

Unit IV

No. of Printed Pages : 04

Roll No.

7. (a) Define Graph Coloring. Also, explain coloring edge and list coloring.
(b) Explain rooted trees. **15**
8. (a) Explain Eulerian and Hamiltonian walks.
(b) What is planner graph with example ? **15**

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B. Tech. EXAMINATION, 2024

(Fourth Semester)

(C Scheme) (Main & Re-appear)

(CSE)

DISCRETE MATHEMATICS

CSE208C

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Consider the following five relation on the set
 $A = \{1, 2, 3\}$: **15**

$$R = \{(1, 1), (1, 2), (1, 3), (3, 3)\},$$

$\emptyset$ -empty relation

$$S = \{(1, 1), (1, 2), (2, 1), (2, 2), (3, 3)\},$$

$$A \times A = \text{universal relation}$$

$$T = \{(1, 1), (1, 2), (2, 2), (2, 3)\}$$

Determine whether each of the above relation
on A is :

- (a) reflexive
 - (b) symmetric
 - (c) transitive
 - (d) antisymmetric.
2. (a) Difference between Conjunctive and Disjunctive normal form.
- (b) Explain the fundamental of binary relation. **15**

Unit II

3. (a) Explain Permutation and Combination with example.
- (b) Explain recurrence relations in detail. **15**
4. (a) Explain rule of Inference. In addition, explain laws of Logic.
- (b) State the rule of proof by contrapositions. **15**

Unit III

5. (a) Difference between the following terms :
- (i) Semi group and Monoid group
 - (ii) Free and Cyclic Monoids
- (b) Explain the identities of Boolean Algebra. **15**
6. (a) Explain Integral domain and fields.
- (b) Write down representation of Boolean function. **15**