Name:

CISC 610-51: 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. A linked list is created using the following statements :

```
jess = Node("Jess");
john = Node("John", jess);
jane = Node("Jane", john);
```

Draw this linked list displaying nodes with data values and reference arrows. It is also called an object reference diagram of a linked list.

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

5. What advantage does a linked list have over an array?

6. What is a dynamic data structure? Give examples.

7. List the attributes 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 the run time for searching an element in a hash table?

13. List two methods of computing hash functions

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

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