

Course no : SWE 3405

College of Engineering

Student No: _____

Course title: Data structure

Mid Exam

Student Name:

Exam Time: 1 Hour

1st Semester 2013/2014

Date:

No of Questions:

Total Grade: 20

Try to Answer All Questions

Open Book: No

Using Computer: No

Using Calculator: No

First Question (10)

Choose the best Answer:

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.

In Java, a class specification

- a) Creates objects.
- b) Requires the keyword new.
- c) Creates references.
- d) None of the above.

Ordered arrays, compared with unordered arrays, are

- a) Much quicker at deletion.
- b) Quicker at insertion.
- c) Quicker to create.
- d) Quicker at searching

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

Suppose you push 10, 20, 30, and 40 onto the stack. Then you pop three items. Which one is left on the stack?

- a) 40
- b) 10
- c) 20
- d) 30

Suppose you insert 15, 25, 35, and 45 into a queue. Then you remove three items. Which one is left?

- a) 45
- b) 35
- c) 15
- d) 25

Assume that the linked list has at least two Nodes in it. Which of the following instructions will return the second int value in the list

- a) return head.info;
- b) return head.next.info;
- c) return head.next.next.info;
- d) return head.next.next.next.info;
- e) It is not possible to return the second int value in the list using head.

Assume Node temp is currently set equal to head. Which of the following while loops is the best to be used to iterate through each element of a linked list

- a) while (head != null)
 head = temp.getNext();
- b) while (temp != null(
 temp = temp. getNext());
- c) while (head != null(
 temp = temp. getNext());
- d) while (head != null)
 head = head. getNext();
- e) while (temp != null(
 head = head. getNext());

Rearranging the contents of a data structure into a certain order is called

- a) Searching
- b) Sorting.
- c) Swapping.
- d) None of the above.

In the linked list implementation of the stack class, where does the push method place the new entry on the linked list??

- a) At the head
- b) At the tail
- c) After all other entries that are greater than the new entry.
- d) After all other entries that are smaller than the new entry.

Second Question(2)

1) **Define Asymptotic Notation.**

2) **In Primitive Operations describe the following:**

a. **Best Case.**

b. **Worst Case.**

c. **Average Case.**

Third Question(2)

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(2)

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



Fifth Question(2)

Removal PVD node form the Middle of a Doubly Linked List

