

15CSE202 Object Oriented Programming

Time: Two hours

Maximum: 50 Marks

Answer all questions

(10 * 5 =50 Marks)

1.a) Fill in the blanks

(3 Marks)

- i) ----- can be defined as the process where one class acquires the properties of another.
- ii) Implements keyword is used with classes to inherit the properties of an -----.
- iii) ----- is the keyword used to inherit the properties of a class

b) Differentiate between method Overloading and Overriding with an example. (2 Marks)

2.a) Check for any error in the following code, if so mention the error or otherwise predict the output (3 Marks)

```
package periodical2;
class Bank{ intgetRateOfInterest(){return 0;} }
class SBI extends Bank{ intgetRateOfInterest(){return 8;} }
class ICICI extends Bank{ intgetRateOfInterest(){return 7;} }
class AXIS extends Bank{ intgetRateOfInterest(){return 9;} }
class test3{
publicstaticvoid main(String args[]){
Bank b1=newSBI();
Bank b2=newICICI();
Bank b3=newAXIS();
System.out.println("SBI Rate of Interest: "+b1.getRateOfInterest());
System.out.println("ICICI Rate of Interest: "+b2.getRateOfInterest());
System.out.println("AXIS Rate of Interest: "+b3.getRateOfInterest());
} }
```

b) Fill in the blanks

(2 Marks)

- i) In Java, is used to achieve compile time polymorphism.
- ii) In Java, is used to achieve run time polymorphism.

3.a) Predict the output of the following program snippets.

(1.5 Marks)

```
publicclass excep {
    staticvoid demoproc() {
        try {
            thrownew NullPointerException("demo");
        }
        finally{
            System.out.println("finally");
        }
    }
    publicstaticvoid main(String args[]) {
        try {
            demoproc();
        }
    }
}
```

```

    } catch(NullPointerException e) {
    System.out.println("exception ");
    }
    System.out.println("finished");
    }}

```

b) `package` periodical2;

(3.5 Marks)

```

public class MyExceptionHandle {
public static void main(String a[]){
try{
for(int i=5;i>=0;i--){
System.out.println(10/i);
}
} catch(Exception ex){
System.out.println("Exception Message: "+ex.getMessage());
ex.printStackTrace();
}
System.out.println("After the loop...");
}
}

```

4.a) State TRUE/FALSE for the following.

(2 Marks)

- i) An abstract class declares a common interface for the various members of a class hierarchy
- ii) It is possible to create an instance of an abstract class.
- iii) Abstract classes can have constructors
- iv) Abstract classes can be used to create object references.

b) Point out the errors in the following Java Code.

(3 Marks)

```

abstract class bank {
    abstract int getinterest(int r);
    abstract void display() { System.out.println("BANK") ; }
}
class sbi extends bank {
    void display() { System.out.println("SBI BANK") ; }
}
class pnb extends bank {
    void display() { System.out.println("PNB BANK") ; }
    int getinterest(int r) {
        return(r); }
}
public class myclass {
    public static void main(String[] args) {
        pnb pb=new bank();
        pb.display();
        System.out.println("Interest is:" +pb.getinterest(10));
    }
}

```

5. a) Distinguish between `throw` and `throws` in Java.

(2 Marks)

b) Distinguish between `final`, `finally` and `finalize` in Java.

(3 Marks)

6. Write a Java program to create a class `Vehicle` with attribute `numberOfWheels` as integer. Derive a class `RegisteredVehicle` from `Vehicle` contains attribute `registrationNumber` as string. Derive a class `Bike` from `RegisteredVehicle` contains attribute `hasHelmet` as boolean. Derive a class `MountainBike` from `Bike` contains attribute `maxElevation` as double. Derive a class `Car` from `RegisteredVehicle` contains attribute `hasAc` as boolean. Derive a class `Cycle` from `Vehicle` contains attribute `hasBackSeat` as boolean. Add necessary constructors and methods to initialize and overridden print method to print value in all the above classes. Create a `TestVehiclesHierarchy` class with `main()` function which only creates `MountainBike` object, `Car` object and `Cycle` object and initializes all values using base class constructors and its own constructor and finally prints all the values using print function.

(5 Marks)

7. a) State TRUE/FALSE for the following.

(2 Marks)

- i) A class cannot implement more than one interface at a time.
- ii) A class can extend only one class, but implement many interfaces.

b) Give the output for the following code snippet.

(3 Marks)

```
class one {
    void display() {System.out.println("Class One"); }
}
class two extends one {
    void display() {
        System.out.println("Class Two");
        super.display();
    } }
class three extends two {
    void display() {
        System.out.println("Class Three");
        super.display(); } }
public class myclass {
    public static void main(String[] args)
    {
        one b= new three();
        two a=new two();
        int i=1;
        while(i<=3) {
            if(i%2==0)
                b.display();
            else
                a.display();
            i++;
        } } }
```

8. a) To print the output “4 1” fill the missing statements in the code given below. (3 Marks)

```
package periodical2;
interface calculate {
    void cal(int item);
}

package periodical2;
class displayA implements calculate {
```

```

int x;
public void cal(int item){
    x = item * item;
}
}
class displayB implements calculate {
int x;
public void cal(int item){
    x = item / item;
}
}
class interfaces
{
public static void main(String args[])
{
displayA arr1 = new displayA();
displayB arr2 = new displayB();
    arr1.x=0;
    arr2.x=0;
// -----
// -----
// -----
} }

```

b) In what ways interface is different from class?

(2 Marks)

9 Write a Java program to read from a file which is available in a directory ("C:\IICSE\usernames.txt") which contains the set of usernames of the class IICSE and print the usernames in the Screen.(use Exception handling)(5 Marks)

10.What is the significance of Serialization in java? What are the high-level streams available in java that contain the methods for serializing and deserializing of an object?.Write a java program to write an object in to a file which contains details of great Indians who won medals in Rio Olympics 2016.

(5 Marks)

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