O.P.Code:	24mca110	Regulation2022	H.T.No.										

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 how you can measure Performance of an algorithm.   [12M]

OR

2. Discuss about Asymptotic Notations with their types.   [12M]

UNIT-2

3. a) Design an algorithm to insert an element at beginning of circularly linked
list.   [6M]
b) Design an algorithm to delete an element at end of circular ly linked list.   [6M]

OR

4. a) What is linked list? What are the different types of linked list?   [6M]
b) Explain the advantages of linked list over arrays.   [6M]

UNIT-3

5. Describe different cases to delete an element in BST with an algorithm and
examples.   [12M]

OR

6. Develop B – Tree with various operations.   [12M]

UNIT-4

7. a) Explain bubble sort with an algorithm and example.   [5M]
b) Design a program to demonstrate bubble sort.   [7M]

OR

8. a) What do you mean by searching? What are the types of searching?   [6M]
b) Differentiate various searching techniques.   [6M]

UNIT-5

9. Explain in detail about various minimum cost spanning tree algorithms.   [12M]

OR

10. Illustrate the steps for Dijkstra's algorithm with an example.   [12M]