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. Explain the following i) Big -Oh ii) Big -Omega iii) Big -Theta [12 Marks]

OR

2. a) What is an Array? Explain the representation of an array.
b) Apply various operations that can perform on array. [6 Marks]

UNIT-2

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

OR

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

UNIT-3

5. a) Explain BFS Tree Traversal with an example.
b) Explain DFS Tree Traversal with an example. [6 Marks]

OR

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

UNIT-4

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

OR

8. a) Explain Binary Search with an algorithm and example.
b) Develop a program to demonstrate Binary Search. [6 Marks]

UNIT-5

9. a) What is minimum – cost spanning tree?
b) Prepare an algorithm for Prim's with example. [4 Marks]

OR

10. Discuss and compare various graph traversals.
Prepared by:
Assistant Professor/ MCA [12 Marks]