CONTINUOUS INTERNAL EVALUATION - 2

Dept: CSE/CD/AIML	Sem / Div:3	Sub: Data structures and Applications	S Code: BCS304
Date:19/12/2024	Time:2.30-4.00	Max Marks: 50	Elective: N

Note: Answer any 2 full questions, choosing one full question from each part.

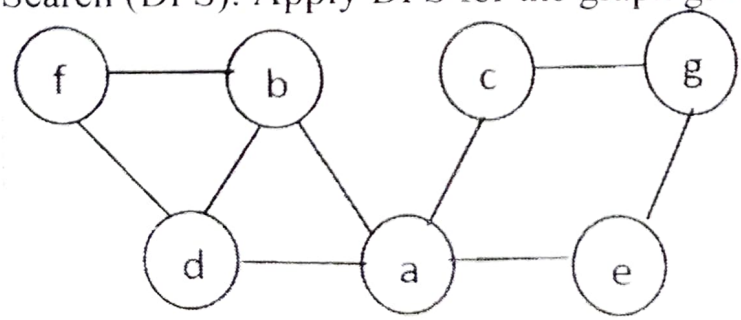
QN	Questions	Marks	RBT	CO's

PART A

1 a	Explain how binary tree are represented using (i) Array (ii) Linked list	8	L2	CO3
b	Construct a binary tree from the Pre-order and In-order sequence given below Inorder Traversal : { 4, 2, 1, 7, 5, 8, 3, 6 } Preorder Traversal: { 1, 2, 4, 3, 5, 7, 8, 6 }	8	L3	CO4
c	Construct a binary search tree (BST) for the following elements: 100, 85, 45, 55, 120, 20, 70, 90, 115, 65, 130, 145. Traverse using in-order, pre-order, and post-order traversal techniques. Write recursive C functions for the same	9	L3	CO4

OR

2 a	Explain inorder, preorder and postorder traversal with suitable recursive function for each.	8	L2	CO3
b	Design an algorithm to traverse a graph using Depth First Search (DFS). Apply DFS for the graph given below	8	L3	CO4



c	Construct min winner tree for the runs of a game given below. Each run consists of values of players. Find the first 5 winners								9	L3 CO4

10	9	20	6	8	9	90	17
15	20	20	15	15	11	95	18
16	38	30	25	50	16	99	20
			28				

PART B

3	a	Explain in detail elementary graph operations	8	L2	CO4
	b	Explain Leftist tree with example	8	L2	CO5
	c	Explain different hashing functions with examples. Discuss the properties of a good hash function.	9	L2	CO5

OR

4	a	Explain Disjoint set. Consider the tree created by the weighted union function on the sequence of unions: union(0,1), union(2,3), union(4,5), union(6,7), union(0,2), union(4,6), and union(0,4). Process the simple find and collapsing find on eight finds and compare which find is efficient	8	L2	CO4
	b	Explain in detail the different methods used to resolve collision.	8	L2	CO5
	c	Explain single ended and double ended priority queue with example	9	L2	CO5

Prepared by: Bharathi K

13/12/24

HOD