**Chapter 20 Concept Quiz**

Examine whether each of the following statements is true or false. If a statement is false, please explain why.

1. If the absolute value of a BST’s root node balance factor is less than 2, the BST is an AVL tree.

2. An AVL tree is also a BST.

3. In an AVL tree, a node’s height is the number of edges along the longest path from the node to the root node.

4. In case of a right-right unbalancing node in a BST, the node’s right subtree height is taller than its left subtree height.

5. To balance a right-right unbalancing node in a BST, left rotate the node’s right child node up a level.

6. To balance a right-left unbalancing node in a BST, a right rotate of the node’s right child node followed by a left rotate of the node can balance the node.

7. To insert a new node to an AVL tree is the same as to insert a new node to a BST tree.

8. To delete a node in an AVL tree is the same as to delete a node in a BST tree.

9. An AVL tree is balanced but not ordered.

10. In AVL tree, insertion and deletion can be implemented both iteratively and recursively.

**Answers to the Quiz**

1. **False**. Every node in an AVL tree must have its absolute balance factor less than 2.

2. **True**.

3. **False**. In an AVL tree, a node’s height is the number of edges along the longest path from the node to a leaf node.

4. **True**.

5. **False**. Besides left rotate the node’s right child node up a level, make the right child’s left subtree as the right subtree of the node and then make the node as the right child’s left child.

6. **True**.

7. **False**. Besides inserting the new code as a leaf node, balancing all nodes along the insertion path is also required.

8. **False**. Besides deleting the node from the tree, balancing all nodes along the path to the parent node is also required.

9. **False**. AVL tree is ordered.

10. **True**.