

B. Write In-order, postorder and preorder traversal of the the above tree

Inorder:

10, 23, 33, 45, 49, 62, 65, 85, 89, 98

Preorder:

65, 23, 10, 45, 33, 62, 49, 98, 89, 85

Postorder:

10, 33, 49, 62, 45, 23, 85, 89, 98, 65

C. Explain the procedure to insert an element 87 into the binary tree.

Answer:

STEP 1: Start at the root (65 in this case).

STEP 2: Compare the element you want to insert (87) with the current node's value (65).

STEP 3: Since 87 is greater than 65, move to the right child (98).

STEP 4: Compare 87 with the value of the right child (98).

STEP 5: Since 87 is less than 98, move to the left child of 98 (89).

STEP 6: Again, compare 87 with the value of the current node (89).

STEP 7: Since 87 is greater than 89, move to the right child (85).

STEP 8: Now, 87 is less than 85, so insert 87 as the left child of 85.

D. Explain the Procedure of deleting element 62 from the tree.

Answer:

STEP 1: Start at the root (65 in this case).

STEP 2: Compare the element you want to delete (62) with the current node's value (65).

STEP 3: Since 62 is less than 65, move to the left child (23).

STEP 4: Compare 62 with the value of the left child (23).

STEP 5: Since 62 is greater than 23, move to the right child (45).

STEP 6: Compare 62 with the value of the right child (45).

STEP 7: Since 62 is less than 45, move to the left child (33).

STEP 8: Now, you've found the node containing 62.

STEP 9: Check if the node has:

- No children: In this case, simply remove the node.
- One child: Replace the node with its child.
- Two children: Find the minimum value in the right subtree (in this case, it's 85) or the maximum value in the left subtree (if it existed). Replace the node's value with this minimum (or maximum) value, and then recursively delete that value from the right (or left) subtree.