

 SURESH GYAN VIHAR UNIVERSITY <small>Accredited by NAAC with 'A' Grade</small>		INTERNAL ASSIGNMENT - 1
Course	MCA	Discrete Mathematics
Semester	1	
Total Marks:	15	

Q.1. Write answers for any two questions from below. (5 marks each – Word limit – 500)

- A. What is inclusion – exclusion principle? How many bit strings of length eight start with one bit or end with the two bits 00
- B. What do you understand by principle duality?
- C. Find x, if $10C5 + 10C6 + 11C7 = 12Cx$.

Q.2. Write short notes on all of the following topics (1 mark each - Word limit - 100)

- A. Basic Set Theory
- B. The Lightest Path: Dijkstra's Algorithm
- C. Linear Recurrence Relations with constant coefficients.
- D. Labeled Graphs and Isomorphism
- E. Set Difference, Set Complement and the Power Set



**SURESH
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INTERNAL ASSIGNMENT - 2

Course	MCA	Discrete Mathematics
Semester	1	
Total Marks:	15	

Q.1. Write answers for any two questions from below. (5 marks each – Word limit – 500)

A. Find the truth table of the following propositions---

(i) $\neg(p \vee q) \vee (\neg p \wedge \neg q)$ (ii) $(p \wedge q) \vee (\neg p \wedge q) \vee (p \wedge \neg q) \vee (\neg p \wedge \neg q)$ (iii) $p \wedge (q \vee r)$ (iv) $\neg p \vee q \Rightarrow \neg q$

B. (i) Write the definition of simple graph, multi graph and pseudo graph with example?

C. Define Eulerian graph. Show that a non-empty connected graph is Eulerian if and only if all its vertices are of even degree.

Q.2. Write short notes on all of the following topics (1 mark each - Word limit - 100)

A. The Lightest Path: Floyd's Algorithm

B. Recurrence Relations: Introduction, Formation.

C. Propositional Logic

D. Graph Operations

E. The Lightest Spanning Tree: Kruskal's and Prim's Algorithms