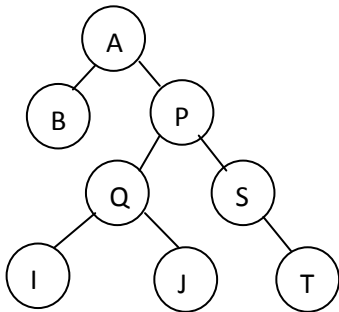


Assignment 6

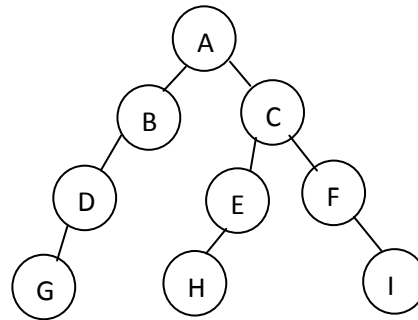
Q.A. Answer the following questions in one or two lines :

1. What is a NULL tree ?
2. Define tree.
3. Draw a BST for the given data : **10 34 8 2 40 60.**
4. Define : Skewed binary tree.
5. What is an advantages of a Binary search over linear search ?
6. In binary tree construction which is the most efficient data structure used ?
7. Which traversal will be used to display elements of binary search tree in ascending order ?
8. In an AVL tree , when is the balancing to be done.
9. "A parent node must have two children in a binary tree". State True / false.
10. Define Height of tree.
11. Define Balance Factor.
12. Write the difference between Binary Search tree and AVL tree.
13. Give the structure of a node in AVL tree.
14. Draw all possible non similar Binary trees having 3 nodes.
15. Give the postorder , preorder and inorder traversals for the following tree :

i)



ii)



Q. B. Answer the following questions :

1. Define i) Forest ii) Strictly binary tree iii) Skewed binary tree
2. Write the steps for creating binary search tree for the following data : **D E B Y A Q** . Also give preorder traversal.
3. Construct binary search tree for the following data . Show the tree at each step :
i) **34 , 91 , 30 , 31 , 80 , 85 , 138.** ii) **15 , 30 , 20 , 5 , 10 , 2 , 7** iii) **34 , 67 , 45 , 12 , 78 , 55 , 43 , 90 , 11**
4. Write a 'C' function to display the data and count total number of leaf nodes of binary search tree.
5. Write a 'C' function to find minimum and maximum element from leaf nodes of a Binary tree.
6. Write a 'C' function to search an element in a Binary Search tree on integers.
7. Write a 'C' function to display the data and count total number of non-leaf nodes of binary search tree.
8. Write a 'C' function to perform preorder tree traversal.
9. Sort the following data using heap sort method :
i) **72 , 64 , 65 , 56 , 32 , 46 , 54 , 29 , 48.** ii) **13 , 4 , 11 , 15 , 59 , 27 , 19 , 3 , 5 , 93**
10. Construct an AVL tree for the following data :
i) **A , Z , B , Y , C , X , D , U** ii) **COMP , MATH , STAT , GEOG , ELEC , CHEM**