DATA STRUCTURE

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Quiz Solution

1) Q)

INORDER TRANSVERSAL: A K B J C L I D E F H G

PREORDER TRANSVERSAL: L K A J B C I H E D F G

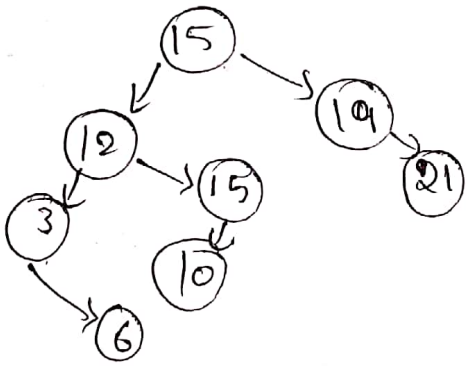
POSTORDER TRANSVERSAL: A B C J K I D E F G H L

BREADTH FIRST ORDER TRANSVERSAL :-

L K I H A J E F G B C D

2) Q) After deletion and addition

The final tree would be



The tree is not an AVL tree

3)a Height of the tree is 3

The largest number nodes $\rightarrow 2^{h+1}-1$

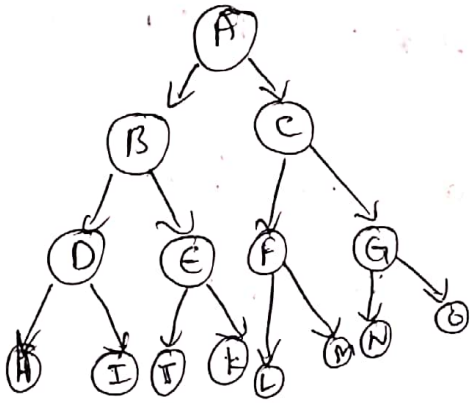
$\rightarrow 2^{4}-1$

$\rightarrow 15$

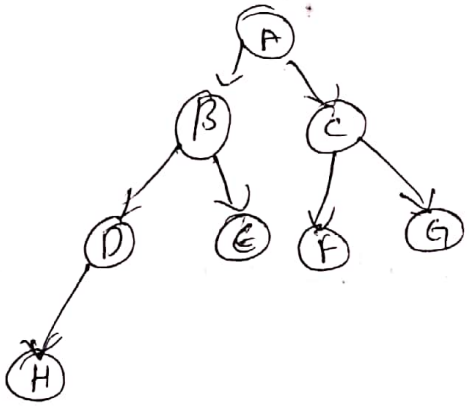
The Smallest number of nodes

$\rightarrow 2^{h} \cdot 2^{3} = 8$

Tree with largest number of nodes 15



Tree with Smallest number of nodes 8



Here

Internal nodes

$\rightarrow$ A, B, C, D

Leaf nodes

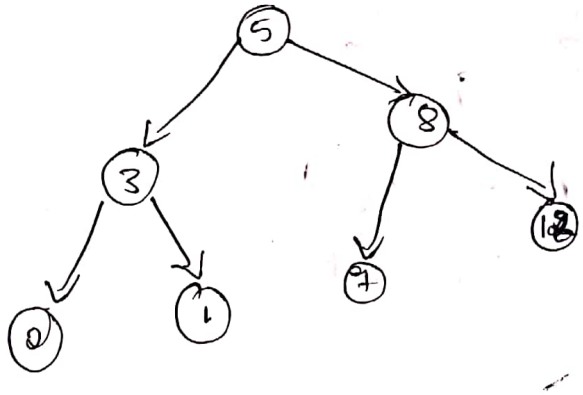
$\rightarrow$ E, F, G, H

④ Ans> false

In pre order transversal of tree, the first printed item is not smallest one

According to the rule, in pre-order we first put root node. then left child and right child In b/w then left child is smallest and it is not at first place

ex :-



Here pre order becomes 5 3 2 4 8 7 12
Here 2 is smallest in first cycle but not at first place

⑤ Ans> The breadth first transversal of given no's

~~pre~~ ~~or~~

2, 3, 5, 10, 8, 7, 22, 11, 13, 20, 24, 16

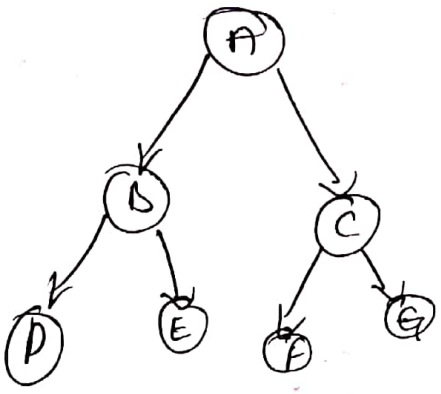
2	3	5	10	8	7	22	11	13	20	24	16	Null	Null	Null

Deletion and addition is not possible in this tree because this is not binary search tree this operations only exist for B.S.T.

6) b) The post order traversal sequence for Binary Search tree is given as

10, 30, 20, 150, 300, 200, 100

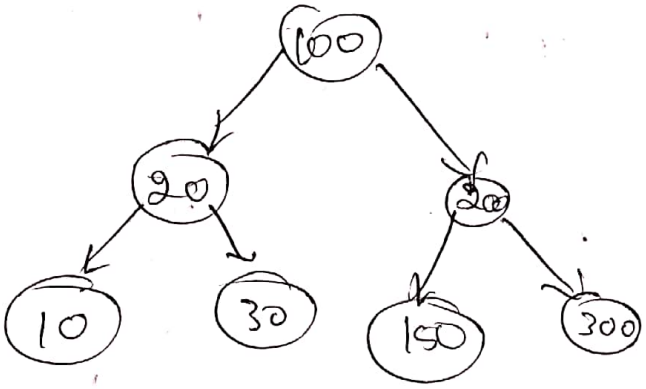
Let us consider the binary search tree as



The post traversal for this tree will be

DEBFGCA

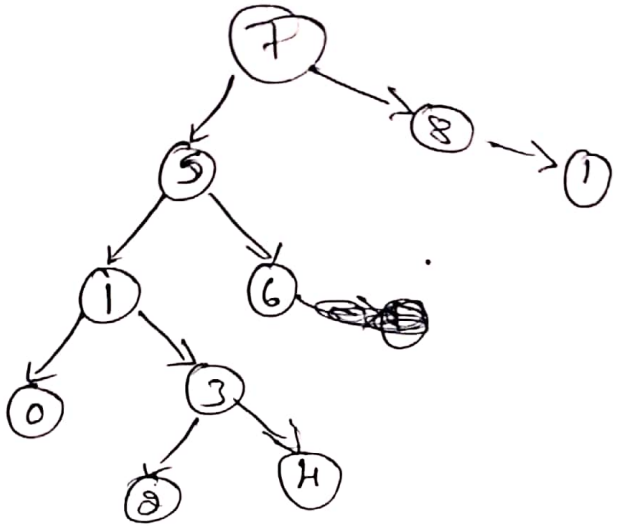
∴ The final Binary tree will be



A - 100
B - 20
C - 200
D = 10
E = 30
F = 150
G = 300

7) (B) option (3)

If the number 7, 5, 1, 8, 3, 6, 0, 1, 4, 2, are inserted in order the binary search tree will be



The Inorder Traversal of the above tree will be

(B) 1, 2, 3, 4, 5, 6, 7, 8, 9.