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

SNS College of Technology, Coimbatore-35.
(Autonomous)
B.E/B.Tech- Internal Assessment -I
Academic Year 2023-2024(ODD)
Third Semester
19ITT201- Data Structures

A

Time: $1^{1/2}$ Hours **Maximum Marks: 50**

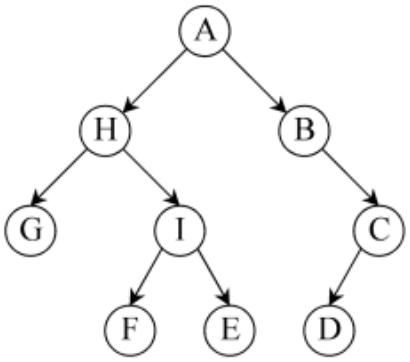
Answer All Questions

PART-A (5 x 2 = 10 Marks)

1.	Define Data Structure and ADT.	CO1	Und
2.	Illustrate the difference between Singly Linked list and Doubly Linked list.	CO1	Ana
3.	What is meant by expression tree. Construct expression tree for **ab+cde+**.**	CO1	Und
4.	Differentiate Binary tree with Binary Search tree with suitable example.	CO2	Ana
5.	Write down the four cases that causes AVL tree Imbalance.	CO2	Ana

PART–B (13 + 13 + 14= 40 Marks)

6.	(a)	Explain in detail about Singly linked list ADT with suitable routine.	13	CO1	Und
		(or)			
	(b)	Explain in detail about array implementation in Stack ADT with suitable routines.	13	CO1	Und
7.	(a)	Explain the various tree traversals techniques with appropriate routines and Traverse the given tree	13	CO1	App



(or)

	(b)	Define binary search tree. Write a routine to insert and Delete an element in Binary search tree.	13	CO2	Ana
8.	(a) i)	Write the Routine to perform following operation 1. Single rotation with Left 2. Single rotation with Right	6	CO2	Ana
	ii)	Convert the following infix expression into postfix expression using Stack (a + b * c) + ((d * e + 1) * g).	8	CO1	App

(or)

	(b)	Draw the binary search tree for the given values 3,4,1,6,5,7,10 and explain stepwise with routine to perform the following operations (i) Find (ii) FindMin iii) FindMax	14	CO2	App

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(Note: Und-Understand Rem-Remember Cre - Create Ana-Analyze App-Apply)

Prepared By **Verified By** **HoD**