SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

MCA I Year II Semester Regular & Supplementary Examinations June/July-2025
DATASTRUCTURES

Time: 3 Hours   **Max. Marks: 60**

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-1

1. Discuss about Asymptotic Notations with their types.   [12M]
(AUTONOMOUS)

OR

2. Analyze and write a program to store a set of values of same data type into a
single variable.   [12M]

UNIT-2

3. Develop Circularly Linked List with various operations.   [12M]

OR

4. a) Convert the expression (5 + 6) * (6 - 5) from infix to postfix   [6M]
b) Evaluate the postfix expression 25*423 -*+.   [6M]

UNIT-3

5. Identify the following terms from the given tree
i) Parent
ii) Child
iii) Siblings
iv) Path
v) Sub Tree

                                                                                                       [12M]

OR

6. a) What are the different ways to define a tree?   [4M]
b) Find various terminologies used in a tree. Explain any six terminologies   [8M]

UNIT-4

7. a) Prepare an algorithm for Quick sort with example.   [6M]

b) Prepare an algorithm for Merge sort with example.   [6M]

OR

8. Explain about Hashing with an example.   [12M]

UNIT-5

9. a) Discuss how to represent Graph storage using Adjacency matrix.   [7M]
b) Briefly explain about Adjacency List with example.   [5M]

OR

10. a) Discuss BFS Graph Traversal with an algorithm.   [3M]
b) Explain BFS Graph traversal with steps for the following Graph .

                                                                        [9M]