Computer Science 241
Quiz 3

1. (2 pts) Consider the following array:

[ 241 145 305 141 301 ]

(a) Write the array in the order it appears after the first iteration of RadixSort’s outer loop:

(b) Write the array in the order it appears after the second iteration of RadixSort’s outer loop:

2. (2 pts) Circle T or F below to indicate whether the statement is true or false.

(a) T / F A binary tree with three nodes always has two leaf nodes.

(b) T / F A tree node n’s left child’s ancestors include n.

3. (3 pts) Consider the following tree:

(a) T / F The depth of the subtree rooted at 4 is 1.

(b) What is the height of the subtree rooted at 11?

(c) Write the values in the order they would be printed by a post-order traversal.
4. (2 pts) This problem uses the following `BinaryTree` class.

```java
public class BinaryTree {
    int value;
    BinaryTree left;
    BinaryTree right;
}
```

Write the following Java method, which finds the maximum value in a binary tree. Notice that this operates on a binary tree (not a binary search tree).

```java
/** Returns the maximum value of any node in the tree rooted at t.
   * Precondition: t is not null. */
public static int treeMax(BinaryTree t) {
```

5. (1 pts) What is the average-case asymptotic runtime of the above method?