Gebze Institute of Technology
Department of Computer Engineering
CSE 222
MT Example

Q1: Java does not support multiple inheritance directly. Explain how you achieve multiple inheritance in java without duplicating code. Give an example using UML diagrams. What is this technique called?

Q2: You are given T1(n) = O(f(n)) and T2(n) = O(g(n)) Show that the following is true or false
T1(n) + T2(n) = max(O(g(n)), O(f(n)))

Q3: Discuss the advantages and disadvantages in terms of time and memory casts, of using an array versus a linked list representation of a stack ADT

Q4: Trace the conversion of expression below into postfix. Then evaluate the postfix expressions using the algorithms we learned in the class. Show the stack contents for each step.
A = 4 + 6 / ((4 - 1) * 5)

Q5: Implement the stack interface using Queue objects. Analyze run time complexities for each method.

```
public interface StackInt <E>
{
        E push(E obj);
        E peek();
        E pop();
        boolean empty();
}

public interface Queue <E> extends Collection <E>
{
        E element();
        boolean offer(E obj);
        E peek();
        E poll();
        E remove();
}
```

Q6: The incomplete definition of a linked list class is given below.

```
Private static class Node <E>
{
        private E data;
        private Node <E> next = null;

        private Node(E obj)
        {
                data = obj;
        }
}

public class LinkedListRec <E>
{
        private Node <E> head;
        …
}
```

Write a recursive method LinkedListRec <E> class that takes an element of type E as method parameter. The method eliminates duplicate occurences of data E in the linked list.