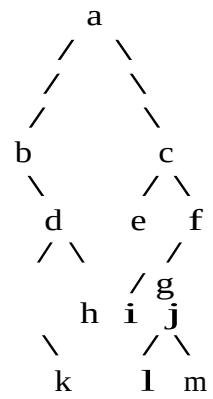
Lab Exercises -(28.09.2022)

Evaluation

Observation – 5 marks
Execution – 15 marks
Spot – 5 marks

Observation

Exercise 1 (5 marks)



- What is the root and Which are the leaves? (1)
- Give the result of preorder, postorder, and inorder traversal.(1)
- Compute the height, depth, and size (number of nodes in the subtree). (1)

Exercise 2 (Binary search tree - insertion and deletion) (2marks)

- Show the result of inserting 6, 4, 8, 5, 1, 9, 7, 11, 2 into an initially empty binary search tree.
- Show the result of first deleting 1 (from the previously constructed tree), and then 6.

Execution – 15 marks

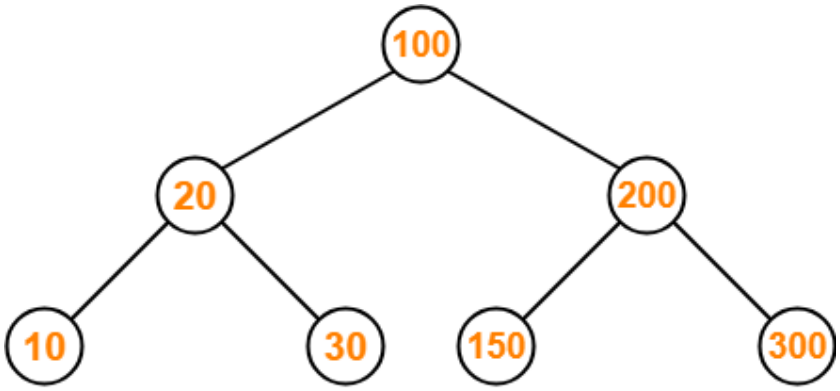
1. (a) Construct a Binary Search Tree (BST) for the following sequence of numbers-

   50, 15, 62, 5, 20, 58, 91, 3, 8, 37, 60, 24

   (b) Write the number of nodes in left sub tree and right subtree

   (c) How many distinct binary search trees can be constructed out of 4 distinct keys?

   (d) Write all the traversal sequences of the given BST



Binary Search Tree

(e) Discuss about the time complexity of BST operations.

2. Construct a Binary Search Tree with the following alphabets

M,R,I,L,E,K,O,U,P,R,T,G

and do the basic operations insert , delete and search

(i) Insert the alphabets Q and V

(ii) Delete the alphabets G,O,M

(iii) Search an alphabet E

3. Implement preorder , inorder and post order traversal operations in BST

Spot – 5 marks

1. Create a Binary tree of strings, such that the string at root is "ROOT" (by default) and keep all the string that starts with vowels as left children and consonants as right children and display the result in "**In order"**.