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B.Tech First Assessment – August 2016

Third Semester

Computer Science and Engineering

15CSE202 Object Oriented Programming

Time: Two hours   Maximum: 50 Marks

Answer all questions

(10 * 5 =50 Marks)

1.a) Distinguish between Procedure Oriented Programming and Object Oriented Programming.
(2 Marks)

b) By which concepts of Object Oriented principle the following characteristics are achievable?
(3 Marks)

        i) Data Hiding

        ii) Reusability

 iii) ------------ is the mechanism by which encapsulation is achieved in Java

2.a) What are the advantages of Object-Oriented development?(2 Marks)

   b) Fill in the blank. (3 Marks)

        i) -------------- represents the relationships between objects and classes.

 ii) ---------- means that the same operation may behave differently on different classes.

        iii) ----------- is an instance of a class.

3.a)When a local variable has the same name as an instance variable, the local variable hides the instance variable. How to resolve the issue?   (2 Marks)

    b) i) What is the significance of garbage collection?   (2 Marks)

ii) Using the ------- modifier is the main way that an object encapsulates itself and hide data from the outside world.   (1 Mark)

4.a)   Give the output of the following program snippet.   (3 Marks)

```java
package myown;
public class student10 {
        int id;
          String name;

        student10(int id, String name){
        id = id;
        name = name;
          }
        void display(){System.out.println(id+" "+name);}

        public static void main(String args[]){
          student10 s1 = new student10(111,"Karan");
          student10 s2 = new student10(321,"Aryan");
        s1.display();
        s2.display();
          }
}
```

b) What is the output of the following program?(2 Marks)

```
class Output {
public static void main(String args[])
    {
int x , y;
        x = 10;
x++;
        --x;
        y = x++;
System.out.println(x + " " + y);
    }
  }
```

5.a)   Predict the output of the following Programs.   (3 Marks)
```
publicclassArra {

voidinputArr(int[] dummy)
{
        for(inti=0;i<3;i++)
                System.out.println(dummy[i]);
}
        publicstaticvoid main(String[] args) {
                        Arraob=newArra();
                ob.inputArr(newint[] {1,2,3,4});

        }
    }
```

   b) **package**myown;   (2 Marks)
```
classjc {
publicstaticvoid main(String args[])
    {
        intx = 2;
inty = 0;
for ( ; y< 10; ++y) {
if (y % x == 0)
        continue;
        elseif (y == 8)
        break;
        else
        System.out.print(y + " ");
            }
            }
    }
```

6. Consider the following class:

```
public class IdentifyMyParts {
public static int x = 7;
publicint y = 3;
}
```

a) What are the class variables? What are the instance variables? (2 Marks)
b) What is the output for the following code? (Use the above mentioned class)   (3 Marks)

```
IdentifyMyParts a = new IdentifyMyParts();
IdentifyMyParts b = new IdentifyMyParts();
a.y = 5;
b.y = 6;
a.x = 1;
b.x = 2;
System.out.println("a.y = " + a.y);
System.out.println("b.y = " + b.y);
System.out.println("a.x = " + a.x);
System.out.println("b.x = " + b.x);
System.out.println("IdentifyMyParts.x = " + IdentifyMyParts.x);
```

7. Create a class Bicycle with members speed and gear with all necessary constructors. It should have changeGear method which changes the Gear that is received as parameter, Speedup method which increases the speed that is received as parameter, applyBrakes method which reduces the Speed that is received as parameter, Compare method which compares two object's speed and return the object with highest speed to the test class which has main method where the objects of Bicycle are created and passed to Compare function. Finally display all the values using printStates method in main method.

8.a) Give the output of the following Program (3 Marks)

```
packagemyown;
classstatic_out {
        staticintx;
                staticinty;
        void add(int a, int b){
        x = a + b;
y = x + b;
        }
    }

publicclassstatic_use {
        publicstaticvoid main(String args[])
        {
            static_out obj1 = newstatic_out();
            static_out obj2 = newstatic_out();
            int a = 2;
            obj1.add(a, a + 1);
            obj2.add(5, a);
            System.out.println(static_out.x + " " + obj2.y);
            }
}
```

  b) Declare and instantiate a one dimensional array K of type double   to store 8 elements. (Use two steps). Write the default values of each array elements.   (2 Marks)

9 a) What is the significance of bytecode in Java?   (2 Marks)
    b) Predict the output for the following Java code   (3 Marks)
public class Operators {

```
        public static void main(String args[])  {
        boolean A = true;
        boolean B = false;
int i=6,j;

            j=i++;
        double k=12.24d,m;
            m=i+k;
        System.out.println("(A|B)&A = "+((A|B)&A));
        System.out.println("j = "  +j);
        System.out.println("m = "+m);
            }    }
```

10. Assume that you are given a lead role in ANOKHA – 2016, and you are asked to develop a software for managing the Amrita University Tech Fest using OOP's concepts. Identify the possible objects, attributes and methods for the given application. How will you approach the given scenario in developing program using OOPs concept. Give a scenario where you can apply inheritance Concept.

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