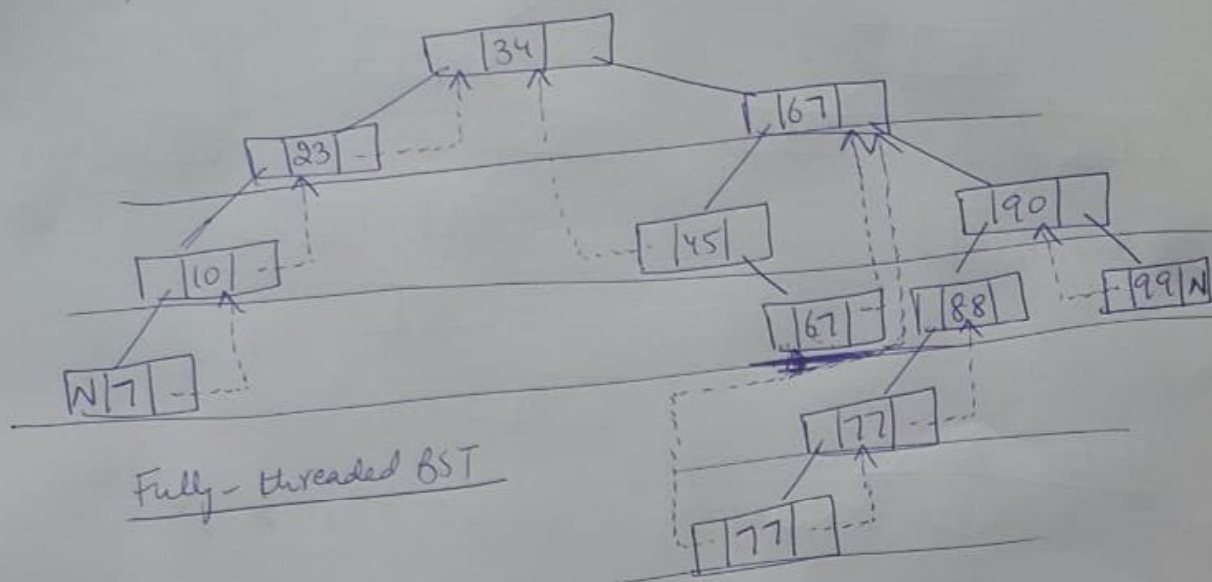


Assignment Trees Solution

①

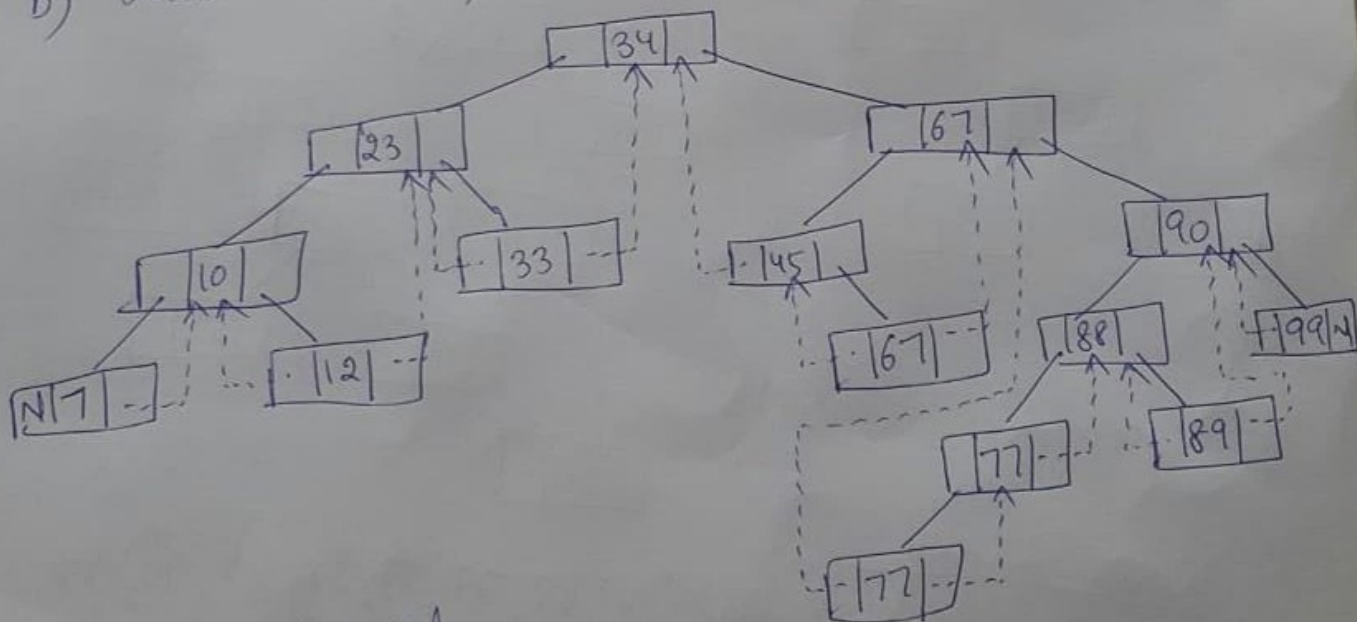
Q1. a) 34, 67, 23, 90, 45, 67, 88, 99, 10, 7, 77, 77



In order traversal

7, 10, 23, 34, 45, 67, 67, 77, 77, 88, 90, 99

b) Insert nodes 12, 89 and 33 in the above tree.

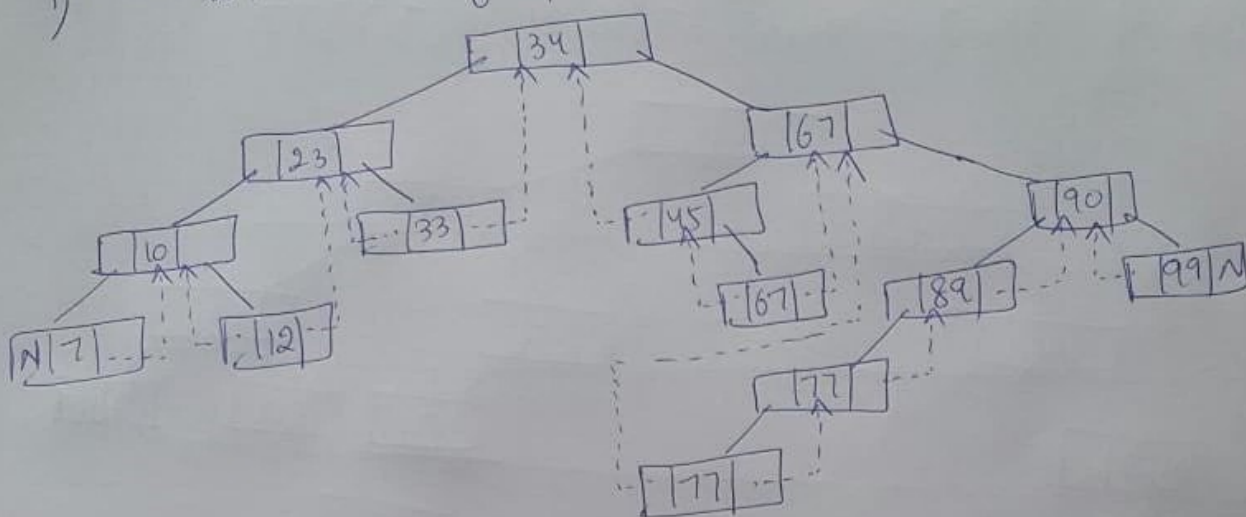


In order traversal

7, 10, 12, 23, 33, 34, 45, 67, 67, 77, 77, 88, 89, 90, 99

Delete nodes 88, 23 and 77.
 i) Delete 88 from tree of part b)

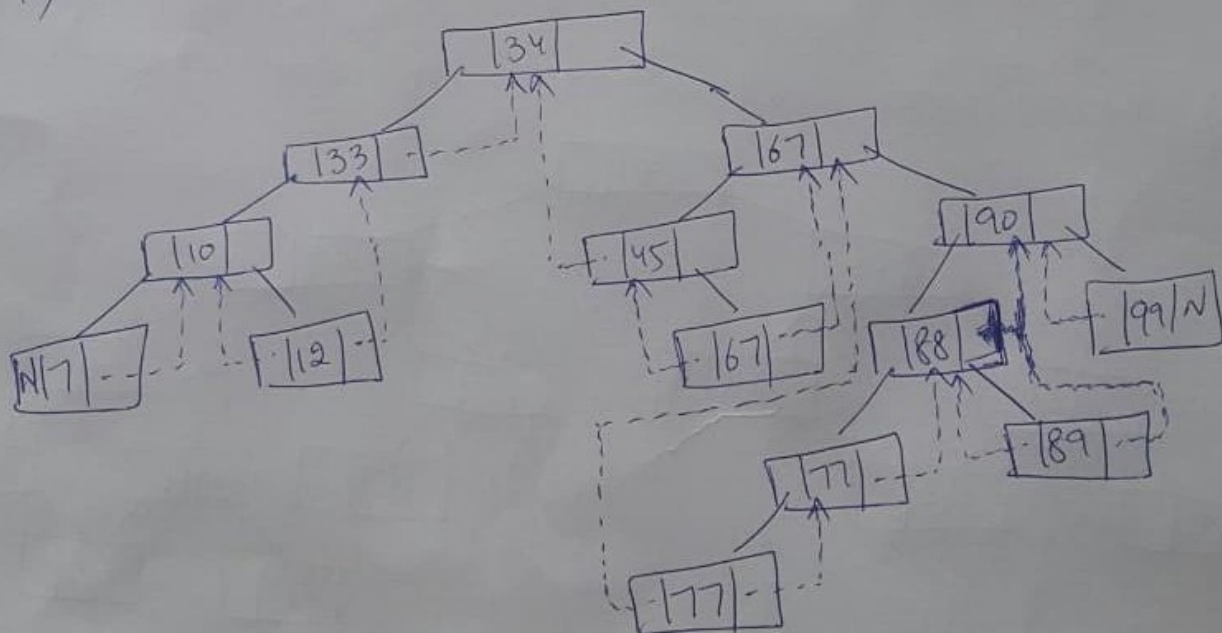
(2)



Inorder traversal

7, 10, 12, 23, 33, 34, 45, 67, 67, 77, 77, 89, 90, 99

ii) Delete 23 from tree of part b)

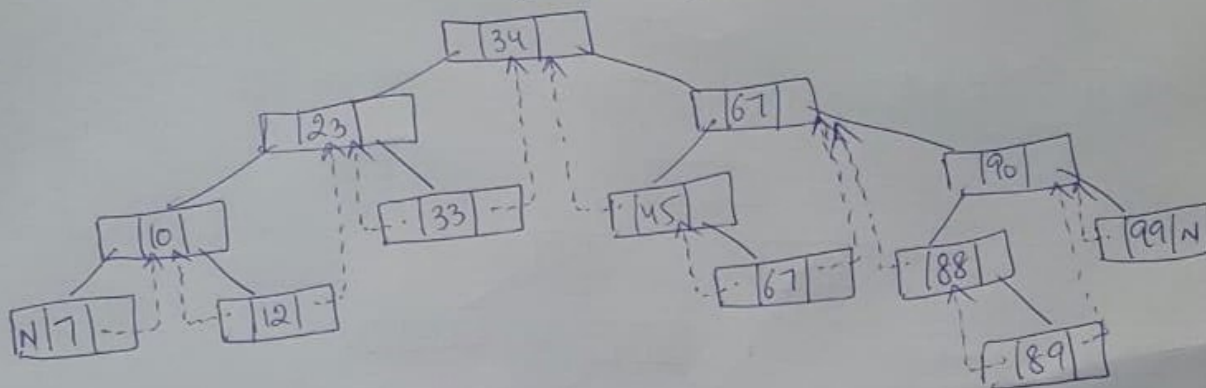


Inorder traversal

7, 10, 12, 33, 34, 45, 67, 67, 77, 77, 88, 89, 90, 99

Delete 77 from tree of part b)

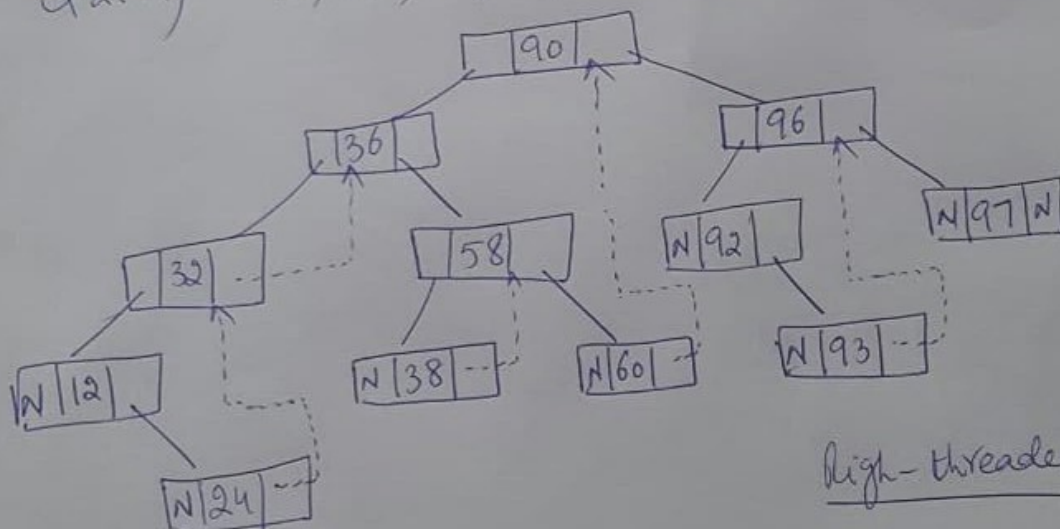
(3)



Inorder traversal

7, 10, 12, 23, 33, 34, 45, 67, 67, 88, 89, 90, 99

Q2. a) 90, 36, 58, 96, 32, 92, 12, 93, 24, 97, 38, 60

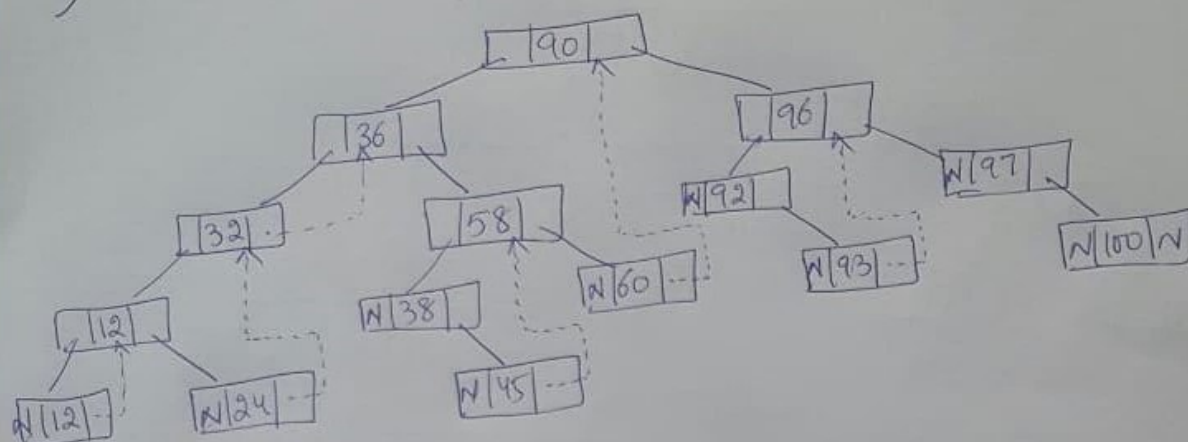


Right-threaded BST

Inorder traversal

12, 24, 32, 36, 38, 58, 60, 90, 92, 93, 96, 97

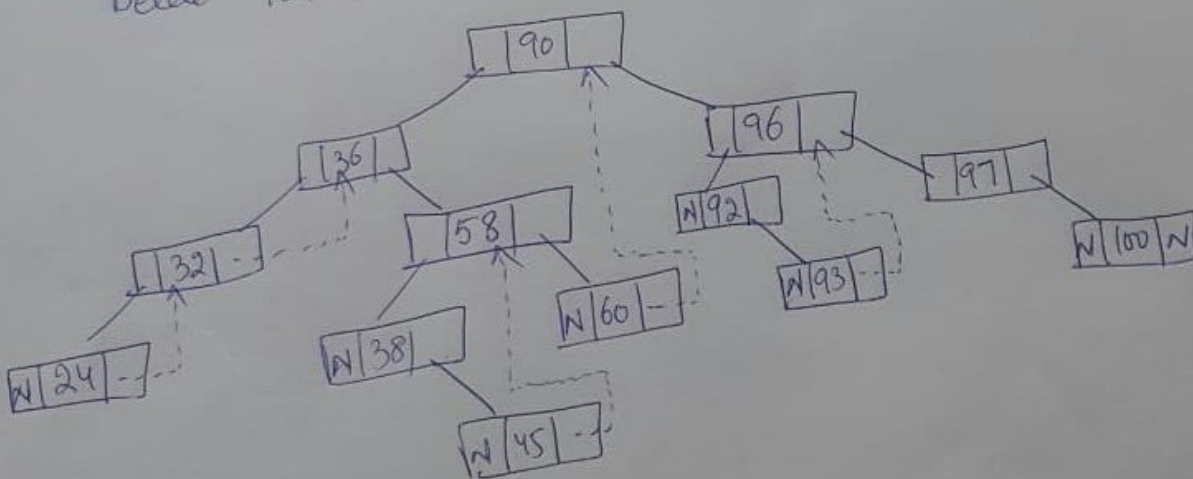
b) Insert nodes 12, 100 and 45 in the above tree. (4)



Inorder traversal

12, 12, 24, 32, 36, 38, 45, 58, 60, 90, 92, 93, 96, 97, 100

c) Delete nodes 12, 60, 36 and 96.
Delete 12 from tree of part b)

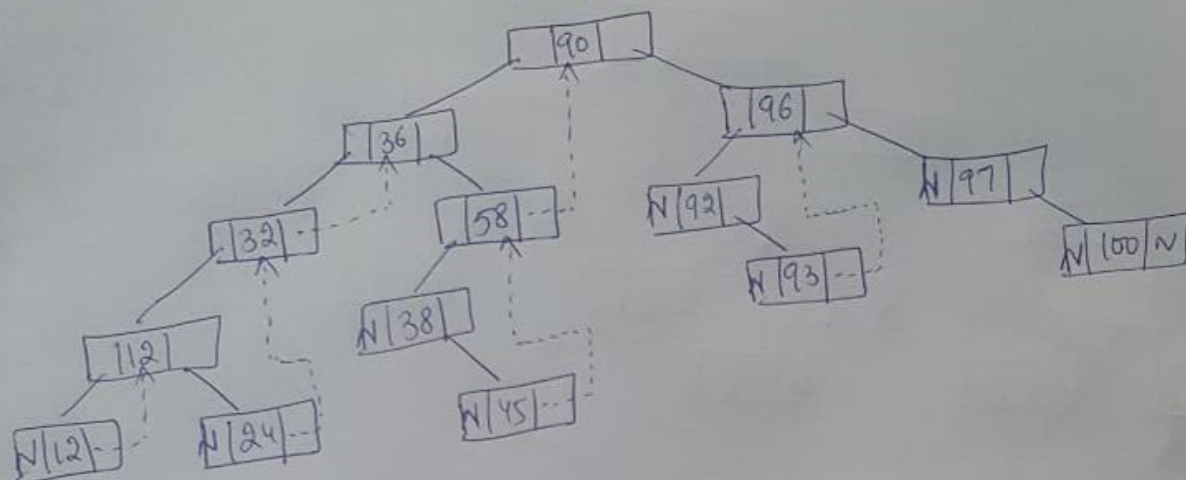


Inorder traversal

24, 32, 36, 38, 45, 58, 60, 90, 92, 93, 96, 97, 100

Delete 60 from tree of part b)

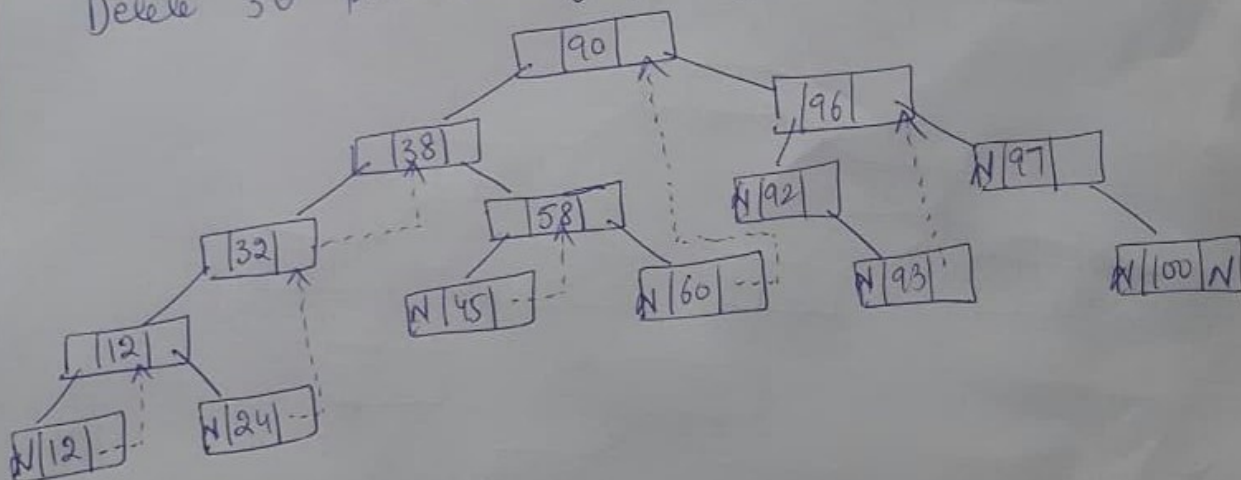
5



Inorder traversal

12, 12, 24, 32, 36, 38, 45, 58, 90, 92, 93, 96, 97, 100

Delete 36 from tree of part b)

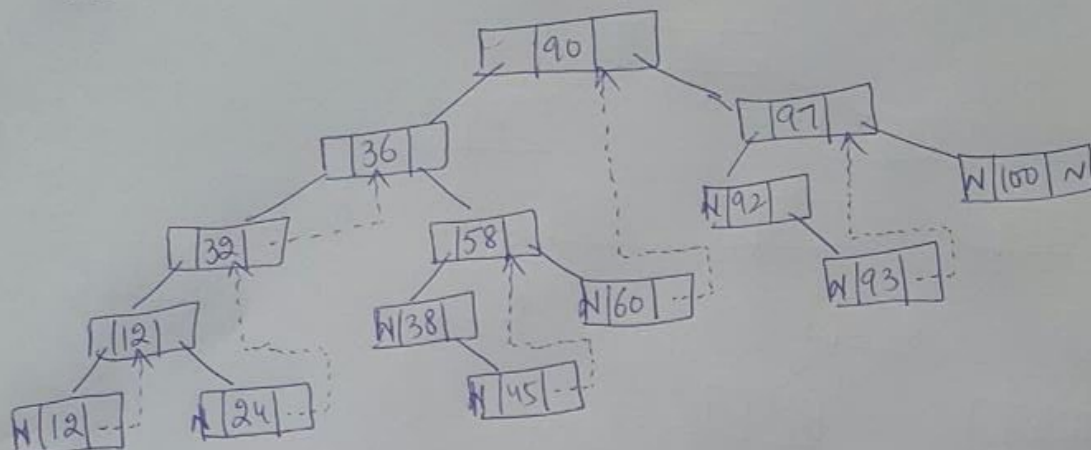


Inorder traversal

12, 12, 24, 32, 38, 45, 58, 60, 90, 92, 93, 96, 97, 100

Delete 96 from tree of part b)

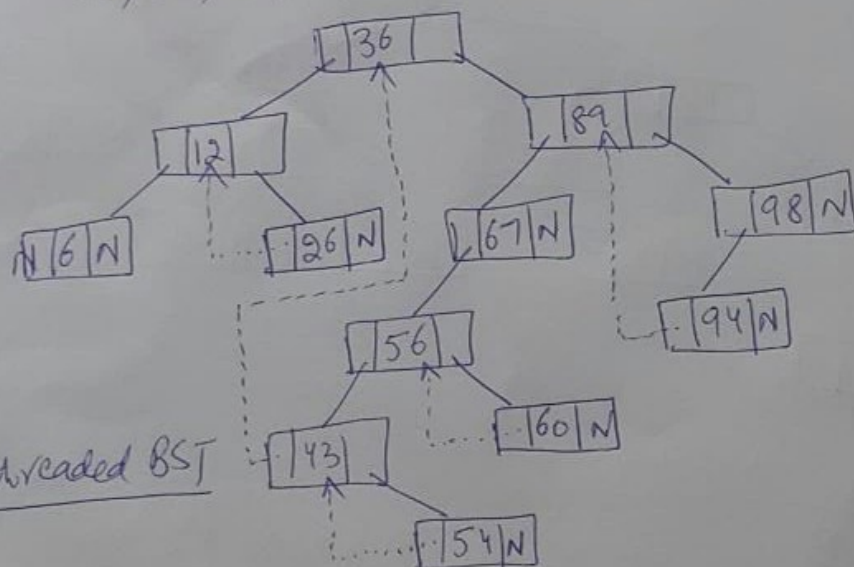
6



Inorder traversal

12, 12, 24, 32, 36, 38, 45, 58, 60, 90, 92, 93, 97, 100

Q3. a) 36, 89, 12, 67, 56, 43, 54, 98, 6, 60, 94, 26

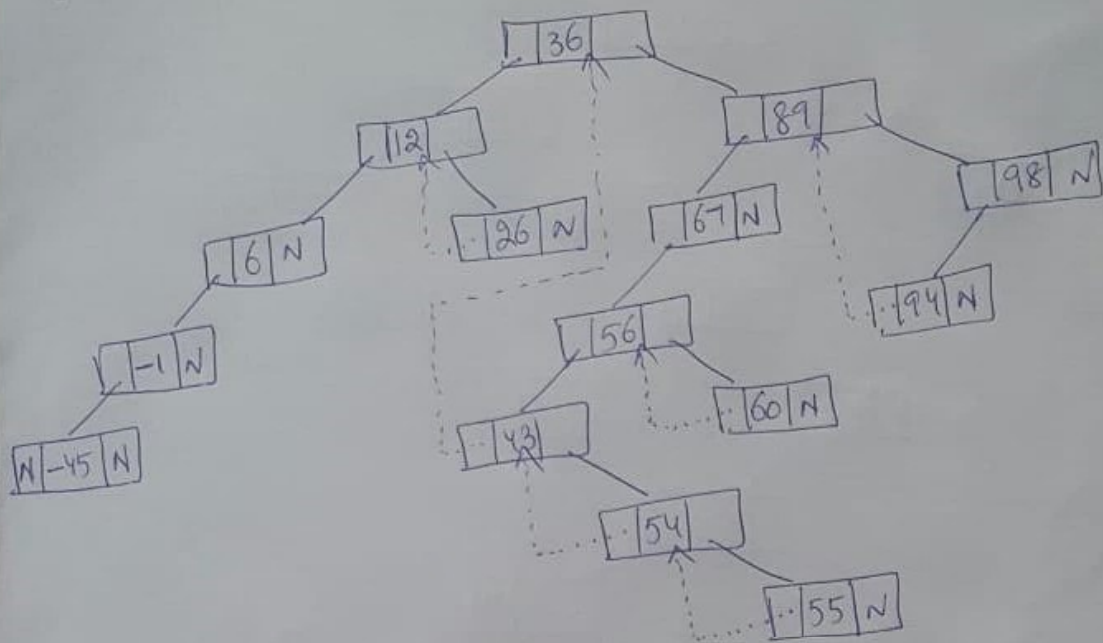


Left-in threaded BST

Inorder traversal

6, 12, 26, 36, 43, 54, 56, 60, 67, 89, 94, 98

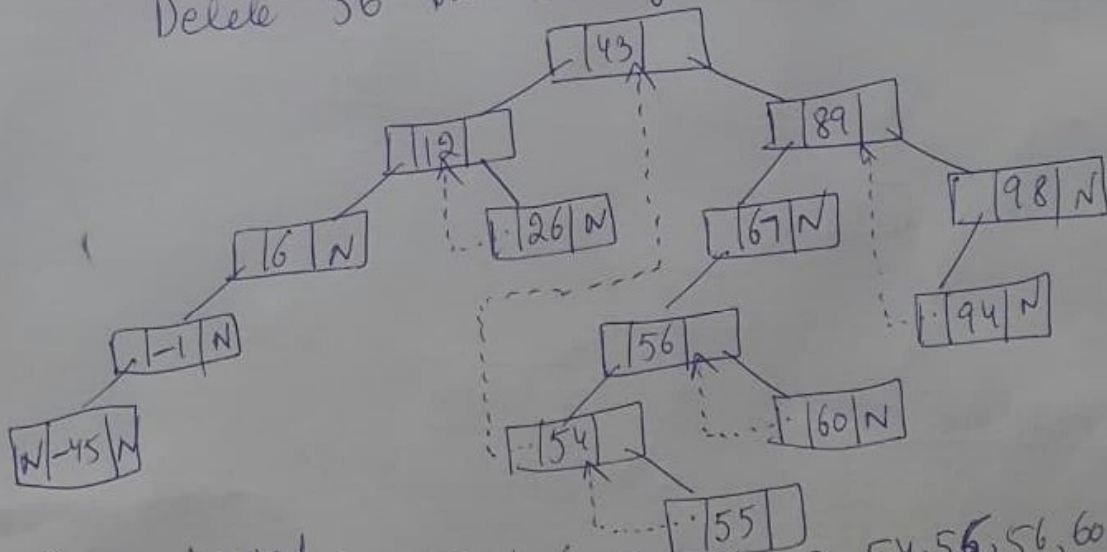
b) Insert nodes 55, -1 and -45 in the above tree. (7)



Inorder traversal

-45, -1, 6, 12, 26, 36, 43, 54, 55, 56, 60, 67, 89, 94, 98

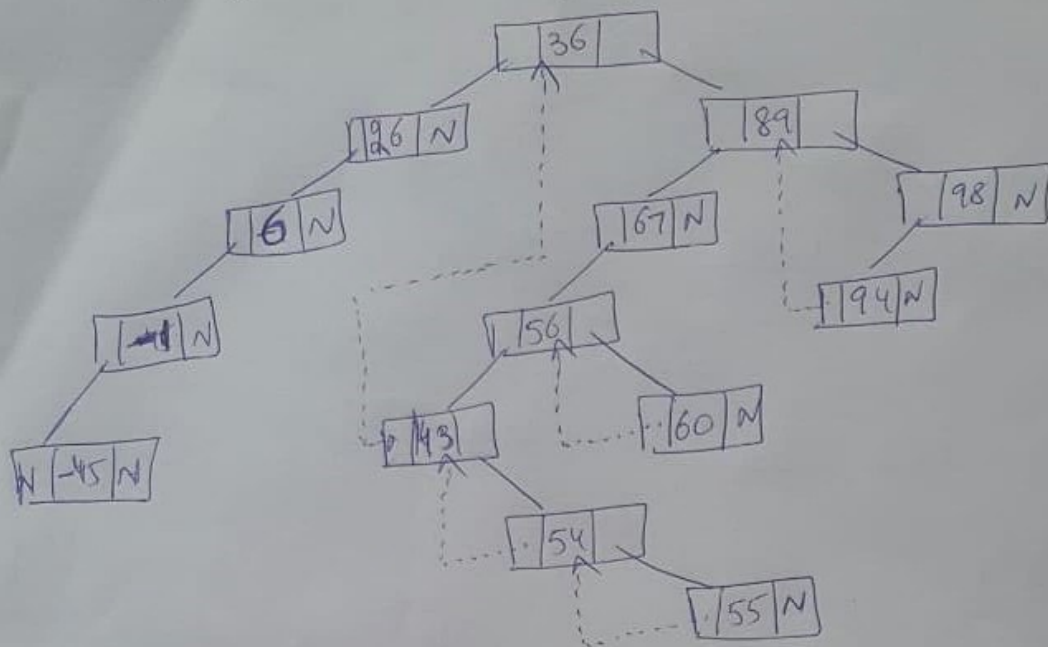
c) Delete all the nodes having two children.
Considering tree of part b) nodes 36, 12, 56 and 89 are to be deleted.
Delete 36 from tree of part b)



Inorder traversal : -45, -1, 6, 12, 26, 43, 54, 55, 56, 60, 67, 89, 94, 98

Delete 12 from tree of part b)

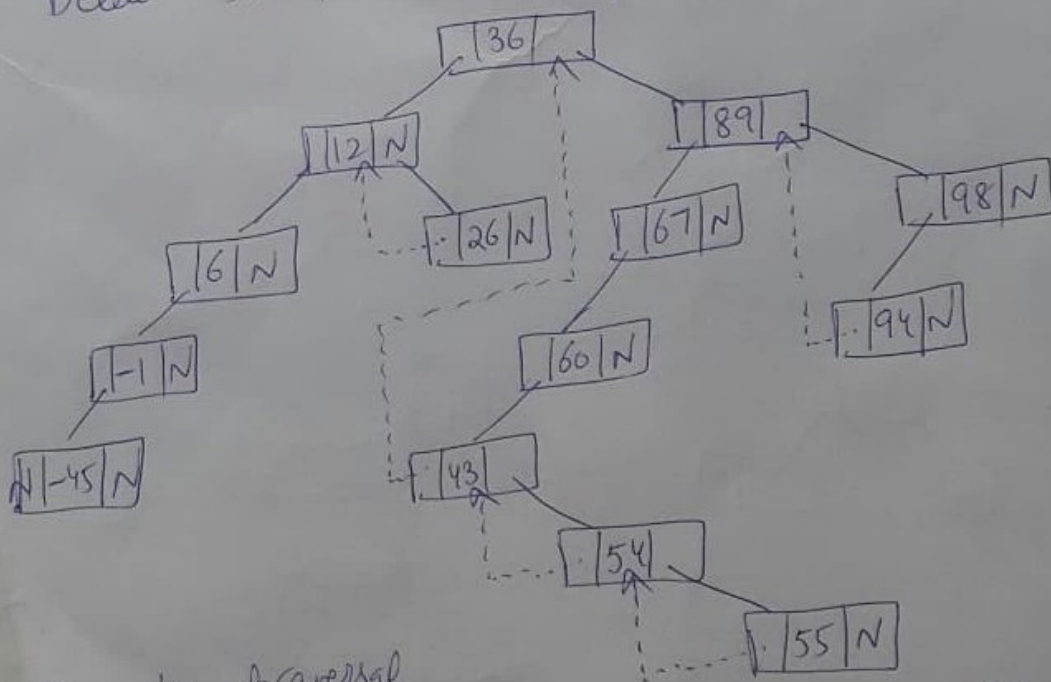
(8)



Inorder traversal

-45, -1, 6, 26, 36, 43, 54, 55, 56, 60, 67, 89, 94, 98

Delete 56 from tree of part b)

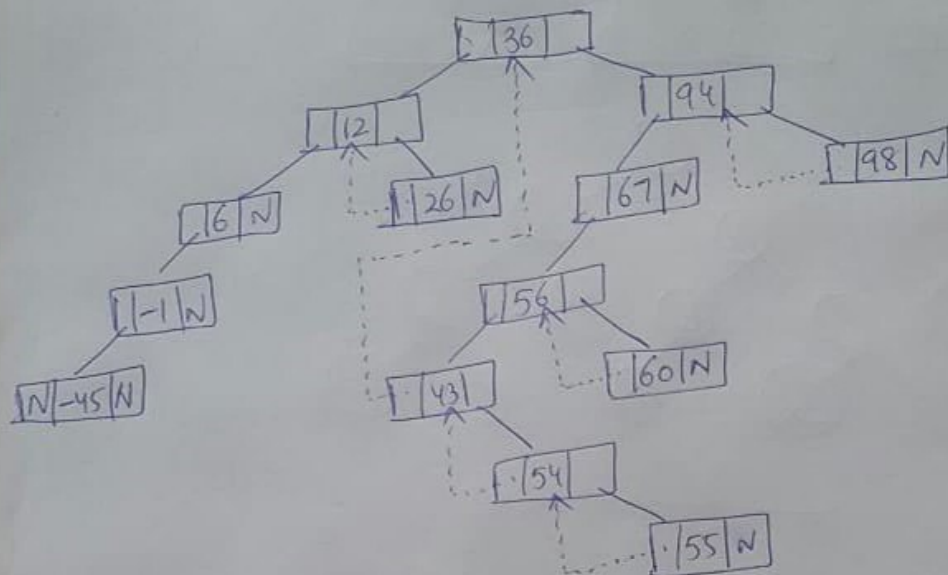


Inorder traversal

-45, -1, 6, 12, 26, 36, 43, 54, 55, 60, 67, 89, 94, 98

Delete 89 from tree of part b)

(9)

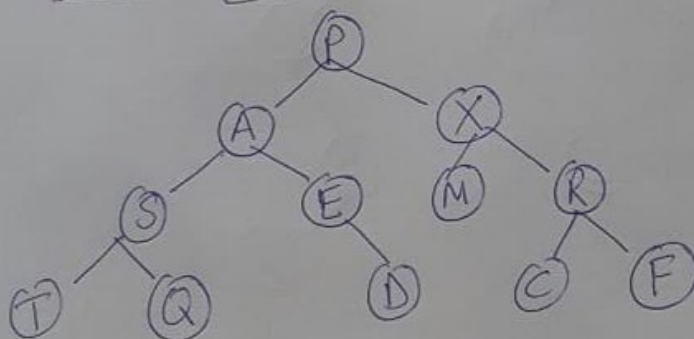


Inorder traversal

-45, -1, 6, 12, 26, 36, 43, 54, 55, 56, 60, 67, 94, 98

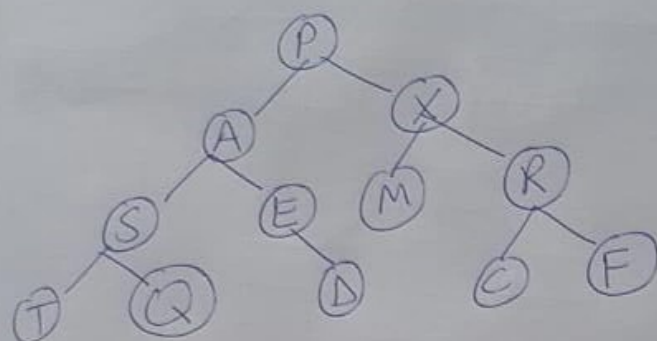
Q4)

Preorder → P A S T Q E D X M R C F
Inorder T S Q A E D P M X C R F



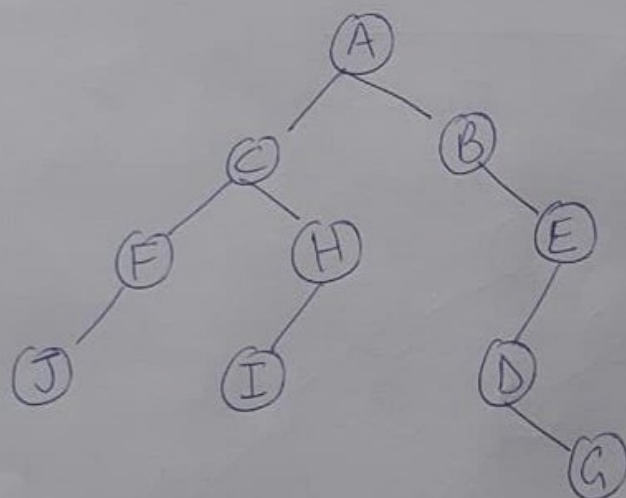
Postorder TQSD EAMC RXP ←
 Inorder T S Q A E D P M X C R F

(10)



Q51

Postorder JFIHCGDEBA ←
 Inorder J F C I H A B D G E



Preorder A C F J H I B E D G