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03BCS104

B.TECH (COMPUTER SCIENCE ENGG.)

III-SEM Examination, Dec.-2017

SUB: DISCRETE MATHEMATICAL STRUCTURES

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1. Nil 2. Nil

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

1. a. Define logic with the help of suitable example.

   b. What is tautology? Explain with the help of suitable example.

2. Show that $G = \{1, -1, i, -i\}$ where $i = \sqrt{-1}$ is an abelian group with respect to multiplication as a binary operation.

3. a. Prove that $(p \Rightarrow q) \wedge (r \Rightarrow q) = (p \vee q) \Rightarrow q$

   b. Prove that $(p \rightarrow q \rightarrow r) \vee (p \rightarrow a) = (p \rightarrow Q) \vee (q \rightarrow r)$

4. Write a short note on

   a. Group

   b. Graph

   c. Cyclic group

5. Let $A = \{1,1,1,2,2,3,4,4\}$ and $B = \{1,2,4,4,5,5,5\}$ find $(A \cup B), (A \cap B), (A - B)$ and (A+B).

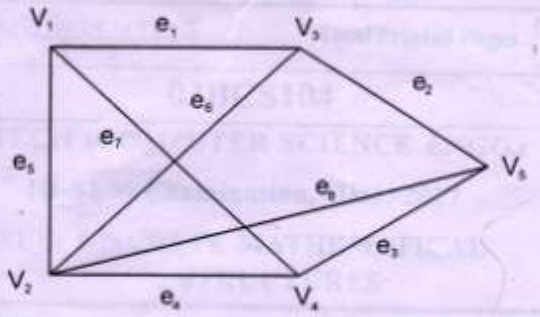
6. Explain the directed and undirected graph with the help of suitable example.

7. Find the DNF of following:

   a. $p \rightarrow ((P \rightarrow Q) \wedge \sim(\sim p \vee \sim p))$

   b. $(\sim(P \rightarrow (Q \wedge R))$

8. Define spanning tree. Find five spanning trees for the graph shown in figure and write the sets of branches and chords corresponding to these spanning trees.



9. Define the following with example.

   a. Bipartite graph

   b. Planner graph

   c. Complete graph

10. a. Show that $(p \rightarrow q) \leftrightarrow (\sim p \rightarrow \sim q)$ is a tautology

    b. Show that $p \wedge \sim p$ is a contradiction

    c. Show that $(P \vee Q) = P$

    e. Show that $(p \wedge \sim q) = (p \wedge Q)$

    d. Show that $A \cup B = B \cup A$

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03BCS105

B.TECH (COMPUTER SCIENCE ENGG.)

III-SEM Examination, Dec.-2017

SUB: MATHEMATICS-III .

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1. Nil 2. Nil

Note: 1. Attempt any five questions selection one question from each unit.

2. Each question carry equal marks.

1. What is optimization technique. Give the classification of optimization with example.

OR

Write a short note:

a. Engineering application of optimization

b. Single variate and multivariate optimization.

2. Solve the LPP of simplex method

Max $Z=6x_1+10x_2+8x_3$

s.t. $2x_1+3x_2 \leq 80$

$2x_2+5x_3 \leq 100$

$3x_1+2x_2+4x_3 \leq 150$

$x_1>0, x_2>0, x_3>0$

OR

Solve the transportation problem give its optimal solution.

	w_1	w_2	w_3	w_4	bj
F_1	19	30	50	10	7
F_2	70	30	40	60	9
F_3	40	6	70	20	18
ai	5	8	7	14	

3. In a factory there are six jobs to process each of which should go to machine A&B in order AB. The processing timings in minutes are given find optimal sequencing and total elapsed time .

Jobs	1	2	3	4	5	6
Machine A	7	4	2	5	9	8
Machine B	3	8	6	6	4	1

OR

Write a short note one

a. PERT

b. CPM

4. a. Find $L^{-1}\left[\frac{3S+7}{S^2-3S-3}\right]$

b. Evaluate $\int_0^\infty \frac{e^{-at}-e^{-bt}}{t}dt$

OR

Solve $(D^2+9)\,y = \cos 2t$ where $y(0)=1$ $y\left(\frac{\pi}{2}\right)=-1$

Show that $L\left\{\frac{\cos\sqrt{t}}{\sqrt{t}}\right\}=\sqrt{\frac{\pi}{s}}e^{-1/4s}$

5. Given $\frac{dy}{dx}=\left(\frac{y-x}{y+x}\right)$ With y=3.0 for x = 0. Find y approximately for x= 0.1 by Euler's method.

OR

a. Use sterling formula to find y when x = 28, given that

X	20	25	30	35	40
Y	49225	48316	47236	45926	44306

b. Use Lagrange's interpolation to obtain cubic polynomial of the given data.

X	0	1	4	5
Y	4	3	24	39

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03BCS106

B.TECH (COMPUTER SCIENCE ENGG.)

III-SEM Examination, Dec.-2017

SUB: MANAGEMENT INFORMATION SYSTEM

Time : 3 Hours] [Total Marks 60

Use of following supporting material is permitted during examination.

1._____Nil _____ 2. _____ Nil_____

Note: 1. Attempt any five questions.

2. Each question carry equal marks.

1. What is MIS? Explain its role and impact.

2. Explain organization structure & behavior

3. Explain the concept of decision making in detail.

4. Explain the different types of system handling and also explain system complexity.

5. Explain the requirement and implementation of MIS.

6. Write down the choice of information technology for MIS.

7. List out the application of MIS in different sector.

8. Explain the concept of financial management in detail.

9. What is ERP? Explain.

10. Write short note on

   a. Material management

   b. Marketing management

   c. Production management.