VIT

Vellore Institute of Technology

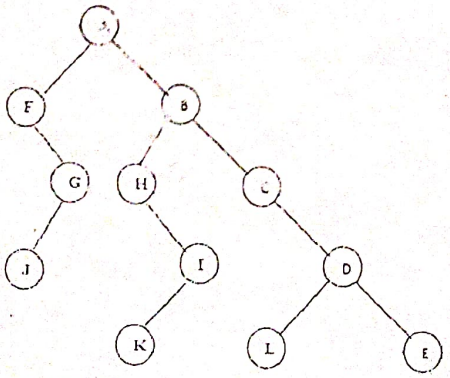
Continuous Assessment Test – 2

Fall Semester 2022

Course Name & code: Data Structures and Algorithms & BCSE202L **Slot: B1+TB1**

Programme Name: B.Tech

Maximum Marks: 50 Exam Duration: 90 min

Q.No.	Question	Max Marks
1.	Given a linked list and a value x, partition it such that all nodes less than x come before nodes greater than or equal to x. Devise an algorithm to perform the above operation using the given input and illustrate its working in detail. Input: 40, 10, 15, 29, 4, 33.	10
2.	Given an input of distinct integers. Input: 10, 100, 93, 32, 35, 65, 80, 90, 94, 6 Use a binary search tree data structure to obtain an output by replace every element with the least greater element on its right or with -1 if there are no greater elements and illustrate the working in detail.	10
3.	a. Construct the expression tree using the given input Input: (A/(B-C+D))*(E-A)*C 5M b. For the given tree apply all traversal method with the time complexity of O(n). 5M 	10
4.	Assume an input as 50, 20 , 60 , 10 , 8 , 15 , 32 , 46 , 11 , 48 to construct a height balancing tree and. Illustrate the step by step procedure in detail.	10
5.	Given an array of input as Set 1 = [2,3,4,5,10,15] and Set 2 = [2,10,4,5,3,15]. Check if an array belongs to the types of heap. If exist then justify how these inputs belong to the types of heap along with its working in detail. If does not exist then apply suitable operation to satisfy heap property.	10