

ASSIGNMENT-3

COURSE CODE-CS261

**COURSE NAME-OBJECT ORIENTED DESIGN
AND PROGRAMMING**

Q1) Write a program to make a static variable inside a class and access it using class name

ANS.

```
class Q2
{
    static int a=5;
}
public class Q1
{
    public static void main(String args[])
    {

        Q2.a=10;
        System.out.println(Q2.a);
    }
}
```

INPUT- 5

OUTPUT- After changing the static variable is :10

Q2) See if access is possible:-

1) Access static variable inside non static method.

ANS. Yes, we can access the static variable from the non-static method.

```
class A
{
    public static int a=5;

    public void change()
    {
        System.out.println("Accessing the static variable from non-static method : "+a);
    }
}
```

```

    }
}
class access
{
    public static void main(String args[])
    {
        A d=new A();
        d.change();

    }
}

```

OUTPUT- Accessing the static variable from non-static method : 5

2) Access static variable inside static method

ANS.Yes,we can access the static variable inside the static method.

```

class A
{
    public static int a=10;

    public static void change()
    {
        System.out.println("Accessing the static variable from static method : "+a);
    }
}
class access1
{
    public static void main(String args[])
    {
        A d=new A();
        d.change();

    }
}

```

OUTPUT- Accessing the static variable from static method : 10

3) Access non static variable using static method

ANS.No,we cannot access the non-static variable from the static method.

```

class A
{
    public int a=15;

    public static void change()

```

```

        {
            System.out.println("Accessing the non-static variable from static method : "+a);
        }
    }
}
class access2
{
    public static void main(String args[])
    {
        A d=new A();
        d.change();

    }
}

```

OUTPUT-

```

access2.java:7: error: non-static variable a cannot be referenced from
a static context

```

4) Access non static variable using non static method'

ANS. Yes, we can access the non-static variable from the non-static variable.

```

class A
{
    public int a=9;

    public void change()
    {
        System.out.println("Accessing the non-static variable from non-static method :
"+a);
    }
}
class access3
{
    public static void main(String args[])
    {
        A d=new A();
        d.change();

    }
}

```

OUTPUT-

```

Accessing the non-static variable from non-static method : 9

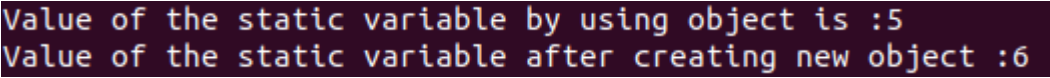
```

Q3) Create a static variable and access it using object of a class, then change that static variable

then access that static variable using another object and observe the result.

ANS.

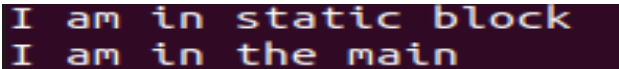
```
class A
{
    public static int a=5;
}
class access4
{
    public static void main(String args[])
    {
        A d=new A();
        System.out.println("Value of the static variable by using object is :"+d.a);
        d.a=d.a+1;
        A z=new A();
        System.out.println("Value of the static variable after creating new object :"+z.a);
    }
}
```

OUTPUT- Value of the static variable by using object is :5
Value of the static variable after creating new object :6

4) Write a program to create a static block and create the main function and see the order in which access is occurring.

ANS.

```
class access5
{
    static
    {
        System.out.println("I am in static block");
    }
    public static void main(String args[])
    {
        System.out.println("I am in the main");
    }
}
```

OUTPUT- I am in static block
I am in the main

Q5) Write a program to calculate area of circle, rectangle and triangle using function overloading.

ANS.

```
class A
{
    double circle,rectangle,triangle;

    public void Area(double r)
    {
        circle=3.14*r*r;
        System.out.println("Area of circle is : "+circle);
    }
    public void Area(double l,double b)
    {
        rectangle=l*b;
        System.out.println("Area of rectangle is : "+rectangle);
    }
    public void Area(double a,double b,double c)
    {
        double s=(a+b+c)/2;
        triangle=Math.sqrt(s*(s-a)*(s-b)*(s-c));
        System.out.println("Area of triangle is : "+triangle);
    }
}
class area
{
    public static void main(String args[])
    {
        A a=new A();
        a.Area(6.4);
        a.Area(3.4,9);
        a.Area(2.3,3.4,1.2);
    }
}
```

OUTPUT-

```
Area of circle is : 128.61440000000002
Area of rectangle is : 30.599999999999998
Area of triangle is : 0.6680896272207782
```

Q6) Write a program to input String args[] in command line and output the result.

ANS.

```
class command
{
    public static void main(String args[])
    {
        int n=args.length;
        for(int i=0;i<n;i++)
        {
            System.out.print(args[i]+" ");
        }
    }
}
```

INPUT IN COMMAND LINE IS-*ROMAN REIGN*

OUTPUT-

ROMAN REIGN

Q7) Predict the output of the following code and justify your answer

```
class Student
{
    String name;
    int rollNo;
    // static variable
    static String clgName;
    // static counter to set unique roll no
    static int counter = 0;
    public Student(String name)
    {
        this.name = name;
        this.rollNo = setRollNo();
    }
}
```

```

// getting unique rollNo
// through static variable(counter)
static int setRollNo()
{
    counter++;
    return counter;
}
// static method
static void setCllg(String name){
    cllgName = name ;
}
// instance method
void getStudentInfo(){
    System.out.println("name : " +
        this.name);System.out.println("rollNo : " + this.rollNo);
// accessing static variable
    System.out.println("cllgName : " + cllgName);
}
}
//Driver class
public class StaticDemo
{
    public static void main(String[] args)
    {
        // calling static method
        // without instantiating Student class
        Student.setCllg("XYZ");
        Student s1 = new Student("Alice");
        Student s2 = new Student("Bob");
        s1.getStudentInfo();
        s2.getStudentInfo();
    }
}

```

```
}
```

ANS.

In the given program firstly, setcllg function will be called first in which the name of the cllg will be defined after that s1 object will be made and constructor will be called first and Alice name will be assigned to the object s1 and also setRollNo function will be called where roll no. Will be assigned to the object s1. Similarly object s2 will be made. After creating object s1 and s2 we call getStudentInfo function to print all the data corresponding to the particular object.

OUTPUT-

```
name : Alice
rollNo : 1
cllgName : XYZ
name : Bob
rollNo : 2
cllgName : XYZ
```

Q8) Predict the output of the following data and justify :

class Test

```
{
```

// static variable

```
static int a = m1();
```

// static block

```
static {
```

```
System.out.println("Inside static block");
```

```
}
```

// static method

```
static int m1() {
```

```
System.out.println("from m1");
```

```
return 20;
```

```
}
```

// static method(main !!)

```
public static void main(String[] args)
```

```
{
```

```
System.out.println("Value of a : "+a);
```



```
System.out.println("from main");  
}  
}
```

ANS.

We all know first of all static function or static block will be called first therefore in the given program firstly m1 function will be called first and after that static block will be executed and lastly main function will be executed.

OUTPUT-

from m1

Inside static block

Value of a : 20

from main

NAME-AMAN KUMAR KANOJIA

ROLL NO.-201851014

SECTION-1(GROUP -1A)