

### TREES-I

1	Define the following and give example for each: i. Strictly binary tree ii. Level of the tree
2	Write C function to print maximum and minimum elements of a given BST.
3	Discuss various representations of a binary tree.
4	Construct an expression tree for the given postfix expression: $A B C * + D E * F + G / -$ Show the contents of a stack and also draw the corresponding tree .for each step of construction.
5	Define the following with examples. i. Complete Binary tree ii. Strictly binary tree iii. AVL tree iv. Height of a tree v. Almost complete binary tree
6	Illustrate and discuss all the cases on deleting an element from the Binary Search Tree.
7	Define Binary tree. Write the properties of binary search tree.
8	Write a C function <b>BST_search(struct node *, int)</b> to search an element in binary search tree.
9	Construct a binary expression tree for the given postfix expression. Write the steps involved in constructing the binary expression tree using stack representation. $a b + c d * e / - f g / h * +$ Also write the preorder traversal of the constructed expression tree and evaluate with $a=3, b=9, c=8, d=2, e=7, f=4, g=6, h=1$
10	Illustrate and discuss all the cases on deleting an element from the Binary Search Tree for the constructed BST given in the question 8c.
11	Construct a Binary Search Tree for the following elements. 65,45,80,30,49,75,100,20,38,49,69,78,85,110 Also write the Inorder traversal and Preorder traversal for the constructed binary tree. Write the recursive call function <b>Inorder(struct node *)</b> for the inorder traversal and <b>Preorder(struct node *)</b> for the preorder traversal of a tree.

## TREES-II

1	<p>Define B-tree. Write the properties of B-trees .Explain the construction of 2-3 tree( B tree of order 3) for the following data: 50, 60, 70, 40, 30, 20, 10, 80, 90,100 Delete the elements in the sequence 70, 100, 80 from the tree constructed. Also draw the tree after each insertion and deletion.</p>
2	<p>Starting from an empty height balanced tree(AVL), insert the following data one by one in the sequence as given below: 14, 17, 11, 7, 53, 4, 13, 12, 8, 60, 19, 16, 20 Also draw the tree after each insertion.</p>
3	<p>Explain the construction of 2-3-4 tree( B tree of order 4) for the following data: 20, 50, 40, 70, 80, 15, 90,100 Delete the elements in the sequence 80, 40, 15 from the tree constructed. Also draw the tree after each insertion and deletion.</p>
4	<p>Define AVL. Discuss the different rotations of AVL trees. Explain the different cases of deleting an element from a constructed AVL tree. Also construct an AVL tree for the following data given.      63, 9, 19, 27, 18, 108, 99, 81</p>
5	<p>Construct BST for the given set of data and check whether it is height balanced tree (AVL) or not. If not convert and reconstruct the balanced AVL tree.  20, 11, 5, 32, 40, 2, 4, 27, 23</p>