ID:14269

NAME: Qazi Bilal

DEP:BS(SE)

There are total **3** questions in this paper.   Max Marks: 30

Each question carry equal marks.
Please answer briefly.

Q1. What is Class and role of object in a Class, explain in detail with the help of a suitable program ?

Class:

A class can be defined as a template/blueprint that describes the behavior/state that the object of its type support.

OR

A class is a logical entity that determines how an object will behave and what the object will contain. In other words, it is a set of instruction to build a specific type of object. Class doesn't consume any space.

ROLE OF OBJECT IN CLASS:

Any entity that has state and behavior is known as an object. It can be physical or logical.

OR

An object is an entity which consists of methods and properties to make a particular type of data useful. When you call an object, you are asking the object to invoke or execute one of its methods. An object can be a data structure, a variable or a function. It has a memory location allocated. The object is designed as class hierarchies. Objects can communicate without knowing the details of each other's data or code. The only necessary thing is the type of message accepted and the type of response returned by the objects. When an object is called the concerned class is executed and its functionality is performed then the class returns the result to the object.
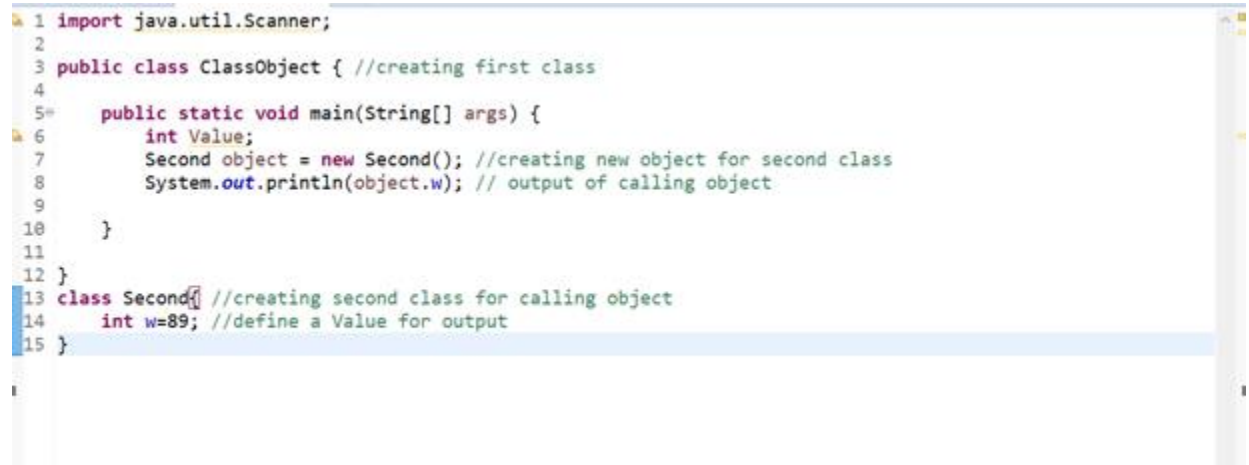
EXAMPLE
```
import java.util.Scanner;       //creating first class
public class ClassObject {
public static void main(String[] args) {

int Value;                     //creating new object for second class
    Second object = new Second();    // output of calling object
            System.out.println(object.w);
        }
}
            //creating second class for calling object
class Second{

            //define a Value for output
        int w=89;
}
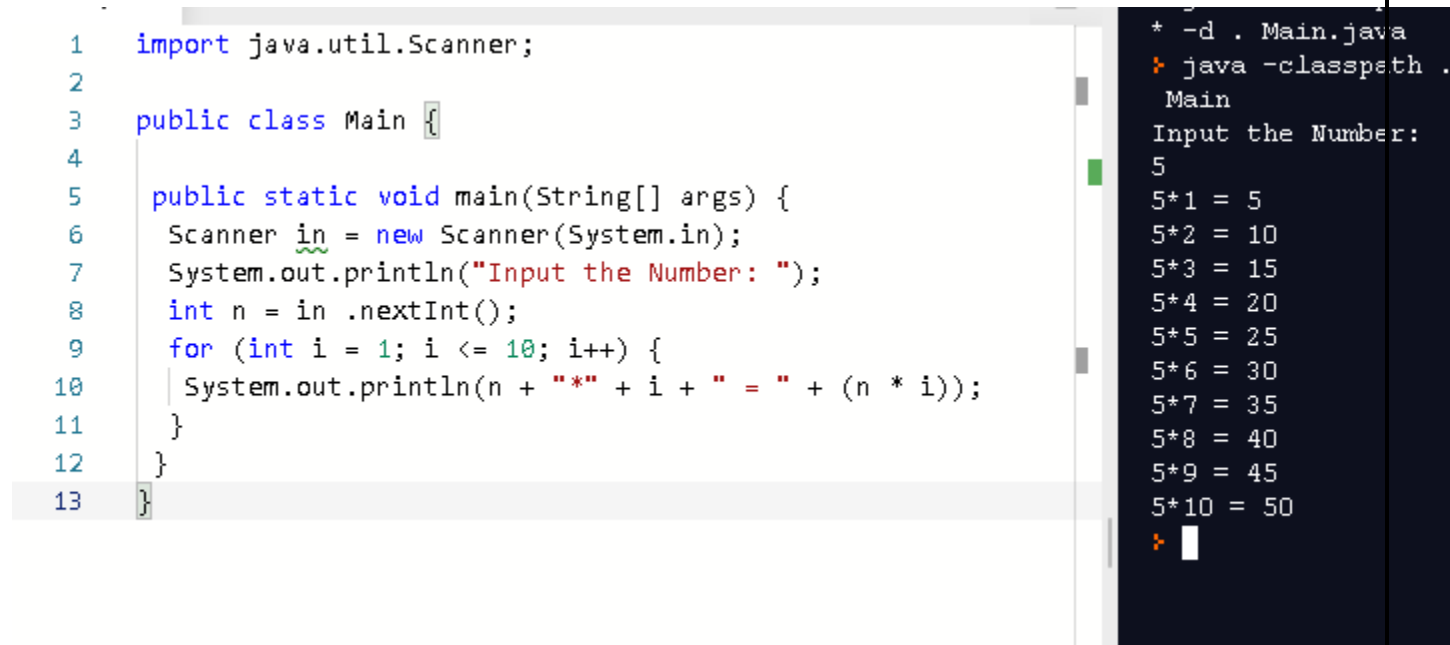```
**OUTPUT:**
```
 1 import java.util.Scanner;
 2
 3 public class ClassObject { //creating first class
 4
 5 public static void main(String[] args) {
 6   int Value;
 7   Second object = new Second(); //creating new object for second class
 8   System.out.println(object.w); // output of calling object
 9
10 }
11
12 }
13 class Second{ //creating second class for calling object
14   int w=89; //define a Value for output
15 }
```

Q2. Write a program about table printing which takes input from the user on the basis of OOP and explain in detail.

```java
import java.util.Scanner;
public class Main {

 public static void main(String[] args) {
  Scanner in = new Scanner(System.in);          //use for taking inputs
  System.out.println("Input the Number: ");      //taking input from user
  int n = in .nextInt();                          //that number which will
show multiplication
for (int i = 1; i <= 10; i++) {                   //loop for all 10 values
   System.out.println(n + "*" + i + " = " + (n * i));   //n is that number which is
multiply from 1 to 10.

                                                  //*is the multiply sing
                                                  //then number n and i
values are multiply
 }
}
```

OUTPUT:

```
1    import java.util.Scanner;
2
3    public class Main {
4
5     public static void main(String[] args) {
6       Scanner in = new Scanner(System.in);
7       System.out.println("Input the Number: ");
8       int n = in .nextInt();
9       for (int i = 1; i <= 10; i++) {
10        System.out.println(n + "*" + i + " = " + (n * i));
11      }
12    }
13   }
```

```
* -d . Main.java
> java -classpath .
 Main
Input the Number:
5
5*1 = 5
5*2 = 10
5*3 = 15
5*4 = 20
5*5 = 25
5*6 = 30
5*7 = 35
5*8 = 40
5*9 = 45
5*10 = 50
>
```

Q3. Write a program about any 2 cars which can calculate the performance of

both of them and explain in detail.

```java
public class Car {

    public static void main(String[] args) {

                                                        //we
create object of both class ferrari and fordCar
            Ferrari fer = new Ferrari();
            FordCar ford= new FordCar();




                                                        //Here we
comapare all atributes for ferrari if ferrari attributes is high

            if(fer.MaxSpeed>ford.MaxSpeed && fer.Engine>ford.Engine &&
fer.suspension>ford.Engine)
            {
                    System.out.println("Ferrari is the fastest");
                    System.out.println("And Ford is slower than Ferrari");
            }


                                                        //Here we
comapare all atributes for ford if ford attributes is high

            if(fer.MaxSpeed<ford.MaxSpeed  &&  fer.Engine<ford.Engine &&
fer.suspension<ford.Engine)
            {
                    System.out.println("Ford is the fastest");
                    System.out.println("And Ferrari is slower than Ford");
            }

    }

}
```

```
class Ferrari{                                          //Here we add some data of
first car
        int MaxSpeed = 251;
        double Engine = 2.7;
        double suspension = 57;
}
class FordCar{                                          //Here we add some data of
Second car
        int MaxSpeed = 250;
        double Engine = 2.6;
        double suspenson = 56.1;
}
```

OUTPUT:

```
1
2 public class Car {
3
4=    public static void main(String[] args) {
5          //we create object of both class ferrari and fordCar
6          Ferrari fer = new Ferrari();
7          FordCar ford= new FordCar();
8
9          //Here we comapare all atributes for ferrari if ferrari attributes is high
10         if(fer.MaxSpeed>ford.MaxSpeed && fer.Engine>ford.Engine && fer.suspension>ford.Engine)
11         {
12             System.out.println("Ferrari is the fastest");
13             System.out.println("And Ford is slower than Ferrari");
14         }
15
16         //Here we comapare all atributes for ford if ford attributes is high
17         if(fer.MaxSpeed<ford.MaxSpeed  && fer.Engine<ford.Engine  && fer.suspension<ford.Engine)
18         {
19             System.out.println("Ford is the fastest");
20             System.out.println("And Ferrari is slower than Ford");
21         }
22     }
23
24 }
25 class Ferrari{ //Here we add some data of first car
26     int MaxSpeed = 251;
27     double Engine = 2.7;
28     double suspension = 57;
```

```
Problems  Javadoc  Declaration  Console
<terminated> Car [Java Application] C:\Program Files\Java\jdk-13.0.2\bin\javaw.exe  (Apr 20, 2020, 3:45:57 PM – 3:45:57 PM)
Ferrari is the fastest
And Ford is slower than Ferrari
```