

The LNM Institute of Information Technology
Department: CSE
Advanced Programming
Exam: Mid Term

18 UCS177

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Time: 90 minutes

Date: 30 September 2019

Max. Marks: 30

Instruction: All the questions are compulsory. Please read the question paper carefully and then try to answer.

Please avoid asking doubts about the questions and mention the assumptions, if required.

Q1 We want to create a banking system in which a customer which might be a businessman or non businessman can open saving or current account and the opened account can be closed. The bank provides the facility of ATM such that a customer can deposit and withdraw money from ATM. A customer can get the information like account balance, mini statement from the ATM. Construct the class diagram for this scenario. A short justification for each inheritance, association, multiplicity and aggregation must be given.

These are the following differences between saving and current account.

1. The current accounts is opened by business man.
2. In the current account we do not get interest whereas in saving account we get interest
3. In the current account, the number of times an amount of money can be withdrawn is fixed. (6 marks)

Q2. Write a small java program which clearly shows the difference between concatenation of the two String objects and the concatenation of the two StringBuffer objects. Justify your answer. (2 marks)

Q3. What would be the output of the following program. (3 marks)

```
interface AI{
    int i=7;
    int get();
}

class A implements AI{
    int i;
    A(){
        i=5;
    }
    public int get() {
        return i;
    }
}
```

```

    }
    class B extends A{
        int i;
        B(){
            i=6;
        }
        public int get() {
            return i;
        }
    }

    public class question {
        public static void main(String[] args) {
            B b=new B();
            A a=new A();
            A ai;
            ai=b;
            System.out.println(+ai.i);
            System.out.println(+ai.get());
            System.out.println(+((A)ai).i);
            System.out.println(+((A)ai).get());
            System.out.println(+((B)ai).i);
            System.out.println(+((B)ai).get());
        }
    }

```

Q4. Create the three packages, the first package contains an interface which declare a variable, the second package contains a class which contains a variable and the third package declares the main class. In the main class we create an object of the class declared in the second package. Write the necessary code in the main class as well as in other .java files such that we can print the values of variables which are declared in the other two packages. (4 marks)

Q5) Consider the code below:

```

    public class TestFirstApp{

```

```

public int doThis(int inp)
{
    int [] wer = {2,3,3,7,7,7,13,3,17,3,3,3,3};
    int curCount = 0, curMax = 0;
    Boolean inBlock = false; // Statement A
    for(int i = 0; i < wer.length, i++)
    {
        if(wer[i] == inp)
        {
            inBlock = true;    // Statement B
            curCount++;
            continue;        //Statement C
        }
        else
        {
            if(inBlock)
            {
                if(curCount > curMax)
                {
                    curMax = curCount;
                    curCount = 0;
                    inBlock = false;    //Statement D
                    continue;          // Statement E
                }
            }
            else
            {
                inBlock = false;    //Statement F
                curCount = 0;        //Statement G
                continue;            // Statement H
            }
        }
    }
    return curMax;                //Statement I
}

Public static void main(String [] args)
{
    TestFirstApp wer = new TestFirstApp();
    System.out.println(wer.doThis(3));    //Statement J
}

```

- (a) What is the objective of the above piece of code (Assume there is no compile/run time error in the above code)? **(3.5 Marks)**
- (b) The above piece of code contains the logical error at statement I. Mention the logical error and replace it with the right expression. **(2.5 Marks)**

- Q6. What is coupling? Explain various types of coupling (3 Marks)
- Q7. (a) What is method overloading and method overriding? (3 Marks)
(b) Explain the difference between method overloading and method overriding with examples.(3 Marks)