

The LNM Institute of Information Technology

Department: CSE

Advanced Programming

Exam Type: Mid Term

Time: 90 minutes

Date: 30 September 2019

Max. Marks: 15

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

Q.1 (6 marks) 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 account 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 In the current account, the number of times an amount of money can be withdrawn is fixed.

Ans. A minimal answer and the marking strategy are attached with this email.

Q2. (2 marks) 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.

Ans.

```
public class question{  
    public static void main(String args[]) {  
        String s1="abc";  
        StringBuffer s2=new StringBuffer("abcd");  
        String s3;  
        StringBuffer s4;  
        s3=s1;
```

```
s4=s2;

s1=s1.concat("def");

s2=s2.append("ef");

System.out.println(s3.equals(s1)+" "+s4.equals(s2));

}

}
```

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

```
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();

        AI 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());

    }

}

```

Ans. 7,6,5,6,6,6 **Marking Strategy:** 0.5 marks for each correct output

Q4. (4 marks) Create the three packages, the first package contains an interface which declares 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.

Ans.

```
package p1;
```

```
public interface ai {
```

```
int i=9;
```

```
}
```

```
package p2;
```

```
public class a {  
    public int j;  
}  
  
package p3;  
import p1.*;  
import p2.*;  
  
public class question{  
    public static void main(String args[]) {  
        a a1=new a();  
        System.out.println(+a1.j);  
        System.out.println(+ai.f);  
    }  
}
```

Marking Strategy: For the two import statement: 1 marks

Declaring variables public: 1 marks

Declaring class and interface public: 1 marks

Writing the statement package p1; etc: 1 marks

Other possible solutions are welcome too.