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Roll - 2023

ICT-2101 - Data Structure

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### Answer to the question no-1

For searching element 1. Searching in binary search tree has worst case complexity of  $O(n)$ . In general time complexity is  $O(h)$  where  $h$  is height of BST.

Deletion in binary tree has worst case complexity of  $O(n)$ . In general time complexity is  $O(h)$ .



Answer to the Question no-4

The following Procedure returns a Pointer to the minimum element in the sub-tree rooted at a given node  $x$  which we assume to be non-NULL.

Tree - Minimum ( $x$ )

1. while  $x.\text{left} \neq \text{NULL}$

2.  $x = x.\text{left}$

3. return  $x$ .

The following Procedure returns a Pointer to the maximum element in the sub-tree rooted at a given node  $x$ . which we assume to be non-NULL.



Tree Maximum (n)

1. While  $n.\text{right} \neq \text{NULL}$

2.  $n = n.\text{right}$

3. return n.

Answer to the question no - 3

The in-order traversal sequence of the resultant tree is (c) 0 1 2 3 4 5 6 7 8 9.

Because we know in-order tree traversal is

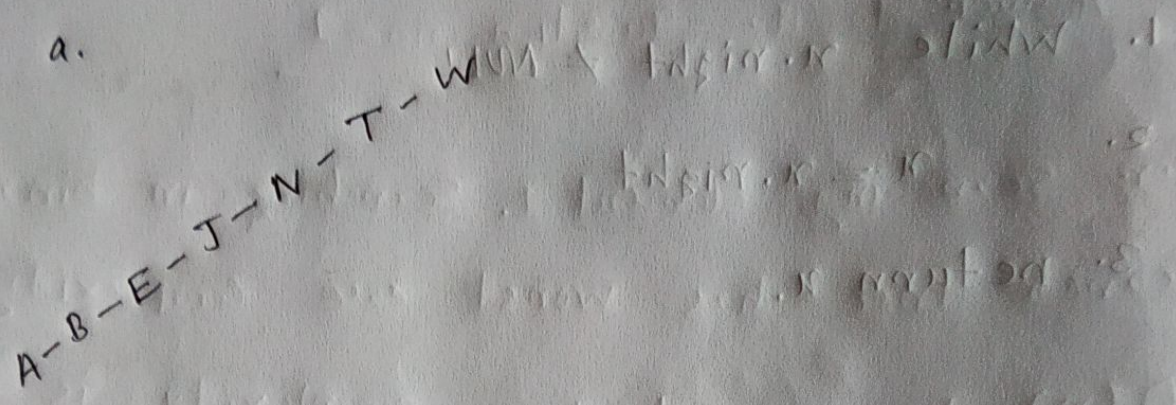
1. Traverse left sub-tree
2. Process the root node
3. Traverse right sub-tree.



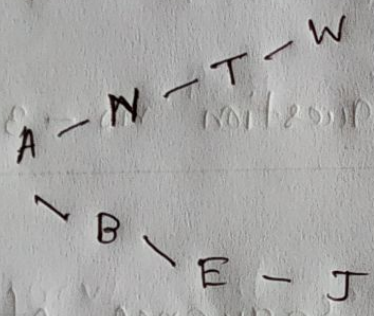
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Answer to the question no-2

a.



b.



c.

