

Enrolment No. /Seat No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA – SEMESTER II- EXAMINATION –SUMMER-2025

Subject Code: 629401

Date: 29/05/2025

Subject Name: Data Structures

Time:10:30 AM TO 01:00 PM

Total Marks: 70

Instructions:

- 1. Attempt all questions.**
- 2. Make Suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Use of simple calculators and non-programmable scientific calculators are permitted.**

Q.1 (a) Write the classification of data structure.Explain each one in short. **07**

(b) Describe operations that can be performed on a data structure. **07**

Q.2 (a) Explain method to convert infix expression into postfix using stack. **07**

(b) Describe applications of stack in recursion with example. **07**

OR

(b) Explain Circular Linked List with its basic operations. **07**

Q.3 (a) List out tree traversal techniques. Discuss each one. **07**

(b) Explain Binary Search Tree with the help of example. **04**

(c) Define following for tree. **03**

- 1) Degree of a tree
- 2) terminal node
- 3) Complete Binary Tree
- 4) Sibling

OR

Q.3 (a) Explain conversion of general tree & forest into binary tree with example. **07**

(b) Write short note on sequential and linked representation of tree. **07**

Q.4 (a) Explain BFS with example. **07**

(b) Describe the matrix representation of graphs in detail. **07**

OR

Q.4 (a) Explain DFS with example. **07**

(b) Explain height balanced tree with example. **07**

Q.5 (a) List out any five hashing functions. Briefly explain any three. **07**

(b) Describe heap sort with suitable example. **07**

OR

Q.5 (a) Write short note on sequential search with example. **07**

(b) Describe insertion sort with suitable example.

07
