



امتحان الفصل الثالث  
للعام الجامعي 2025/2024

المادة: Data Structure and Algorithms

المدة: ساعة

الدورة:

المرحلة: اجازة

السنة المنهجية: الثانية

الاستاذ: د. نادين زبيب

**Question I**

A. What will be the output of the following code?

```
public static void main(String[] args) {  
  
    LinkedList L =new LinkedList();  
    L.addTail(7); L.addTail(3); L.addHead(6); L.addHead(4);  
    L.print();  
    System.out.println();  
  
    Node c1 = L.getHead(), c2=c1.next, c3=c2.next;  
    c1.next=c3;  
    c3.next.next=c2;  
    c2.next=null;  
    L.print();  
    System.out.println();  
}
```

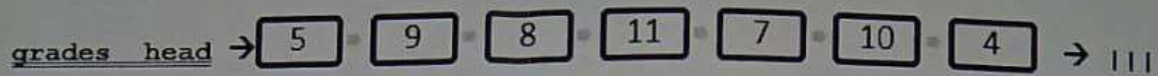
B. What will be the output of the following code?

```
public static void main(String[] args) {  
  
    LinkedList L =new LinkedList();  
    L.addHead(new NodeData(2));  
    for(int i=1; i<=2 ; i++) {  
        L.addHead(new  
NodeData(L.getHead().getData().getValue()*i+i));  
        L.addTail(L.getHead().getData());  
        L.print();  
        System.out.println();  
    }  
    for(int x=1; x<=4 ; x++) {  
        if(x%2==0)  
            L.deleteTail();  
        else  
            L.deleteHead();  
        L.print();  
        System.out.println();  
    }  
}
```

## Question II

Write a public static void method named `moveMax()` that takes as parameter a non-empty unsorted linked list of integers called `grades`. The method should move the highest grade to the end of the list.

For example, if the list is originally:



After execution of method `moveMax(grades)`, the list becomes as follows:



## Question III

Write an application that Check whether a **string or number** is a palindrome or not using only one **stack**.

**Note that:** You may use the list of basic `LinkedList` and `Stack` operators provided in class.