

Unit IV

No. of Printed Pages : 04

Roll No.

7. Explain the following : 15
- (a) Isomorphism
 - (b) Rooted Trees
8. (a) Explain Graph Traversal.
- (b) Explain BFS and DFS with example. 15

18D4

B. Tech. EXAMINATION, June 2023

(Fourth Semester)

(C-Scheme) (Main & Re-appear)

(CSE)

CSE208C

DISCRETE MATHEMATICS

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

$$A = \{1, 2, 3\} :$$

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

$$\theta = \text{empty relation}$$

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

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

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

Determine whether or not each of the above relation on A is : (a) reflexive; (b) symmetric; (c) transitive; (d) antisymmetric. **15**

2. (a) What is function ? Explain sum and product of function.
(b) Explain the fundamental of countable and uncountable sets Cartesian product. **15**

Unit II

3. (a) Explain Pigeon hole Principle with example.

- (b) In how many ways a committee consisting of 5 men and 3 women, can be chosen from 9 men and 12 women ? **15**

4. (a) What is the minimum number of NOR gate required to construct AND gate ? Also, construct it.
(b) State the principle of Inference. **15**

Unit III

5. (a) Explain the properties of Algebraic structure with examples.
(b) What are Monoids ? **15**
6. (a) Explain weighted trees and sorting.
(b) Explain algebraic structure with two binary operations with example. **15**