THE LNM INSTITUTE OF INFORMATION TECHNOLOGY, JAIPUR

MID-SEMESTER EXAMINATION- SEPTEMBER, 2018

COURSE: ADVANCED PROGRAMMING

MAX. MARKS: 25
MAX. TIME: 1.5 Hrs

ROLL NO: 17DCS006

Note: *No Doubts.*

Q 1. What are the different testing approaches available at unit level? **[2 marks]**

Q 2. Between OOP and FP, which programming paradigm you will choose in the following circumstances? (Explain why in one-two lines) **[3 marks]**

a) If same functions have to performed on different data types.
b) If set of operations are fixed and new things will come up as the application grows.
c) When multithreading has to be done?

Q 3. Differentiate final and finalize()? **[2 marks]**

Q 4. What will be the output of the following program? Justify your answer. **[2 marks]**

```
class XYZ{
    XYZ(){
        System.out.println("Constructor of XYZ");
    }
}
class PQR extends XYZ{
    PQR(){
        System.out.println("Constructor of PQR");
    }
    PQR(int a){
        System.out.println("Constructor of PQR, value of a: "+a);
    }
}
class LNM extends PQR{
    LNM(){
        super(10);
        System.out.println("Constructor of LNM");
    }
}
class DriverMain {
    public static void main(String args[] ){
        LNM lnmObject =new LNM();
    }
}
```

Q 5. What is singleton class concept? How it can be designed? Also, explain the practical life example where the singleton class concept will be useful. **[4 marks]**

Q 6. Describe the following classes, attributes, relationships, and cardinality through the UML class diagrams. **[3 marks]**

public class studentDetails{
private int id;
private String name;
}
	public class student extends studentDetails{
	protected void getDetails(int i);
	protected void setDetails(String n, int i);
	}
		public class iCard extends studentDetails{
		protected void getID();
		}
			public class CSEbatch{
			public student ob[]=new student[5];
			}

Q 7. You have to pick one of the keywords from the given keyword pool to fill the blanks (blanks are numbered from 1 to 10) in the given program such a way that it produces the desired output, as given. Also, describe the reason to pick the keyword for each space in one-two lines. You may use a keyword multiple times. **[0.5x10 = 5 marks]**

Program:

```
interface A{
   void meth1();
}
abstract class B{
        void meth1(){
           System.out.println("Method 1 of abstract class");
        }
          1  void meth2();
          2  void disp(){
           System.out.println("From the abstract class");
        }
}
class C  3  B  4  A{
        int y;
        C(int y){
           this.y=y;
        }
          5  void meth1(){
           System.out.println("Method 1 of interface");
             6  .meth1();
        }
        void meth2(){
           System.out.println("Method 2 of abstract class");
        }
          7  void disp(){
           System.out.println("From class C,"+y);
        }
}
class demo{
          8  int z=20;
        public static void main(String args[]){
           A ob1=new C(10);
           C ob2=new C(20);
           B ob3=new  9  ;
           ob1.meth1();
            10  .disp();
           ob3.disp();
           System.out.println("From main class, z is :" +z);
   }
}
```

Keyword Pool:

public,
private,
protected,
extends,
implements,
abstract,
final,
static,
super,
this,
A(),
B(),
C(),
ob1,
ob2,
ob3.
NONE: to describe nothing
OTHER: to describe extra keyword

Desired output:

```
Method 1 of interface
method 1 of abstract class
From class C, 20
From the abstract class
From main class, z is :20
```

Q 8. Assume you have written some classes and kept them into three packages, as listed in the following table. Classes access the members of other classes defined in other packages.

Package Name	Class Name
LNMIIT.academic	department
LNMIIT.sports	resources
LNMIIT.managment	utilities

a. Which lines of code will you need to add to each source file to put each class in the right package and to access another class? **[1 marks]**

b. The department class contains the main method. Write down the steps to compile and run the department.java file? **[1 marks]**

Q 9. In context of packages, what is class name conflict and how it can be resolved? Explain with an example. **[2 marks]**