

Sub Code : EC560

Duration: 1 hour

Date: 23-12-2020

Name of the Paper setter: Mrs Pavithra D R

Sem : V Sem A &amp; B

Max. Marks: 20

Time : 2.30 -3.30 (online)

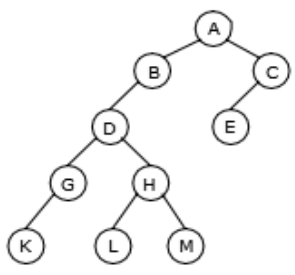
Course outcomes covered:

CO3 :Implement and evaluate the data structures for sorting, searching, and traversals for skill enhancement in problem solving. CO4 - Develop applications using data structures and algorithms.

Cognitive Domains:

L1:- Remembering L2:- Understanding L3:- Applying L4:- Analyzing L5:-Evaluating L6:-Creating

Answer the following questions.

Q. No.	CO	Cognitive Domain	Question	Marks
	CO3,4	L3	Differentiate between General Tree, Binary Tree and Binary Search tree. Construct a binary Search Tree for the following key elements 55, 77, 23, 10, 61, 46, 15, 98, 70, 5	05
	CO3,4	L3	Write C function for level order traversing of the tree. Write preorder, postorder and inorder traversal for the following tree 	05
	CO3,4	L3	Compare and contrast Trees and Graphs. List any two applications of both. Construct an AVL tree for the following elements 12,34,5,56,63,23,44,40	05
<b>OR</b>				
	CO3,4	L3	Construct a binary tree for the following expression $a+b*c^d-e/f$ . Obtain the prefix, postfix expression using the same tree.	05
	CO3,4	L2	Which of the following is false about a binary search tree? a) The left child is always lesser than its parent b) The right child is always greater than its parent c) The left and right sub-trees should also be binary search trees d) In order sequence gives decreasing order of elements  How can the graphs be represented? a)Adjacency matrix      b)Adjacency list c)Incidence matrix      d)All of the above  What is the time complexity improvement of skip lists from linked lists	

		<p>in insertion and deletion?</p> <p>a) <math>O(n)</math> to <math>O(\log n)</math> where <math>n</math> is number of elements</p> <p>b) <math>O(n)</math> to <math>O(1)</math> where <math>n</math> is number of elements</p> <p>c) no change</p> <p>d) <math>O(n)</math> to <math>O(n^2)</math> where <math>n</math> is number of elements</p> <p>What is a hash function?</p> <p>a) A function has allocated memory to keys</p> <p>b) A function that computes the location of the key in the array</p> <p>c) A function that creates an array</p> <p>d) A function that computes the location of the values in the array</p> <p>What can be the techniques to avoid collision in hashing ?</p> <p>a) Make the hash function appear random.</p> <p>b) Use the chaining method</p> <p>c) Use uniform hashing</p> <p>d) All of the mentioned</p>	05
<b>OR</b>			
CO3,4	L2	<p>What is the speciality about the inorder traversal of a binary search tree?</p> <p>a) It traverses in a non increasing order</p> <p>b) It traverses in an increasing order</p> <p>c) It traverses in a random fashion</p> <p>d) It traverses based on priority of the node</p> <p>An adjacency matrix representation of a graph cannot contain information of:</p> <p>Nodes      b) Edges    c) Direction of edges    d) Parallel edges</p> <p>What is a skip list?</p> <p>a) a linkedlist with size value in nodes</p> <p>b) a linkedlist that allows faster search within an ordered sequence</p> <p>c) a linkedlist that allows slower search within an ordered sequence</p> <p>d) a tree which is in the form of linked list</p> <p>Skip lists are similar to which of the following data structure?</p> <p>a) stack   b) heap   c) binary search tree   d) balanced binary search tree</p> <p>5. What is a hash table?</p> <p>A structure that maps values to keys</p> <p>A structure that maps keys to values</p> <p>A structure used for storage</p> <p>A structure used to implement stack and queue</p>	05

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