H.T No										

Sreenidhi Institute of Science and Technology
(An Autonomous Institution)

Regulations: A22

Code No:9EC01 **Date: 07-August-2024 (FN)**

B.Tech I-Year II- Semester External Examination, August-2024 (Regular & Supplementary)
DATA STRUCTURES (Common to All)

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

Note: *a) No additional answer sheets will be provided.*
b) All sub-parts of a question must be answered at one place only, otherwise it will not be valued.
c) Missing data can be assumed suitably.

Bloom's Cognitive Levels of Learning (BCLL)

Remember	L1	Apply	L3	Evaluate	L5
Understand	L2	Analyze	L4	Create	L6

Part - A Max.Marks: 6x2=12

ANSWER ALL QUESTIONS, EACH QUESTION CARRIES 2 MARKS.

		BCLL	CO(s)	Marks
1	Distinguish between Structures and Unions.	L2	CO1	[2M]
2	Define Queue.	L1	CO2	[2M]
3	List the advantages and disadvantages of circular linked lists.	L1	CO3	[2M]
4	What is an AVL tree? What is the maximum height of any AVL tree with 7 nodes?	L3	CO4	[2M]
5	Justify the data structure used for computing the DFS graph.	L4	CO5	[2M]
6	Explain performance measures of an algorithm.	L2	CO6	[2M]

Part – B Max.Marks: 6x8=48

ANSWER ALL QUESTIONS. EACH QUESTION CARRIES 8 MARKS.

		BCLL	CO(s)	Marks
7.	Demonstrate passing a structure member as an argument of a function with an example.	L3	CO1	[8M]
	OR			
8	Illustrate array of structures with an example.	L2	CO1	[8M]
9.	Explain Stack. Write algorithms for PUSH and POP operations.	L1	CO2	[8M]
	OR			
10	Write an Algorithm for infix to postfix conversion. Give a suitable example?	L3	CO2	[8M]
11	Illustrate insert and delete operations in doubly linked list with an example.	L1	CO3	[8M]
	OR			
12	Define linked list Explain the implementation of stack using singly linked list in detail with an example.	L2	CO3	[8M]
13	Define Binary Tree. Write a function to perform insertion and deletion operations on binary tree.	L1	CO4	[8M]
	OR			
14	Construct an AVL tree by inserting the following numbers in the order they are given. (Draw figure in each step) 18 24 21 27 78	L3	CO4	[8M]
15	Develop an algorithm for Breadth First Search Traversal of a graph and discuss with an example.	L2	CO5	[8M]
	OR			
16	Write an algorithm to implement heap sort.	L1	CO5	[8M]
17	Write an algorithm to search an element using binary search.	L1	CO6	[8M]
	OR			
18	Perform quick sort on the input: 4, 8, 6, 3, 9, 1, 5, 7, 2.	L2	CO6	[8M]

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