Name:

CISC 610: Data Structures & Algorithms

Quiz 0 (Mandatory but Not Graded)

1. What is the running time complexity of insertion sort in the best case and the worst case scenarios?

2. Rank the functions according to their (Big O) growth in the increasing order: 1, n^2, 2^n, n^3, $(\frac{3}{2})^n$, n

3. What is the output of the following code when n is 5? Assume there is a function call.

```
def printStars(n):
        if n == 1:
            print "*",
        else:
            self.printStars(n-1)
            print "#",
```

4. What is the runtime of merge sort algorithm? Briefly explain how?

5. For binary search to work on an array what property should an array have?

6. Give an example of a divide and conquer algorithm.

7. List the properties of a binary search tree

8. List the properties of red-black trees.

9. List the three basic cases involved in deleting a node of a binary search tree.

10. Name a simple graph search algorithm.

11. Explain inorder tree walk in the context of a binary-search tree ?

12. What is a max heap?

13. What is the runtime of heapsort algorithm?

14. What is the best and the worst case runtime of quick sort algorithm?

15. How is a graph represented? Explain all variables.