



**BHARATI VIDYAPEETH'S**  
**INSTITUTE OF COMPUTER APPLICATIONS & MANAGEMENT (BVICAM)**  
(Affiliated to Guru Gobind Singh Indraprastha University, Approved by AICTE, New Delhi)  
A-4, Paschim Vihar, Rohtak Road, New Delhi-110063, Visit us at: <http://www.bvicam.in/>

Course Code: MCA-109

Course Name: Java Programming

## Class Test 1

Time: 1 Hour

Max Marks: 20

1. Illustrate the different kinds of variables in Java with. 1 mark
2. Differentiate between weak reference and soft reference in Java. 1 mark
3. Justify the output **with reason** of the following code snippet: 1 mark  
package main;

```
class Base {  
    public void Print() {  
        System.out.println("Base");  
    }  
}
```

```
class Derived extends Base {  
    public void Print() {  
        System.out.println("Derived");  
    }  
}
```

```
class Main{  
    public static void DoPrint( Base o ) {  
        o.Print();  
    }  
    public static void main(String[] args) {  
        Base x = new Base();  
        Base y = new Derived();  
        Derived z = new Derived();  
        DoPrint(x);  
        DoPrint(y);  
        DoPrint(z);  
    }  
}
```

4. Predict the output **with reason** of the following code snippet: 2 marks

```
package main;
```

```
// filename Main.java  
class Point {  
    protected int x, y;
```

```

public Point(int _x, int _y) {
    x = _x;
    y = _y;
}

public class Main {
    public static void main(String args[]) {
        Point p = new Point();
        System.out.println("x = " + p.x + ", y = " + p.y);
    }
}

```

5. Illustrate the output **with reason** of the following code snippet:

2 marks

```

interface Anonymous
{
    public int getValue();
}

public class Outer
{
    private int data = 15;
    public static void main(String[] args)
    {
        Anonymous inner = new Anonymous()
        {
            int data = 5;
            public int getValue()
            {
                return data;
            }
            public int getData()
            {
                return data;
            }
        };
        Outer outer = new Outer();
        System.out.println(inner.getValue() + inner.getData() + outer.data);
    }
}

```

6. Elaborate all object oriented features **through code** in the object *'Mountain'* 2 marks
7. Identify/explain errors/output **with reason** in the following code snippet

```

class ConstructorPOC{

    ConstructorPOC(){
        return;
    }

    public static void main(String...args){
        ConstructorPOC obj = new ConstructorPOC();
        System.out.println("Object created");
    }
}

```

```
    }  
}
```

8. Differentiate between Deep Copy, Shallow Copy and Lazy Copy. 1 mark
9. Draw relationship access modifier, access specifier and access qualifier 5 marks
10. Create a **Student class** modeling the basic data members of entity student. 5 marks
  - Set up getters and setters for each data member.
  - Create another class that converts the object of Student class to byte stream using **ObjectInputStream** on one JVM (command prompt instance).
  - Open up another JVM and read the byte stream of object from the same file.
  - Recreate the object from byte stream on 2<sup>nd</sup> JVM using **ObjectOutputStream** and display its content.

Extend your **Student Class** to **Serialize** objects of student class into separate files and byte streams using **Serializable interface**. Make use of the **SerialVersionUID** field and declare few variables as **transient**. **Deserialize** the objects and store them into an array of objects on another JVM instance and perform sorting based on parameter of user's choice using **Comparator**.