Reg. No: ☐☐☐☐☐☐☐☐☐☐

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
MCA I Year I Semester Regular Examinations July-2021
DATA STRUCTURES

Time: 3 hours   Max. Marks: 60

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

UNIT-I

1	a	What is Data Structure? Explain its advantages.	L2	4M
	b	List and explain various types of Data Structures.	L4	8M

OR

2	Find the O(n), Ω(n) and θ(n) values for the functions f(n)=3n+2 and g(n)=n.	L1	12M

UNIT-II

3	a	What is linked list? What are different types of linked list	L1	6M
	b	Explain the advantages of linked list over Arrays	L2	6M

OR

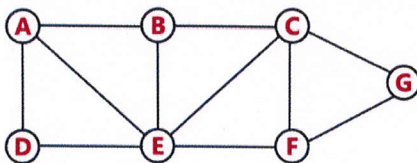|				
4	a	Convert the expression (5 + 6) * (6 - 5) from infix to postfix	L2	6M
	b	Write the steps for evaluating postfix expression.	L2	6M

UNIT-III

5	Explain Binary Tree with their types and representation.	L2	12M

OR

6	Construct binary search tree for the following nodes 43,10,79,90,12,54,11,9&50	L3	12M

UNIT-IV

7	a	Explain Binary Search with an algorithm and example.	L2	6M
	b	Write a program to demonstrate Binary Search.	L3	6M

OR

8	a	Explain insertion sort with an algorithm and example.	L2	3M
	b	Write a program to demonstrate insertion sort.	L3	9M

UNIT-V

9	a	Define Graph. List out various graph operations.	L2	4M
	b	What are the various applications and properties of Graphs?	L1	8M

OR

10	a	Explain BFS Graph Traversal with an algorithm.	L2	3M
	b	Explain BFS Graph traversal with steps for the following Graph.	L5	9M

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