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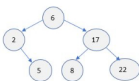
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1. Suppose we wish to insert nodes with keys -5 , 11 and 10 , in that order, into the following Binary Search Tree (BST).

1 / 1 point



Select all true statements from the list below.

- ☐ When the node with key 11 is inserted, it becomes the left child of the node with key 8 .
- ☒ When the node with key 10 is inserted, it becomes the left child of the node with key 11 .

Correct

- ☐ When the node with key 11 is inserted, it displaces the node with key 8 , which becomes its left child.
- ☒ The node with key -5 will become a left child of the node with key 2 .

Correct

2. Starting from an empty tree, we insert the nodes with keys $[1, \dots, n]$ in some order. Select all the true statements from the list below.

1 / 1 point

- ☒ For $n = 7$, inserting the nodes in the order $[4, 2, 1, 3, 6, 5, 7]$ yields a fully balanced binary tree of depth 3 .

Correct

- ☐ For $n = 7$, the only two insertion sequences that yield a tree of depth n are when the keys are inserted in ascending or in descending order.

- ☒ The tree can have depth between $\log n$ and n , depending on the actual order which the keys are inserted.

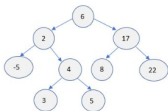
Correct

- ☒ If the nodes are inserted in descending order, then the resulting tree has height n .

Correct

3. Consider the following Binary Search Tree.

1 / 1 point



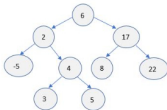
Select the single true statement from the list below.

- ☐ If we delete the root (6) , it will be replaced by one of its children.
- ☒ If we wish to delete the node 2 , we can replace it with its successor node 3 . In this case, the node 4 will be left with just one child.
- ☐ If we wish to delete the root (6) , its successor can be found by traversing its leftmost branch.
- ☐ It is not possible to delete the root node from a tree since that will leave two disconnected subtrees.

Correct

4. Consider the Binary Search Tree below.

1 / 1 point



Select all the true statements from the list below.

- ☒ Pre-order traversal of the BST above yields the list $[6, 2, -5, 4, 3, 5, 17, 8, 22]$.

Correct

- ☐ Post-order traversal of a BST produces the reversal of the list obtained from its pre-order traversal.

- ☒ In-order traversal of a Binary Search Tree always leads to a sorted list of keys.

Correct

Correct - this is guaranteed by the binary search tree property.

- ☒ All traversals require as much time as the number of nodes in the tree.

Correct