```
class Q1
{
        private int data;


        public Q1()
        {
        this.data = 10;
        }


        public Q1(int data)
        {
        this.data = data;
        }


        public Q1(Q1 value)
        {
                this.data = value.data;
        }


        public int GetData()
```

```java
    {
        return data;
    }

    public static void main(String[] args)
    {

        Q1 obj1 = new Q1();
        System.out.println("\nDefault Constructor - Data for obj1 : " + obj1.GetData());


        Q1 obj2 = new Q1(100);
        System.out.println("\nOverloaded Constructor - Data for obj2 : " + obj2.GetData());


        Q1 obj3 = new Q1(obj2);
        System.out.println("\nCopy Constructor - Data for obj3 : " + obj3.GetData());
    }
}
```

2

```java
class Q2
{
    void Show()
    {
        System.out.println("Show() method - 1");
```

```java
        }//Show()

        void Show(int a)
        {
                System.out.println("Show() method - 2");
        }//Show()

        public static void main(String [] args)
        {
                Q2 m=new Q2();
                m.Show(1000);
        }//main()
}//class Q2
```

3

```java
import java.util.*;
class Q3
{
        public static int Addition(int x, int y)
        {
                return x + y;
        }//Addition

        public static int Subtraction(int x, int y)
        {
```

```java
return x - y;

}//Subtraction

public int Multiplication(int x, int y)

{

return x * y;

}//Multiplication

public int Divison(int x, int y)

{

return x / y;

}//Divison


public static void main(String [] args)

{
        int add, sub, mul, div, num1, num2;


        Scanner sc=new Scanner(System.in);


        System.out.println("------Data for Static and Non-Static Methods------");

        System.out.print("Enter num1 : ");

        num1=sc.nextInt();


        System.out.print("\nEnter num2 : ");

        num2=sc.nextInt();


        System.out.println("\n------Calling a Static Methods------");
```

```java
            add=Addition(num1,num2);

            System.out.println("Addition : "+ add);



            sub=Subtraction(num1,num2);

            System.out.println("\nSubtraction : "+ sub);



            Q3 obj=new Q3();



            System.out.println("\n------Calling a Non-Static Methods------");



            mul=obj.Multiplication(num1,num2);

            System.out.println("Multiplication : "+ mul);

            div=obj.Divison(num1,num2);

            System.out.println("\nDivison : "+ div);
        }//main()


}//class Q3
4
class A
{
        void Show()
        {
```

```java
            System.out.println("Show() - 1");

        }//Show()

}//class A


class B extends A

{

        void Show()

        {


                System.out.println("Show() - 2");

        }//Show()

}//class B


class Q4

{

        public static void main(String [] args)

        {

                B obj=new B();

                obj.Show();

        }//main()

}//class Q4
```

5

```java
abstract class Vehicle

{

        abstract void Start();
```

```java
}//class Vehicle


class Car extends Vehicle //Car is Child Class
{
        void Start()
        {
                System.out.println("Car starts with a KEY");
        }//Start()
}//class Car
class Bike extends Vehicle //Bike is Child Class
{
        void Start()
        {
                System.out.println("Bike starts with a KICK");
        }//Start()
        public static void main(String [] args)
        {
                Car c=new Car();
                c.Start();

                Bike b=new Bike();
                b.Start();
        }//main()
}//class Bike
```

```java
//Save the file - Vehicle.java


//Compile - javac Vehicle.java


//Execute - java Bike
6
interface Bank
{
        float ROI();
}
interface SavingsAccount
{
        void Account();
}
class LenaBank implements Bank, SavingsAccount
{
        public float ROI()
        {
                return 8.2F;
        }
        public void Account()
        {
                System.out.println("\nSavings Account");
```

```java
        }
}
public class Q6
{
        public static void main(String [] args)
        {
                Bank b1=new LenaBank();
                System.out.println("LenaBank - "+b1.ROI());


                SavingsAccount a1=new LenaBank();
                a1.Account();
        }//main()
}//class Q6
7
class Q7
{
        public static void main(String [] args)
        {
                int[] a=new int[3];
                a[0]=10;
                a[1]=20;
                a[2]=30;

                System.out.println("one dimentional array");
                System.out.println(a[0]);
```

```java
                System.out.println(a[1]);

                System.out.println(a[2]);

        }

}//class Q7

8

import java.util.*;

class NumberNotInRange extends Exception

{

        NumberNotInRange(String str)

        {

                //Call the constructor of parent class Exception

                super(str);

        }//NumberNotInRange

}//class NumberNotInRange


class Q8

{

        public static void main(String [] args)

        {

                int num;

                Scanner sc=new Scanner(System.in);

                System.out.println("Enter the number:");

                num=sc.nextInt();
```

```
                try
                {
                        if(num<=100 && num>=1)
                        {
                                System.out.println("Your inputs are correct");
                        }//if
                        else
                        {
                                throw new NumberNotInRange("The number should be in the range of
1 to 100");
                        }//else
                }//try
                catch(NumberNotInRange e)
                {
                        System.out.println(e.getMessage());
                }//catch
        }//main()
}//class Q8


9


class emp
{
        private int empid;
        public void setempid(int eid)
        {
```

```java
                empid=eid;

        }

        public int getempid()

        {

                return empid;

        }

}

class Q9

{

        public static void main(String [] args)

        {

                emp e=new emp();

                e.setempid(007);

                System.out.println(e.getempid());

        }

}
```

10

```java
import java.util.*;

class Q10

{

        public static void main(String [] args)

        {

                int a,b,c;

                Scanner sc=new Scanner(System.in);
```

```java
        System.out.println("enter a:");

        a=sc.nextInt();

        System.out.println("enter b:");

        b=sc.nextInt();

        System.out.println("\na="+a);

        System.out.println("\nb="+b);

        try

        {

                c=a/b;

                System.out.println("\nc="+c);

        }

        catch(ArithmeticException e)

        {

                System.out.println("please enter non zero number");

        }


    }
}
```

11

```java
public class Q11

{

    public static void main(String [] args)

    {

        try

        {
```

```java
            int[] num={1,2,3};

            int result= num[4];

            System.out.println("result="+result);

        }

        catch(ArrayIndexOutOfBoundsException e)

        {

        System.out.println("ArrayIndexOutOfBoundsException");

        }

        finally

        {

            System.out.println("finally block executed");

        }

    }

}

12

class mythread extends Thread

{

    public void run()

    {

        for(int i=0;i<=5;i++)

        {

            System.out.println("my thread class");

        }

    }

}
```

```
class Q12

{

        public static void main(String [] args)


        {

                mythread t=new mythread();

                t.start();

                for(int i=0;i<=5;i++)

                {

                        System.out.println("Q12 class");

                }

        }


}
```

13

14

```
import java.awt.*;

class Q14 extends Frame

{

        Q14()

        {

                Button b=new Button("Click Me");

                b.setBounds(30,100,80,30);

                add(b);
```

```java
            setSize(300,300);

            setLayout(null);

            setVisible(true);
    }
    public static void main(String args[])
    {
            Q14 p=new Q14();
    }
}
```
15
```java
import java.awt.*;
class Q15
{
    public static void main(String args[])
    {
            Frame f= new Frame();
            TextArea t=new TextArea();
            t.setBounds(10,30,300,200);
            f.add(t);
            f.setSize(400,400);
            f.setLayout(null);
```

```
                f.setVisible(true);

        }

}

16

import java.awt.*;

class Q16

{

        public static void main(String args[])

        {

                Frame f= new Frame("Labels and Buttons");


                Label l1,l2;

                l1=new Label("Label 1");

                l1.setBounds(50,100, 100,30);


                l2=new Label("Label 2");

                l2.setBounds(50,150, 100,30);


                f.add(l1);

                f.add(l2);


                Button b1, b2;

                b1=new Button("Button 1");
```

```java
                b1.setBounds(160,100, 100,30);


                b2=new Button("Button 2");

                b2.setBounds(160,150, 100,30);


                f.add(b1);

                f.add(b2);


                f.setSize(400,400);

                f.setLayout(null);

                f.setVisible(true);
        }
}
17
import java.awt.*;

class Q17

{

        Q17()

        {

                Frame f=new Frame();

                Button b=new Button("Click Me");

                b.setBounds(30,50,80,30);

                f.add(b);

                f.setSize(300,300);

                f.setLayout(null);
```

```java
                f.setVisible(true);

        }

        public static void main(String args[])

        {

                Q17 p=new Q17();

        }

}
```

18

```java
import java.awt.*;


class Q18

{

        public static void main(String[] args)

        {

                Frame f=new Frame();


                Button b1=new Button("1");

                Button b2=new Button("2");

                Button b3=new Button("3");

                Button b4=new Button("4");

                Button b5=new Button("5");


                f.add(b1);

                f.add(b2);

                f.add(b3);
```

```java
                f.add(b4);

                f.add(b5);


                //Setting flow layout of right alignment
                f.setLayout(new FlowLayout(FlowLayout.LEFT));


                f.setSize(300,300);

                f.setVisible(true);

        }
}
```

19

```java
import java.awt.*;


class Q19
{
        public static void main(String[] args)
        {
                Frame f=new Frame();

                Button b1=new Button("1");

                Button b2=new Button("2");

                Button b3=new Button("3");

                Button b4=new Button("4");

                Button b5=new Button("5");

        Button b6=new Button("6");
```

```java
        Button b7=new Button("7");

        Button b8=new Button("8");

    Button b9=new Button("9");


        f.add(b1);

        f.add(b2);

        f.add(b3);

        f.add(b4);

        f.add(b5);

        f.add(b6);

        f.add(b7);

        f.add(b8);

        f.add(b9);

        f.setLayout(new GridLayout(3,3));


        f.setSize(300,300);

        f.setVisible(true);

    }
}
```

20

```java
import java.awt.*;


class Q20
{
    public static void main(String[] args)
```

```
{
        Frame f=new Frame();

        Button b1=new Button("NORTH");
        Button b2=new Button("SOUTH");
        Button b3=new Button("EAST");
        Button b4=new Button("WEST");
        Button b5=new Button("CENTER");

        f.add(b1,BorderLayout.NORTH);
        f.add(b2,BorderLayout.SOUTH);
        f.add(b3,BorderLayout.EAST);
        f.add(b4,BorderLayout.WEST);
        f.add(b5,BorderLayout.CENTER);

        f.setSize(500,500);
        f.setVisible(true);
    }
}
```