Class and Objects

1. Create a class Box that uses a parameterized constructor to initialize the dimensions of a box. The dimensions of the Box are width, height, depth. The class should have a method that can return the volume of the box. Create an object of the Box class and test the functionalities.

   PROGRAM:

```
class Box {
   double width, height, depth;
   Box(double w, double h, double d) {
      width = w;
      height = h;
      depth = d;
   }
   double getVolume() {
      return width * height * depth;
   }
}
public class Main {
   public static void main(String[] args) {
      Box myBox = new Box(1,20,30);
      double volume = myBox.getVolume();
      System.out.println("Volume of the box: " + volume);
   }
}
```

2. Create a new class called Calculator with the following methods: 1. A static method called powering (int num1, int num2) This method should return num1 to the power num2. 2. A static method called power Double(double num1,int num2). This method should return num1 to the power num2. 3. Invoke both the methods and test the functionalities. Hint: Use Math.pow(double,double) to calculate the power.

   PROGARM:

```
public class Calculator{
   public static int powerInt(int num1, int num2) {
      return (int)Math.pow(num1,num2);
   }
   public static double powerDouble(double num1, int num2) {
      return Math.pow(num1, num2);
   }
   public static void main(String[] args) {
      int res1 = Calculator.powerInt(4,6);
      System.out.println("powerInt(4,6):"+res1);
      double res2 = Calculator.powerDouble(4.5,6);
      System.out.println("powerDouble(4.5,6):"+res2);}}
```

3. Design a class that can be used by a health care professional to keep track of a patient's vital statistics. The following are the details. Name of the class - Patient Member Variables - patientName(String),height(double),width(double) Member Function - double computeBMI() The above method should compute the BMI and return the result. The formula for computation of BMI is weight (in kg) ÷ height*height(in metres). Create an object of the Patient class and check the results.

PROGRAM:

```
public class Patient {
   String patientName;
   double height;
   double weight;
   double computeBMI() {
      return weight/(height * height);
   }
   public static void main(String[] args) {
      Patient p=new Patient();
      p.patientName="Agalya";
      p.height=1.65;
      p.weight=48;{
      System.out.println("Patient Name: " + p.patientName);
      System.out.println("BMI: " + p.computeBMI());
   }
}
}
```