This quiz has 4 questions, for a total of 10 points.

1. **2 points** Write down the sequence of keys from the following Binary Search Tree, ordering according to the post-order traversal strategy.

   ![Binary Search Tree Diagram]

   **Solution:** 2 points for the correct sequence, which is:

   $7, 3, 22, 45, 15$

   (1 point if the sequence is close, such as missing one number.)

2. **3 points** Draw the result of deleting the node with key 8 from the following Binary Search Tree.

   ![Binary Search Tree Diagram]

   **Solution:** 2 points for moving the successor or predecessor to the deleted node’s position. 1 point for a resulting tree that is a BST and includes all the nodes except the deleted one.

   ![Deletion Result Diagram]

3. **3 points** What code needs to be filled into the blanks labeled (a), (b), and (c) to finish this algorithm that searches within a Binary Search Tree rooted at node $n$ for the node whose key is smaller than all the other nodes in the tree.
def tree_minimum(n):
    if ___(a)___:
        return ___(b)___
    else:
        return ___(c)___

**Solution:** 1 point for each correct answer below.

(a) n.left  
(b) tree_minimum(n.left)  
(c) n

4. **2 points** What is the output, if any, of the following Python program?

```python
class A:
    def m(self, b):
        return g(b, self)
    def __init__(self, j):
        self.w = j
    def g(y, x):
        return y.w * x.w
a = A(3)
print(a.m(a))
```

**Solution:** 2 points for the correct output, which is 9