Q.P. Code: 20MC9102

R20

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

MCA I Year I Semester (R20) Regular & Supplementary Examinations May-2022

DATA STRUCTURES

Time: 3 hours | Max. Marks: 60

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

UNIT-I

1	a	What is an Algorithm? Explain its specifications.	L1	6M
	b	Identify the steps to print the product of two numbers.	L3	6M
		OR		
2	a	What is an Array? Explain the representation of an array.	L2	6M
	b	Apply various operations that can perform on array.	L3	6M
		UNIT-II		
3	a	What is linked list? What are the different types of linked list?	L1	6M
	b	Design an algorithm to insert an element at beginning of circularly linked list.	L3	6M
		OR		
4	a	What is a Stack? What are the operations that perform on a stack?	L1	4M
	b	Evaluate the postfix expression 25*423-*+	L5	8M
		UNIT-III		
5	a	Explain BFS Tree Traversal with an example.	L1	6M
	b	List out and explain various binary tree traversals.	L2	6M
		OR		
6	a	Analyze the steps to insert elements into Binary Search Tree.	L4	6M
	b	What are the various types of a binary tree?	L1	6M
		UNIT-IV		
7		Explain about Hashing with an example.	L2	12M
		OR		
8	a	Explain Linear Search with an algorithm and example.	L2	6M
	b	Differentiate various searching techniques.	L4	6M
		UNIT-V		
9		Explain about shortest path problem with an algorithm and example.	L2	12M
		OR		
10	a	What is minimum – cost spanning tree?	L1	4M
	b	Prepare an algorithm for Prim's with example.	L3	8M

*** END ***