* Data Structures and Algorithms (DSA) - Assignment Number - 2

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Q-1. What is Binary Tree? Construct binary tree from the given traversals.

Pre-order :- G, B, Q, A, C, K, F, P, D, E, R, H

In-order :- Q, B, K, C, F, A, G, P, E, D, H, R.

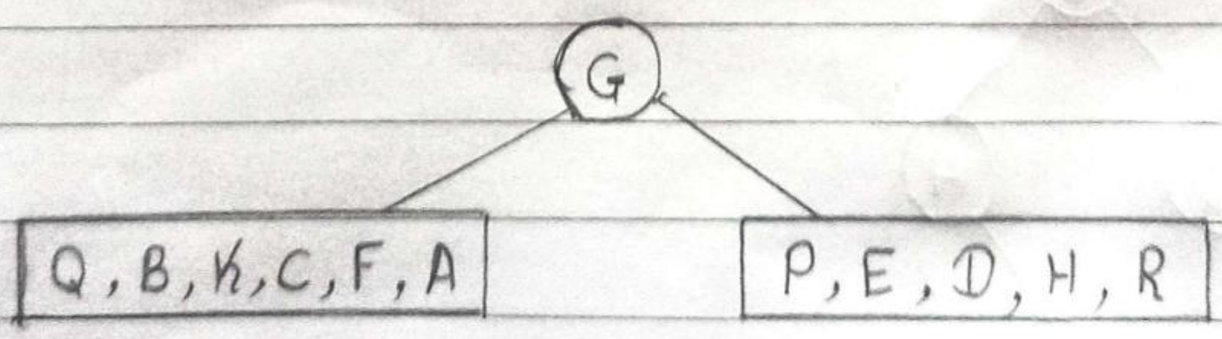
→ Binary Tree :-

A tree whose elements have at most 2 children is called a binary tree. Since each element in a binary tree can have only 2 children typically we name them the left and right child.

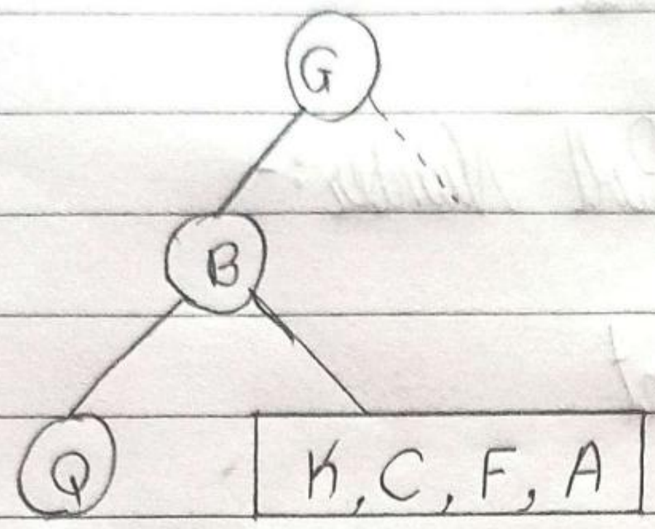
Given → Pre-order - G, B, Q, A, C, K, F, P, D, E, R, H.

In-order - Q, B, K, C, F, A, G, P, E, D, H, R.

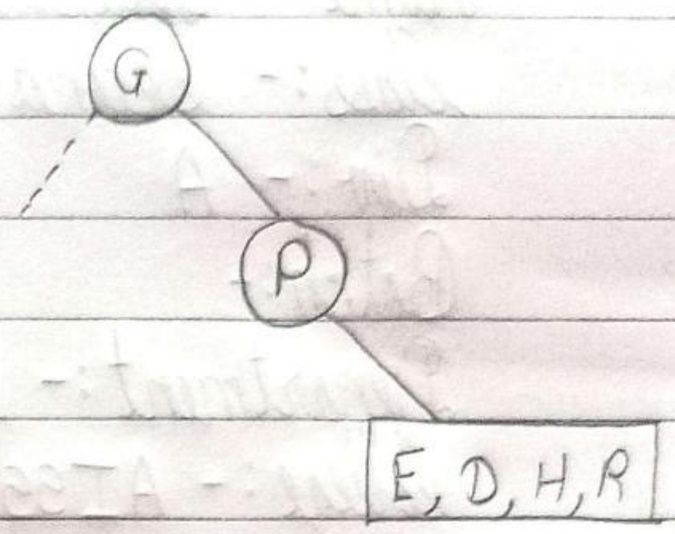
Step-1:



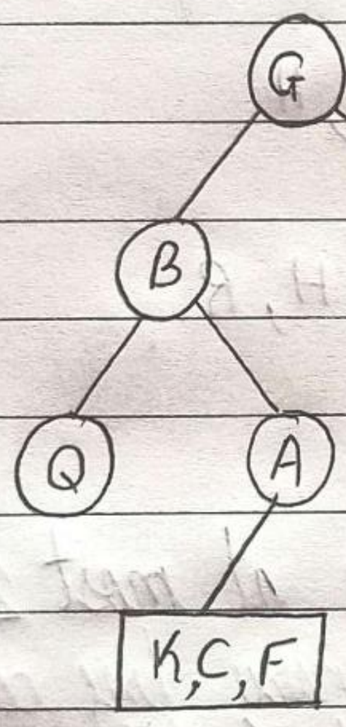
Step-2: Pre-order - B, Q, A, C, K, F
In-order - Q, B, K, C, F, A



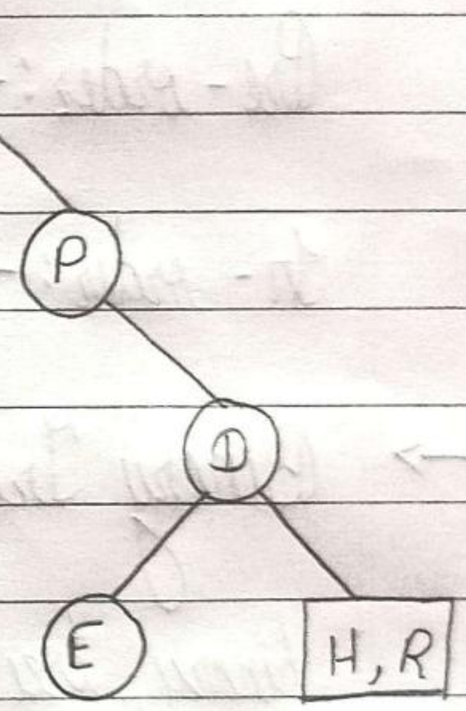
Pre-order - P, D, E, R, H
In-order - P, E, D, H, R



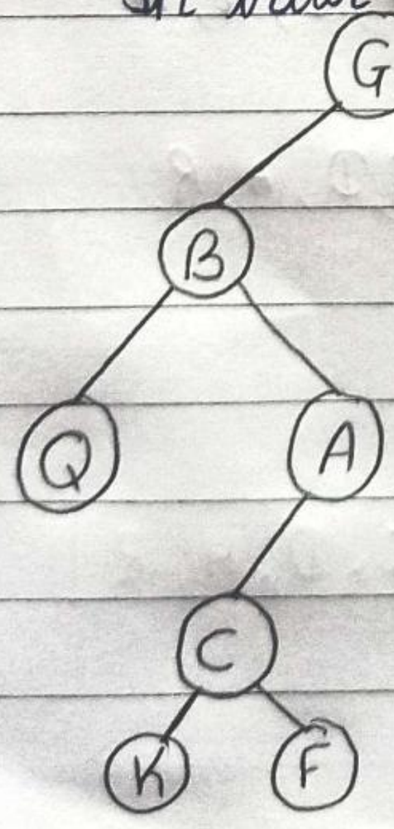
Step-3:- Pre-order - A, C, K, F
In-order - K, C, F, A



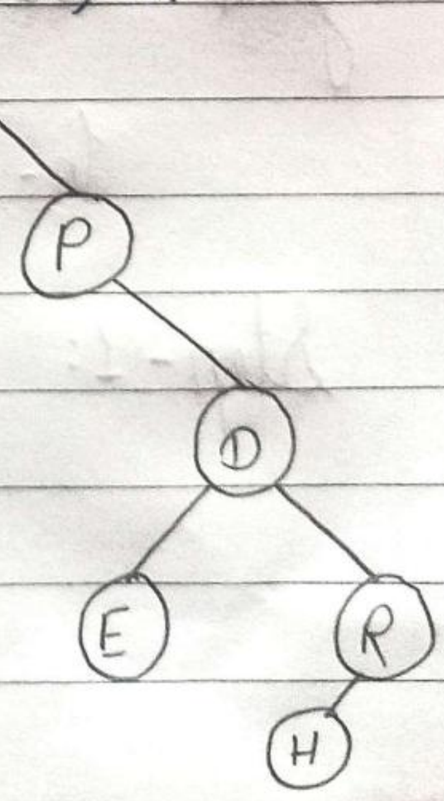
Pre-order - D, E, R, H
In-order - E, D, H, R

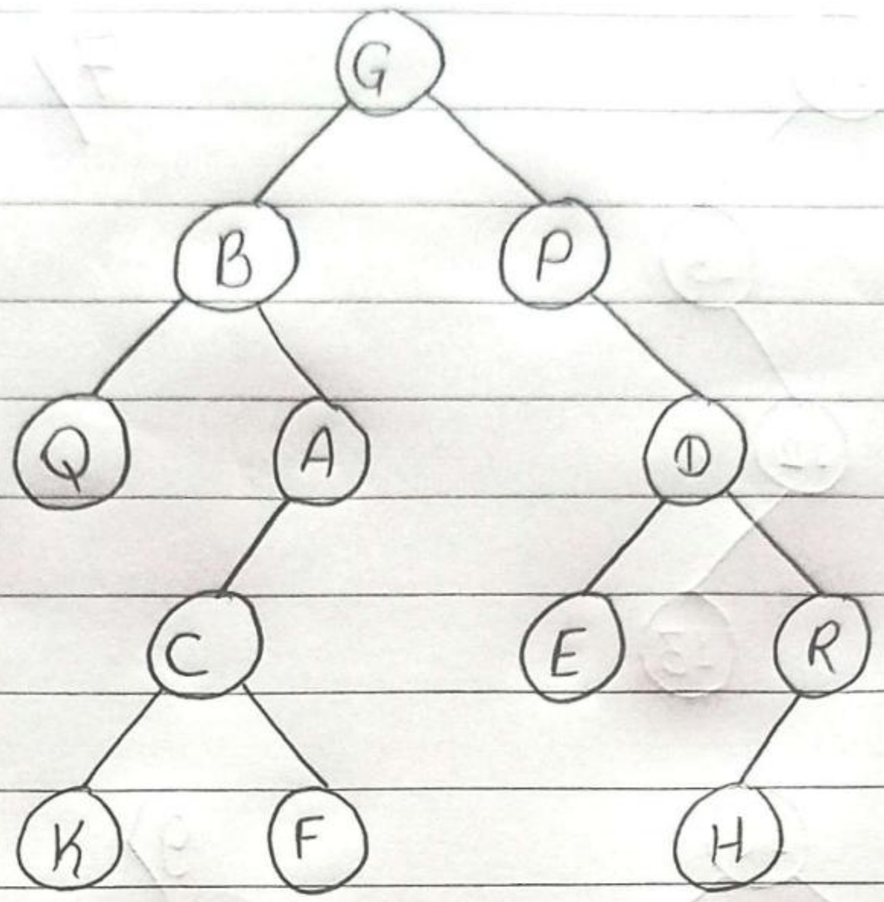


Step-4: Pre order - C, K, F
In order - K, C, F



Pre order - R, H
In order - H, R



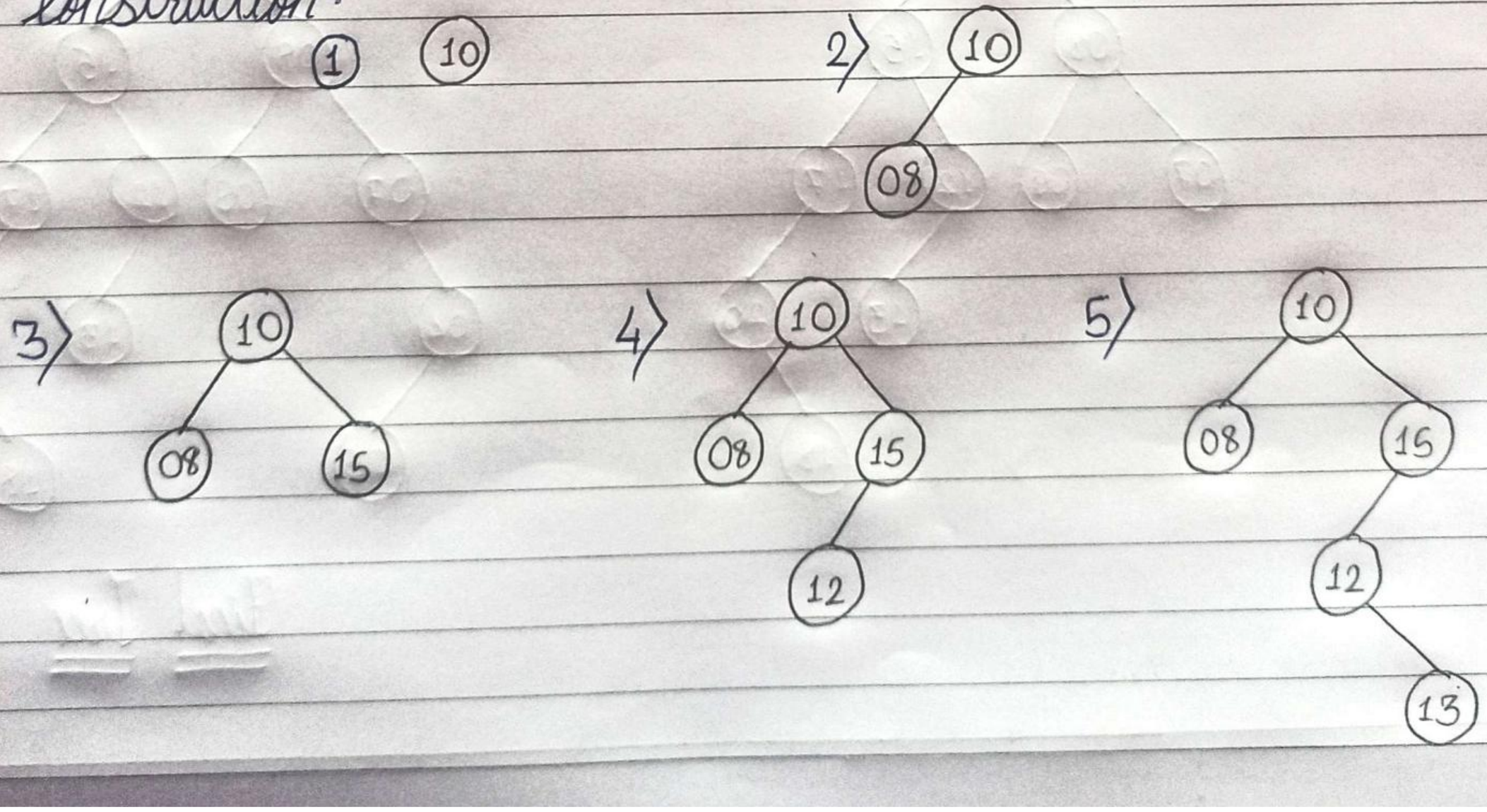


Final Tree

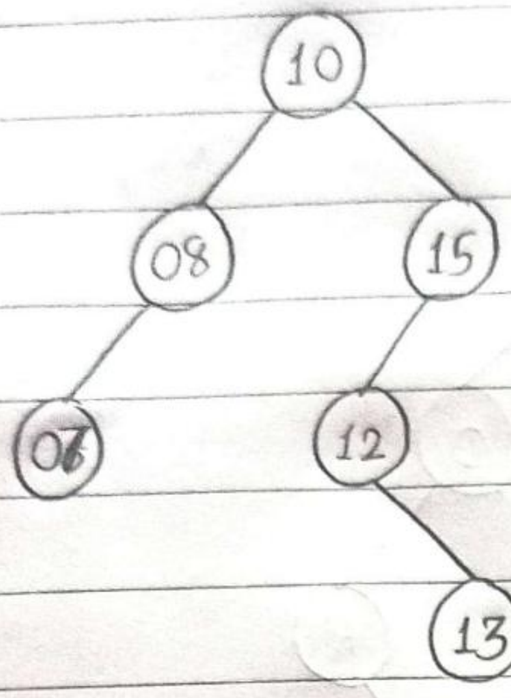
Q-2. Construct binary search tree for the following data

10, 08, 15, 12, 13, 07, 09, 17, 20, 18, 04, 05

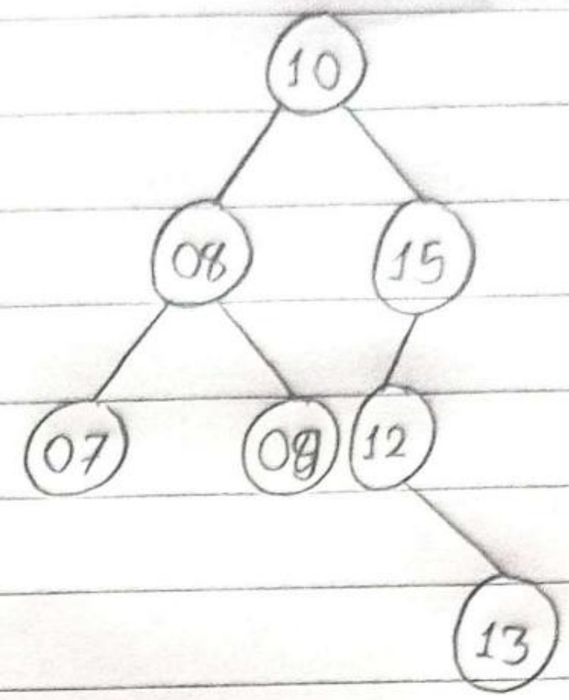
→ Construction :-



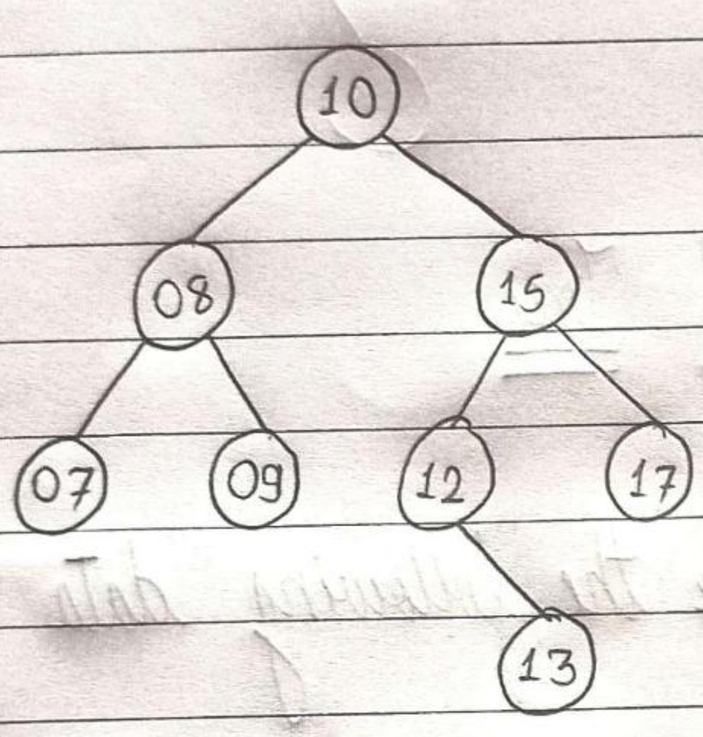
6)



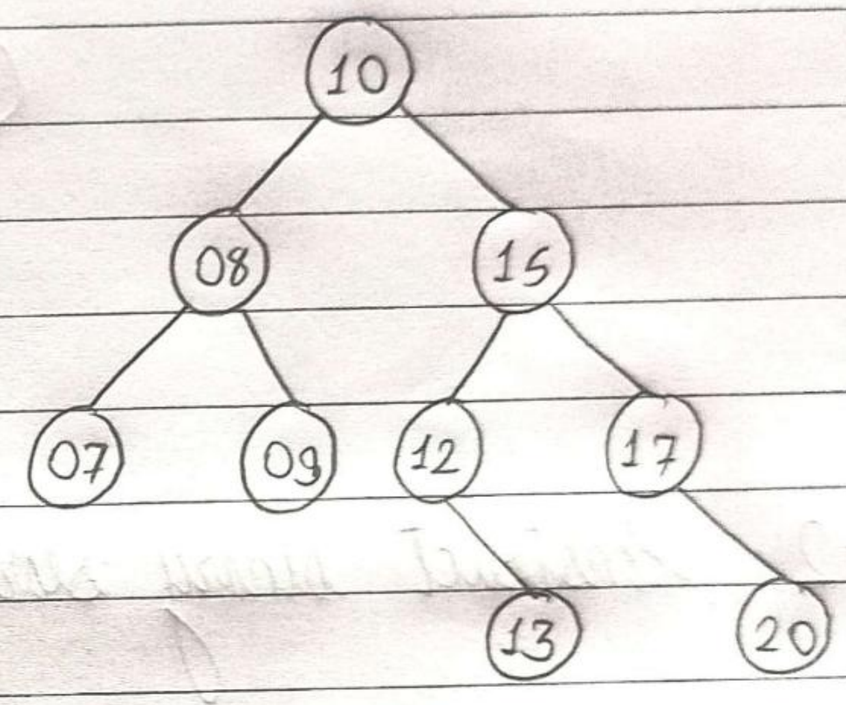
7)



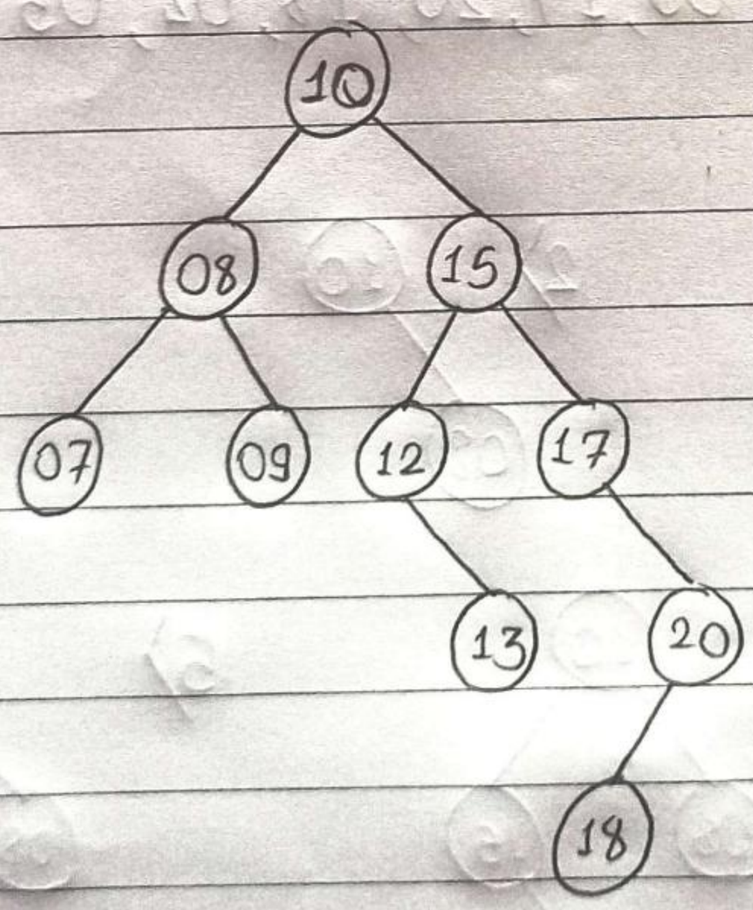
8)

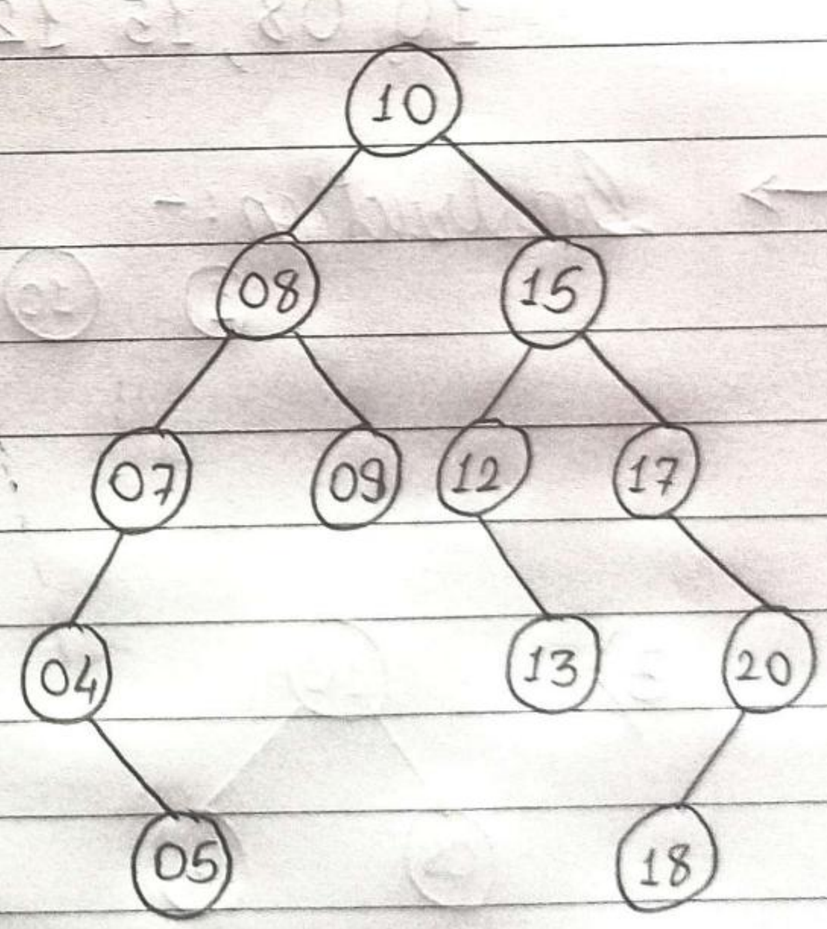


9)



10)





Final Tree