly known as inspection and walkthroughs.
a) random b) dynamic c) linear d) statistical

18) Test incident report is used to log a _____.
a) bug b) problems c) linear d) requirements

19) _____ bug input indicates how bad the bug is; the likelihood and the degree of impact when the user encounters the bug.
a) Priority b) Severity c) Normal d) Casual

20) Failure intensity is a measure of the _____ of a software system operating in a given environment.
a) flexibility b) mobility c) reliability d) portability

_____

SLR-TJ – 288

Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (STQA)
(Elective – II)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** (**each** carries **5** marks): **20**

   1) What are the different objectives of testing ?

   2) Explain in briefly about white box testing and black box testing.

   3) Describe box plot and scatter plot simple analysis technique in software.

   4) Explain about software measurement validation.

   5) Describe about software size, length, reuse in software engineering measurement.

   6) How data structures used in software engineering measurement ?

3. Define software quality. Also explain software quality revolution in detail. **10**

   OR

   Explain in detail about coupling and cohesion concepts used in modularity of software engineering measurement. **10**

4. Write note on (**any two**) : **10**

   a) Central issues in testing.

   b) Measurement in software engineering.

   c) Object oriented metrics in software engineering measurement.

SECTION – II

5. Attempt **any four** (**each** carries **5** marks): **20**
   1) What is unit testing ? Give an example.
   2) Explain in detail about acceptance testing.
   3) What are the different factors influencing software reliability ?
   4) Explain in detail about Software Quality Assurance Groups.
   5) What are the five views of Software Quality ?
   6) Explain ISO 9126 Quality Characteristics in detail.

6. What are the different applications of software reliability ? **10**

   OR

   Explain all McCall's quality factors and quality criterions in detail. **10**

7. Write note on (**any two**) : **10**
   a) Domain Testing.
   b) Recruiting Test Engineers.
   c) Data Flow Testing.

SLR-TJ – 288

Seat No.	

Set **R**

B.E. (CSE) (Part – II) (Old) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (STQA)
(Elective – II)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) In the _____ approach system integration testing begins with the integration of lowest level modules.
a) top-up b) sequential c) bottom-up d) middle-up

2) In _____ unit testing, code is reviewed by applying techniques commonly known as inspection and walkthroughs.
a) random b) dynamic c) linear d) statistical

3) Test incident report is used to log a _____.
a) bug b) problems c) linear d) requirements

4) _____ bug input indicates how bad the bug is; the likelihood and the degree of impact when the user encounters the bug.
a) Priority b) Severity c) Normal d) Casual

5) Failure intensity is a measure of the _____ of a software system operating in a given environment.
a) flexibility b) mobility c) reliability d) portability

6) The operational profiles are represented in _____ form.
a) circular b) square c) matrix d) tabular

7) _____ test group has the responsibility to develop test automation infrastructure, test libraries and test tools.
a) Automation b) Scalability c) Performance d) Development

P.T.O.

8) _____ is one of the phase of effective recruiting process.
a) Job searching b) Decision making
c) Job advertising d) Job performance

9) The _____ view represents a merger of two independent concepts : excellence and worth.
a) User b) Product c) Value-based d) Manufacturing

10) A _____ is an attribute of a quality factor that is related to software development.
a) Quality factor b) Quality assurance
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11) Following is one of the view of software quality.
a) Product view b) Sales view c) Consumer view d) Process view

12) SQC means
a) Software Quality Control b) Statistical Quality Control
c) Structural Quality Control d) None of these

13) _____ testing is called as functional testing technique.
a) White box b) Regression c) Black box d) System

14) Shewhart cycle is also called as _____ cycle.
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c) Juse cycle d) PDCA

15) _____ are a special type of failures where the system ceases to function.
a) Crashes b) Bugs c) Anomalies d) Errors

16) _____ are collection of software related activities.
a) Products b) Processes c) Resources d) None of these

17) _____ system are used to assess an existing entity by numerically characterizing one or more of its attributes.
a) Software b) Prediction c) Measurement d) External

18) _____ is the degree of interdependence between the modules.
a) Cohesion b) Interface c) Binding d) Coupling

19) _____ measures can be defined hierarchically in terms of values for the primes and values associated with various operations.
a) Data structure b) Data field c) Variable d) Constant

20) _____ is a physical size of software product.
a) Functionality b) Length c) Complexity d) Reuse

_____

SLR-TJ – 288

Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (STQA)
(Elective – II)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** (**each** carries **5** marks): **20**

   1) What are the different objectives of testing ?

   2) Explain in briefly about white box testing and black box testing.

   3) Describe box plot and scatter plot simple analysis technique in software.

   4) Explain about software measurement validation.

   5) Describe about software size, length, reuse in software engineering measurement.

   6) How data structures used in software engineering measurement ?

3. Define software quality. Also explain software quality revolution in detail. **10**

   OR

   Explain in detail about coupling and cohesion concepts used in modularity of software engineering measurement. **10**

4. Write note on (**any two**) : **10**

   a) Central issues in testing.

   b) Measurement in software engineering.

   c) Object oriented metrics in software engineering measurement.

SECTION – II

5. Attempt **any four** (**each** carries **5** marks): **20**
   1) What is unit testing ? Give an example.
   2) Explain in detail about acceptance testing.
   3) What are the different factors influencing software reliability ?
   4) Explain in detail about Software Quality Assurance Groups.
   5) What are the five views of Software Quality ?
   6) Explain ISO 9126 Quality Characteristics in detail.

6. What are the different applications of software reliability ? **10**

   OR

   Explain all McCall's quality factors and quality criterions in detail. **10**

7. Write note on (**any two**) : **10**
   a) Domain Testing.
   b) Recruiting Test Engineers.
   c) Data Flow Testing.

SLR-TJ – 288

Seat No.	

Set **S**

B.E. (CSE) (Part – II) (Old) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (STQA)
(Elective – II)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct answer : **20**

1) _____ are collection of software related activities.
a) Products b) Processes c) Resources d) None of these

2) _____ system are used to assess an existing entity by numerically characterizing one or more of its attributes.
a) Software b) Prediction c) Measurement d) External

3) _____ is the degree of interdependence between the modules.
a) Cohesion b) Interface c) Binding d) Coupling

4) _____ measures can be defined hierarchically in terms of values for the primes and values associated with various operations.
a) Data structure b) Data field c) Variable d) Constant

5) _____ is a physical size of software product.
a) Functionality b) Length c) Complexity d) Reuse

6) In the _____ approach system integration testing begins with the integration of lowest level modules.
a) top-up b) sequential c) bottom-up d) middle-up

7) In _____ unit testing, code is reviewed by applying techniques commonly known as inspection and walkthroughs.
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8) Test incident report is used to log a _____.
a) bug b) problems c) linear d) requirements

9) _____ bug input indicates how bad the bug is; the likelihood and the degree of impact when the user encounters the bug.
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10) Failure intensity is a measure of the _____ of a software system operating in a given environment.
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11) The operational profiles are represented in _____ form.
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12) _____ test group has the responsibility to develop test automation infrastructure, test libraries and test tools.
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13) _____ is one of the phase of effective recruiting process.
a) Job searching b) Decision making
c) Job advertising d) Job performance

14) The _____ view represents a merger of two independent concepts : excellence and worth.
a) User b) Product c) Value-based d) Manufacturing

15) A _____ is an attribute of a quality factor that is related to software development.
a) Quality factor b) Quality assurance
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18) _____ testing is called as functional testing technique.
a) White box b) Regression c) Black box d) System

19) Shewhart cycle is also called as _____ cycle.
a) Edward cycle b) Software life cycle
c) Juse cycle d) PDCA

20) _____ are a special type of failures where the system ceases to function.
a) Crashes b) Bugs c) Anomalies d) Errors

_____

SLR-TJ – 288

Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017
SOFTWARE TESTING AND QUALITY ASSURANCE (STQA)
(Elective – II)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** (**each** carries **5** marks): **20**

   1) What are the different objectives of testing ?

   2) Explain in briefly about white box testing and black box testing.

   3) Describe box plot and scatter plot simple analysis technique in software.

   4) Explain about software measurement validation.

   5) Describe about software size, length, reuse in software engineering measurement.

   6) How data structures used in software engineering measurement ?

3. Define software quality. Also explain software quality revolution in detail. **10**

   OR

   Explain in detail about coupling and cohesion concepts used in modularity of software engineering measurement. **10**

4. Write note on (**any two**) : **10**

   a) Central issues in testing.

   b) Measurement in software engineering.

   c) Object oriented metrics in software engineering measurement.

SECTION – II

5. Attempt **any four** (**each** carries **5** marks): **20**

   1) What is unit testing ? Give an example.
   2) Explain in detail about acceptance testing.
   3) What are the different factors influencing software reliability ?
   4) Explain in detail about Software Quality Assurance Groups.
   5) What are the five views of Software Quality ?
   6) Explain ISO 9126 Quality Characteristics in detail.

6. What are the different applications of software reliability ? **10**

   OR

   Explain all McCall's quality factors and quality criterions in detail. **10**

7. Write note on (**any two**) : **10**

   a) Domain Testing.
   b) Recruiting Test Engineers.
   c) Data Flow Testing.

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Seat No.	

Set P

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (MAD) (Elective – II)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct option : **20**

1) _____ operating system is used for android mobile application development.
a) Android b) Linux c) Windows d) Macintosh

2) _____ is one of the version platform in roadmap of android operating system.
a) Apple b) Honeycomb 3.0
c) Honeybee 3.0 d) All

3) Activity Manager is one of the component of _____ layer in Android platform architecture.
a) Libraries b) Applications
c) Application framework d) Linux Kernel

4) ADT bundle means _____
a) Android Design Tool b) Android Domain Tool
c) Android Development Tool d) None of these

5) A _____ tools is used to design, to debug and test android applications in an android run time environment.
a) Emulation b) Simulation c) Prototype d) None of these

6) _____ runs in the background with usually for long duration in mobile application.
a) Activity b) Service c) Layout d) All

7) _____ receive and respond to system wide broadcast announcements.
a) Intent b) Emulator
c) Broadcast Receiver d) None of these

8) _____ file contains the information about application component, class names type of events in applications and permissions.
a) Drawable b) String c) Resource d) Manifest

9) The key mobility components are mobile devices, _____ and mobile app stores.
   a) Mobile platforms b) Mobile versions
   c) Mobile costs d) None of these
10) _____ is a message outside of apps UI used to inform a user without interrupting him.
   a) Asyn task b) Notifications c) Service d) Toast
11) _____ is used for identifying the call states idle, off-hook or ringing in mobile application.
   a) Activity Manager b) SMS Manager
   c) Telephony Manager d) All
12) _____ is one of the solution in native data handling in android devices.
   a) Shared priority b) Shared variables
   c) Shared values d) Shared preferences
13) _____ API database is used to handle a database in SQLite.
   a) SQLiteDatabase b) SQLiteDatagrid
   c) SQLiteData d) None of these
14) Android also allows building custom 2D graphics using
   a) Container b) Canvas c) Layout d) Screens
15) _____ animation is about showing drawable resources in quick succession one after the another to produce an animated effect.
   a) Deliverables b) Statics c) Drawable d) Dynamic
16) The _____ framework in Android provides a rich set of API's that support audio or video in mobile apps.
   a) Naive b) Relative c) Architectural d) Multimedia
17) Android _____ framework is used to perform unit testing of individual Android app components.
   a) Junit b) Jstructure c) Jcomponents d) None of these
18) Usability testing of an app is a _____ testing to ensure that the app is easy to understand and use.
   a) White box b) Black box c) Unit d) Regression
19) A app's _____ is used by various stake holder's for categorize multiple releases on app store.
   a) Grade b) Template c) Version d) Identifier
20) The attribute Android _____ incremented with each update in the manifest file in versioning of mobile applications.
   a) VersionTag b) VersionNumber
   c) VersionIid d) VersionCode

_____

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Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (MAD) (Elective – II)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** (**each** carries **5** marks) : **20**
   1) What is Android Operating System ? Explain different features of Android Operating System.
   2) Describe history and hardware requirements of Android operating system.
   3) What is intent ? Explain different types of intents used of mobile applications along with examples.
   4) What is Layout ? Explain all the types of Layouts used in designing of mobile applications along with examples.
   5) Explain briefly Broadcast receivers used in mobile application.

3. What is an Activity ? Explain activity life cycle along with its different states. **10**

OR

3. Explain introduction, implementation and execution of Asyn task in detail used in mobile application and also explain thread implantation along with an example. **10**

4. Explain android platform architecture in detail along with its block diagram. **10**

SECTION – II

5. Attempt **any four** (**each** carries **5** marks) : **20**
   1) How shared preferences work in mobile application ?
   2) Explain briefly graphics capabilities custom views and canvas in mobile application.

3) Explain an MPEG-4 container with encoded audio and video elements in multimedia application.
4) Explain test automation of mobile application.
5) Write short note on : Google play store.
6) Explain use of Junit framework for testing of Android application along with test project hierarchy.

6. Explain Versioning, signing and packaging mobile application in detail. **10**

OR

6. Explain classification of sensors in android. Also explain how to identifying sensors available in device. **10**

7. Explain mobile database – SQLite in detail. **10**

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Seat No.	

Set Q

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (MAD) (Elective – II)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct option : **20**

1) The _____ framework in Android provides a rich set of API's that support audio or video in mobile apps.
a) Naive b) Relative c) Architectural d) Multimedia

2) Android _____ framework is used to perform unit testing of individual Android app components.
a) Junit b) Jstructure c) Jcomponents d) None of these

3) Usability testing of an app is a _____ testing to ensure that the app is easy to understand and use.
a) White box b) Black box c) Unit d) Regression

4) A app's _____ is used by various stake holder's for categorize multiple releases on app store.
a) Grade b) Template c) Version d) Identifier

5) The attribute Android _____ incremented with each update in the manifest file in versioning of mobile applications.
a) VersionTag b) VersionNumber
c) VersionIid d) VersionCode

6) _____ operating system is used for android mobile application development.
a) Android b) Linux c) Windows d) Macintosh

7) _____ is one of the version platform in roadmap of android operating system.
a) Apple b) Honeycomb 3.0
c) Honeybee 3.0 d) All

8) Activity Manager is one of the component of _____ layer in Android platform architecture.
a) Libraries b) Applications
c) Application framework d) Linux Kernel

P.T.O.

9) ADT bundle means _____
   a) Android Design Tool b) Android Domain Tool
   c) Android Development Tool d) None of these
10) A _____ tools is used to design, to debug and test android applications in an android run time environment.
   a) Emulation b) Simulation c) Prototype d) None of these
11) _____ runs in the background with usually for long duration in mobile application.
   a) Activity b) Service c) Layout d) All
12) _____ receive and respond to system wide broadcast announcements.
   a) Intent b) Emulator
   c) Broadcast Receiver d) None of these
13) _____ file contains the information about application component, class names type of events in applications and permissions.
   a) Drawable b) String c) Resource d) Manifest
14) The key mobility components are mobile devices, _____ and mobile app stores.
   a) Mobile platforms b) Mobile versions
   c) Mobile costs d) None of these
15) _____ is a message outside of apps UI used to inform a user without interrupting him.
   a) Asyn task b) Notifications c) Service d) Toast
16) _____ is used for identifying the call states idle, off-hook or ringing in mobile application.
   a) Activity Manager b) SMS Manager
   c) Telephony Manager d) All
17) _____ is one of the solution in native data handling in android devices.
   a) Shared priority b) Shared variables
   c) Shared values d) Shared preferences
18) _____ API database is used to handle a database in SQLite.
   a) SQLiteDatabase b) SQLiteDatagrid
   c) SQLiteData d) None of these
10) Android also allows building custom 2D graphics using
   a) Container b) Canvas c) Layout d) Screens
20) _____ animation is about showing drawable resources in quick succession one after the another to produce an animated effect.
   a) Deliverables b) Statics c) Drawable d) Dynamic

_____

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Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (MAD) (Elective – II)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** (**each** carries **5** marks) : **20**
   1) What is Android Operating System ? Explain different features of Android Operating System.
   2) Describe history and hardware requirements of Android operating system.
   3) What is intent ? Explain different types of intents used of mobile applications along with examples.
   4) What is Layout ? Explain all the types of Layouts used in designing of mobile applications along with examples.
   5) Explain briefly Broadcast receivers used in mobile application.

3. What is an Activity ? Explain activity life cycle along with its different states. **10**

OR

3. Explain introduction, implementation and execution of Asyn task in detail used in mobile application and also explain thread implantation along with an example. **10**

4. Explain android platform architecture in detail along with its block diagram. **10**

SECTION – II

5. Attempt **any four** (**each** carries **5** marks) : **20**
   1) How shared preferences work in mobile application ?
   2) Explain briefly graphics capabilities custom views and canvas in mobile application.

3) Explain an MPEG-4 container with encoded audio and video elements in multimedia application.
4) Explain test automation of mobile application.
5) Write short note on : Google play store.
6) Explain use of Junit framework for testing of Android application along with test project hierarchy.

6. Explain Versioning, signing and packaging mobile application in detail. **10**

OR

6. Explain classification of sensors in android. Also explain how to identifying sensors available in device. **10**

7. Explain mobile database – SQLite in detail. **10**

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Seat No.	

Set R

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (MAD) (Elective – II)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct option : **20**

1) _____ is used for identifying the call states idle, off-hook or ringing in mobile application.
a) Activity Manager b) SMS Manager
c) Telephony Manager d) All

2) _____ is one of the solution in native data handling in android devices.
a) Shared priority b) Shared variables
c) Shared values d) Shared preferences

3) _____ API database is used to handle a database in SQLite.
a) SQLiteDatabase b) SQLiteDatagrid
c) SQLiteData d) None of these

4) Android also allows building custom 2D graphics using
a) Container b) Canvas c) Layout d) Screens

5) _____ animation is about showing drawable resources in quick succession one after the another to produce an animated effect.
a) Deliverables b) Statics c) Drawable d) Dynamic

6) The _____ framework in Android provides a rich set of API's that support audio or video in mobile apps.
a) Naive b) Relative c) Architectural d) Multimedia

7) Android _____ framework is used to perform unit testing of individual Android app components.
a) Junit b) Jstructure c) Jcomponents d) None of these

8) Usability testing of an app is a _____ testing to ensure that the app is easy to understand and use.
a) White box b) Black box c) Unit d) Regression

9) A app's _____ is used by various stake holder's for categorize multiple releases on app store.
a) Grade b) Template c) Version d) Identifier

10) The attribute Android _____ incremented with each update in the manifest file in versioning of mobile applications.
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11) _____ operating system is used for android mobile application development.
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12) _____ is one of the version platform in roadmap of android operating system.
a) Apple b) Honeycomb 3.0
c) Honeybee 3.0 d) All

13) Activity Manager is one of the component of _____ layer in Android platform architecture.
a) Libraries b) Applications
c) Application framework d) Linux Kernel

14) ADT bundle means _____
a) Android Design Tool b) Android Domain Tool
c) Android Development Tool d) None of these

15) A _____ tools is used to design, to debug and test android applications in an android run time environment.
a) Emulation b) Simulation c) Prototype d) None of these

16) _____ runs in the background with usually for long duration in mobile application.
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17) _____ receive and respond to system wide broadcast announcements.
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c) Broadcast Receiver d) None of these

18) _____ file contains the information about application component, class names type of events in applications and permissions.
a) Drawable b) String c) Resource d) Manifest

19) The key mobility components are mobile devices, _____ and mobile app stores.
a) Mobile platforms b) Mobile versions
c) Mobile costs d) None of these

20) _____ is a message outside of apps UI used to inform a user without interrupting him.
a) Asyn task b) Notifications c) Service d) Toast

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Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (MAD) (Elective – II)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** (**each** carries **5** marks) : **20**
   1) What is Android Operating System ? Explain different features of Android Operating System.
   2) Describe history and hardware requirements of Android operating system.
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   5) Explain briefly Broadcast receivers used in mobile application.

3. What is an Activity ? Explain activity life cycle along with its different states. **10**

OR

3. Explain introduction, implementation and execution of Asyn task in detail used in mobile application and also explain thread implantation along with an example. **10**

4. Explain android platform architecture in detail along with its block diagram. **10**

SECTION – II

5. Attempt **any four** (**each** carries **5** marks) : **20**
   1) How shared preferences work in mobile application ?
   2) Explain briefly graphics capabilities custom views and canvas in mobile application.

3) Explain an MPEG-4 container with encoded audio and video elements in multimedia application.
4) Explain test automation of mobile application.
5) Write short note on : Google play store.
6) Explain use of Junit framework for testing of Android application along with test project hierarchy.

6. Explain Versioning, signing and packaging mobile application in detail. **10**

OR

6. Explain classification of sensors in android. Also explain how to identifying sensors available in device. **10**

7. Explain mobile database – SQLite in detail. **10**

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Seat No.	

Set S

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (MAD) (Elective – II)

Day and Date : Friday, 15-12-2017 Total Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions : *1) Q. No.* ***1*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
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.***

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

1. Choose the correct option : **20**

1) _____ runs in the background with usually for long duration in mobile application.
a) Activity b) Service c) Layout d) All

2) _____ receive and respond to system wide broadcast announcements.
a) Intent b) Emulator
c) Broadcast Receiver d) None of these

3) _____ file contains the information about application component, class names type of events in applications and permissions.
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4) The key mobility components are mobile devices, _____ and mobile app stores.
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c) Mobile costs d) None of these

5) _____ is a message outside of apps UI used to inform a user without interrupting him.
a) Asyn task b) Notifications c) Service d) Toast

6) _____ is used for identifying the call states idle, off-hook or ringing in mobile application.
a) Activity Manager b) SMS Manager
c) Telephony Manager d) All

7) _____ is one of the solution in native data handling in android devices.
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8) _____ API database is used to handle a database in SQLite.
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12) Android _____ framework is used to perform unit testing of individual Android app components.
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14) A app's _____ is used by various stake holder's for categorize multiple releases on app store.
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18) Activity Manager is one of the component of _____ layer in Android platform architecture.
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c) Application framework d) Linux Kernel

19) ADT bundle means _____
a) Android Design Tool b) Android Domain Tool
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a) Emulation b) Simulation c) Prototype d) None of these

_____

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Seat No.	

B.E. (CSE) (Part – II) (Old) Examination, 2017
MOBILE APPLICATION DEVELOPMENT (MAD) (Elective – II)

Day and Date : Friday, 15-12-2017 Marks : 80
Time : 3.00 p.m. to 6.00 p.m.

SECTION – I

2. Attempt **any four** (**each** carries **5** marks) : **20**
   1) What is Android Operating System ? Explain different features of Android Operating System.
   2) Describe history and hardware requirements of Android operating system.
   3) What is intent ? Explain different types of intents used of mobile applications along with examples.
   4) What is Layout ? Explain all the types of Layouts used in designing of mobile applications along with examples.
   5) Explain briefly Broadcast receivers used in mobile application.

3. What is an Activity ? Explain activity life cycle along with its different states. **10**

OR

3. Explain introduction, implementation and execution of Asyn task in detail used in mobile application and also explain thread implantation along with an example. **10**

4. Explain android platform architecture in detail along with its block diagram. **10**

SECTION – II

5. Attempt **any four** (**each** carries **5** marks) : **20**
   1) How shared preferences work in mobile application ?
   2) Explain briefly graphics capabilities custom views and canvas in mobile application.

3) Explain an MPEG-4 container with encoded audio and video elements in multimedia application.
4) Explain test automation of mobile application.
5) Write short note on : Google play store.
6) Explain use of Junit framework for testing of Android application along with test project hierarchy.

6. Explain Versioning, signing and packaging mobile application in detail. **10**

OR

6. Explain classification of sensors in android. Also explain how to identifying sensors available in device. **10**

7. Explain mobile database – SQLite in detail. **10**