

## DISCRETE MATHEMATICS

Marks: 10 x 5 = 50

### Answer all the Questions

1) For any three sets A,B,C P.T  $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

(Or)

For any two sets A and B P.T i)  $(A \cup B)' = A' \cap B'$

ii)  $(A \cap B)' = A' \cup B'$

2) If A and B are finite sets than P.T  $n(A \cup B) = n(A) + n(B) - n(A \cap B)$

(Or)

P.T i)  $A - B = A \cap B'$  ii)  $A - B = \phi \Leftrightarrow A \subseteq B$

3) Let  $A = \{(1,2),(2,3),(3,4),(2,1)\}$  using warshall algorithm. Find the transitive closure of R.

(Or)

i) P.T every chain is a lattice.

ii) P.T every chain is a modular lattice

4) Suppose  $A = \{2,3,6,8,12\}$   $C = \{13,17,22\}$  and  $R = \{(12),(1,3),(1,12),(2,3),(2,6),(2,8),(2,12)\}$   $S = \{(2,13),(2,17),(3,13),(3,22),(8,22)\}$  find SoR.

(Or)

Write warshalls algorithm.

5) Show that  $Q \vee (p \wedge \neg Q) \vee (\neg p \wedge Q)$  is tautology.

(Or)

Show that  $P \rightarrow S$  can be derived from the premises  $7P \vee Q$ ,  $7Q \vee R$ ,  $R \rightarrow S$ .

6) Constructs the truth table for  $(\neg p \vee Q) \cap (\neg Q \vee p)$

(Or)

Show that  $(p \wedge Q) \Rightarrow (p \rightarrow Q)$  using truth table.

7) Solve the recurrence relation  $S(K) - 10s(K-1) + 9(K-2) = 0, S(0)=3 S(1)=11$ .

(Or)

Solve  $S(K) - S(K-1) - 6S(K-2) = -30, s(0)=20, S(1) = -5$ .

8) Find the generating matrix and its observations

(Or)

Solve  $S(K) - 3S(K-1) - 4S(K-2) = 4^K$

9) Explain incidence matrix and its observations

(Or)

P.T A tree with n vertices has (n-1) edges.

10) Explain adjacency matrix and its observations.

(Or)

Let  $G$  be a graph P.T i)  $\sum d(v) = 2l$  ii) the number of odd degree vertices is even.

## FUNDAMENTALS OF COMPUTER AND C PROGRAMMING

Marks: 10 x 5 = 50

Answer all the Questions

- 1) Explain briefly about history of C and Constants .  
Or  
Discuss shortly about C tokens.
- 2) Write short notes about operators available in C.  
Or  
How does the type conversion done in C explain with example.
- 3) What is formatted Input, Output in C, explain with an example program.  
Or  
Write a C program using switch statement.
- 4) Explain briefly about while & do while looping.  
Or  
Explain about if statement & else if concept.
- 5) Define array, how to declare & initialization with an example.  
Or  
Explain briefly about two dimensional array, with an example.
- 6) Write a c program using string handling function.  
Or  
Write short notes on string data type, how to declare & initialize a string variable.
- 7) Discuss briefly about user defined function in C.  
Or  
Write a c program using recursion function.
- 8) List out the difference between structure & unions.  
Or  
Write short notes on scope visibility & life time of variables.
- 9) Explain about pointers in C.  
Or  
How does pointers and character string are related in C.
- 10) Explain in detail about I/O operations on file in c with suitable example program.  
Or  
Discuss the concept of command line argument in C using a C program.