Z.M. Nashif Iqbal

104966285

1 a.

50

20

10

xx

15

40

30

25

32

xx

60

xx

70

65

80

78

xx

B.

Pre order:

50,20,10,15,40,30,25,32,60,70,65,80,78

In order:

10,15,20,25,30,32,40,50,60,65,70,78,80

Post order:

15,10,25,32,30,40,20,65,78,80,70,60,50

C.

50

15

10

40

25

xx

32

xx

60

xx

70

65

80

78

xx

2.

struct Node{

int data;

Node\* left;

Node\* right;

Node\* parent;

};

Node\* Insert(Node\* node, int key){

if node==nullptr

create new Node

set data to key

set left,right, and parent nodes to null

else if key < node's data

left node = recursively call Insert with left node and key as parameters

left node parent = current node

else

right node = recursively call Insert with right node and key as parameters

right node parent = current node

return node

}

3 a.

7

5

4

0

6

2

xx

b.

In an array with indices increasing left to right:

7 5 6 4 0 2

C.

6

5

4

0

2

xx

xx

Array: 6 5 2 4 0

4.

1. O(C+log S)
2. O(logC + S)
3. O(logC+ logS)
4. O(1+logS) = O(logS)
5. O(1+1) = O(1)
6. O(logC + logS)
7. O(logS)
8. O(ClogS)