DATA STRUCTURE

QUIZ SOLUTIONS

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Section :- B

Ans.1 Inorder Traversal : A K B J C L I D E F H G

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

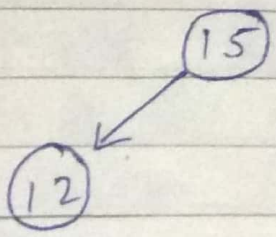
Postorder Traversal : A B C J K I D E F G H L

Breadth First Order Traversal :-

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

Ans.2 After deletion and addition

The final tree would be



The tree is not an AVL tree.

Ans: Height of the tree is 3

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

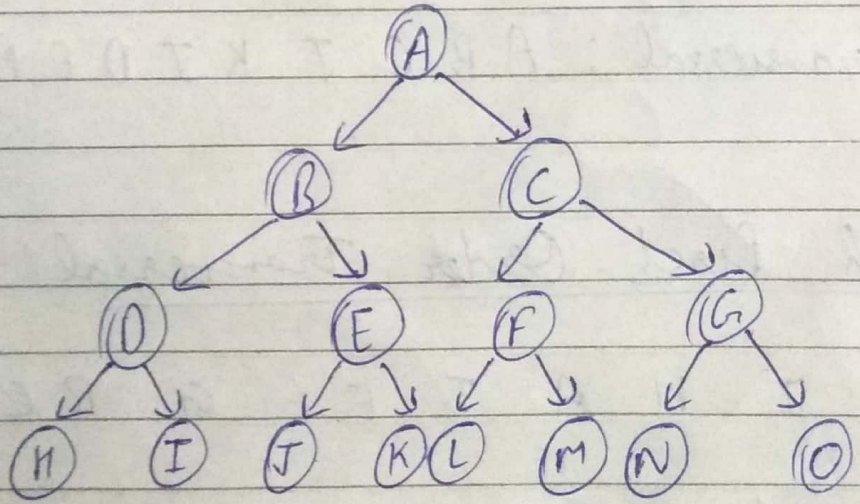
$\rightarrow 2^4 - 1$

$\rightarrow 15$

The smallest number of nodes

$\rightarrow 2^n = 2^3 = 8$

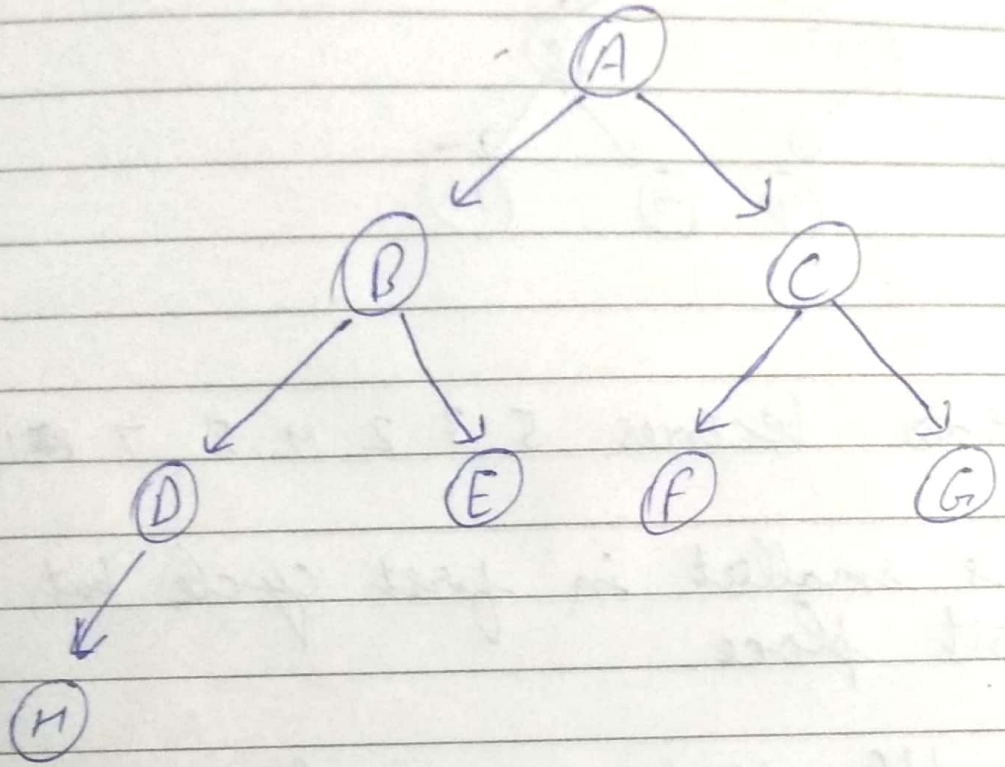
Tree with largest number of nodes = 15



Internal Nodes → A, B, C, D, E, f, G

Leaf Nodes → H, I, J, K, L, M, N, O

Tree with smallest number of nodes 8



Here, Internal nodes → A, B, C, D

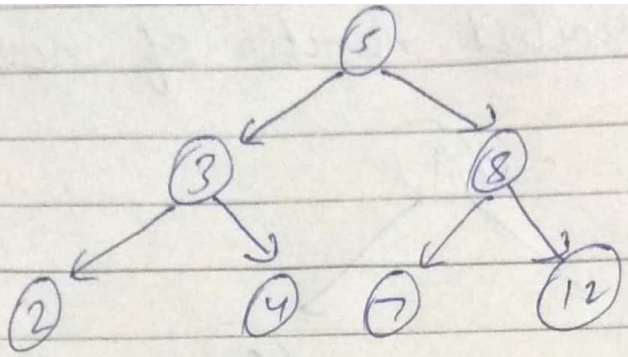
Leaf Nodes → E, F, G, H

Ans 4. False,

In pre-order traversal 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 them left child is smallest & it is not at first place.

e.g.



Here,

Preorder becomes 5 3 2 4 8 7 12

Here 3 is smallest in first cycle but not at first place.

Ans.5. The breadth first transversal of given no is

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

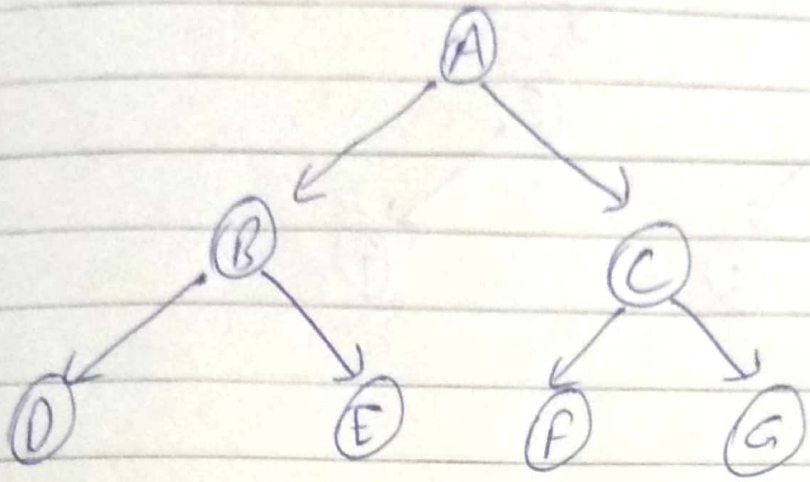
2	3	5	10	8	7	22	11	13	20	24	16	Null	Null	Null

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

Ans6. The post order transversal sequence for Binary Search tree is given as

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

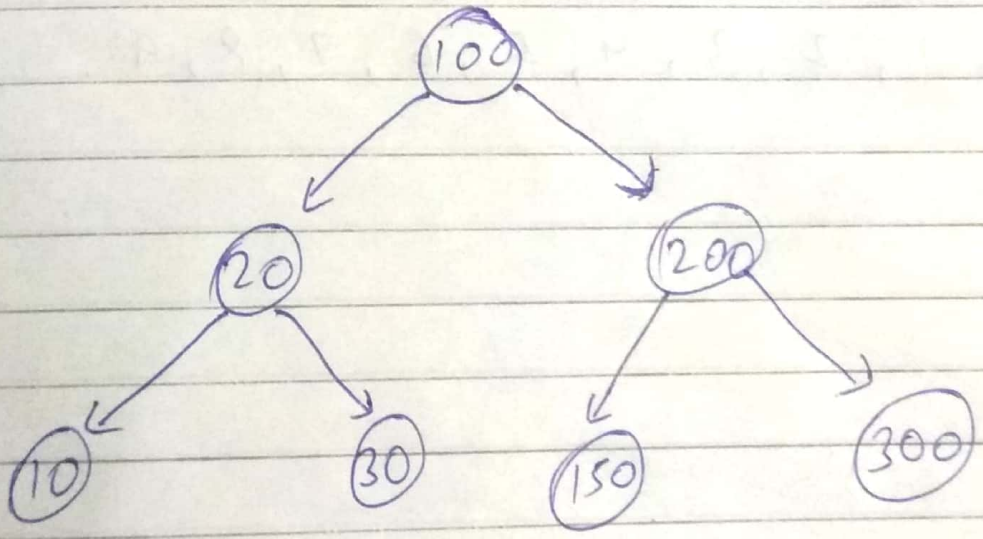
Let us consider the binary search tree as



The post transversal for this tree will be
D E B F G C A

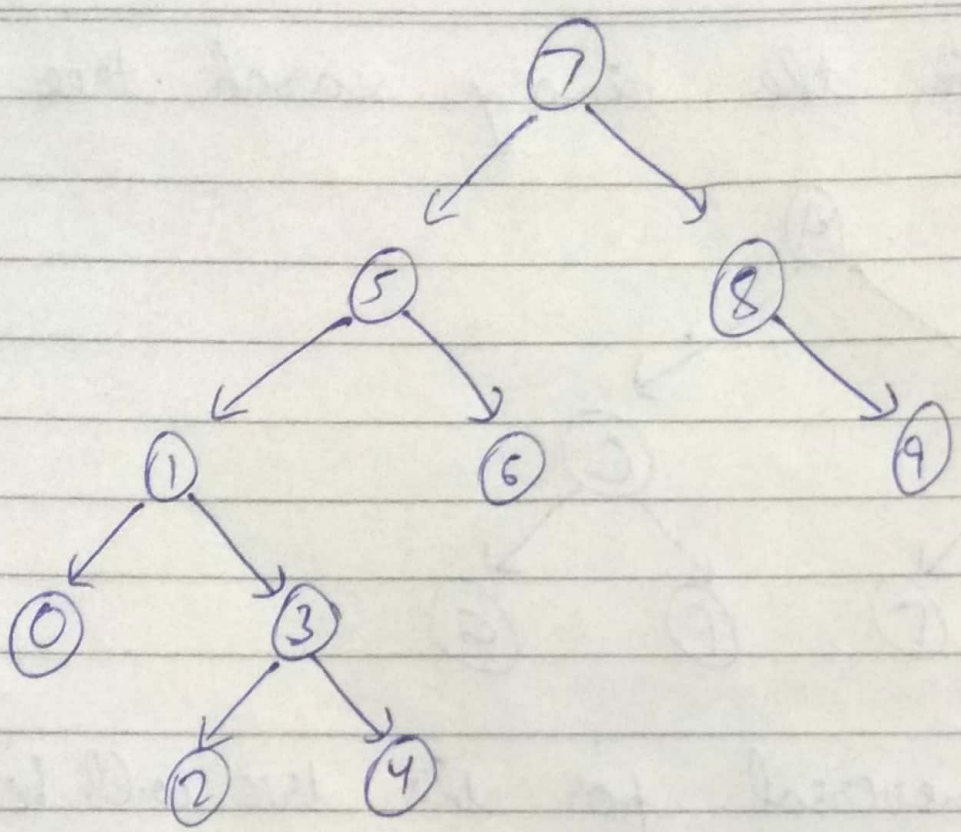
∴ The final Binary tree will be

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



Ans.7. Option (3)

If the numbers 7, 5, 1, 8, 3, 6, 0, 9, 4, 2 are instead in order the binary search tree will be



The inorder transversal of the above tree will be

0, 1, 2, 3, 4, 5, 6, 7, 8, 9.