

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) $\sum d(v) = 2|E|$ ii) the number of odd degree vertices is even.

FUNDAMENTALS OF COMPUTER AND C PROGRAMMING

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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.