Course no : SWE 3405	College of Engineering	Student No: _____
Course tile: Data structure	**Mid Exam**	Student Name: _____
Exam Time: 1 Hour	**1st Semester 2014/2015**	**Date: 22.11.2014**
No of Questions:	**Total Grade: 20**	**Try to Answer All Questions**
Open Book: No	**Using Computer: No**	**Using Calculator: No**

First Question (2.5)

State whether each of the following is *true* or *false*.

1. The correct choice of data structure allows major improvements in program Efficiency. ( )
2. A data structure is the organization of data in a computer's memory or in a disk file. ( )
3. Sorting involves comparing the keys of data items in the array and moving the items (actually, references to the items) around until they're in sorted order. ( )
4. The bubble sort is the least efficient, but the simplest, sort. ( )
5. A doubly linked list permits backward traversal and deletion from the end of the list. ( )

Second Question(2.5)

Choose the best Answer:

1) A class
   a) Is a construct that is used to create instances of itself.
   b) Represents a specific real-world object.
   c) Will hold specific values in its fields.
   d) Specifies the type of a method.

2) In Java, a class specification
   a) Creates objects.
   b) Requires the keyword new.
   c) Creates references.
   d) None of the above.

3) Ordered arrays, compared with unordered arrays, are
   a) Much quicker at deletion.
   b) Quicker at insertion.
   c) Quicker to create.
   d) Quicker at searching

4) Inserting an item into an unordered array
   a) takes time proportional to the size of the array.
   b) requires multiple comparisons.
   c) requires shifting other items to make room.
   d) takes the same time no matter how many items there are

5) Rearranging the contents of a data structure into a certain order is called
   a) Searching
   b) Sorting.
   c) Swapping.
   d) None of the above.

Third Question(3)

What is the Difference between each of the following terms, Justify with drawing if possible:

1) Pop() Method Vs Top() Method

2) Singly Linked Lists Vs Duble Linked Lists

Fourth Question(6)

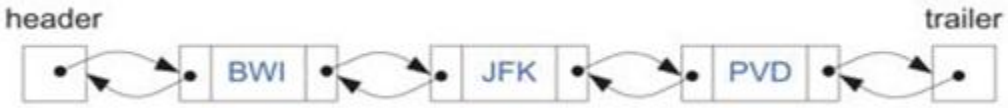
1) Sort the sequence 3, 1, 4, 1, 5, 9, 2, 6, 5 using insertion sort.

1) Sort the sequence 3, 1, 4, 1, 5, 9, 2, 6, 5 using Bubble sort.

2) Sort the sequence 3, 1, 4, 1, 5, 9, 2, 6, 5 using Selection sort.

Fifth Question(6)

1) Insertion new node in the Middle of a Doubly Linked List between BWI and JFK



2) Removal PVD node form the Middle of a Doubly Linked List