LABSHEET – Inheritance & Abstract Class

1. Create a class named *'Rectangle'* with two data members *'length'* and *'breadth'* and two methods to print the *area* and *perimeter* of the rectangle respectively. Its constructor having parameters for length and breadth is used to initialize length and breadth of the rectangle. Let class *'Square'* inherit the *'Rectangle'* class with its constructor having a parameter for its side (suppose s) calling the constructor of its parent class as *'super(s,s)'*. Print the area and perimeter of a rectangle and a square.

2. Create an abstract class 'Marks' with an abstract method 'getPercentage'. It is inherited by two other classes 'A' and 'B' each having a method with the same name which returns the percentage of the students. The constructor of student A takes the marks in three subjects as its parameters and the marks in four subjects as its parameters for student B. Create an object for each of the two classes and print the percentage of marks for both the students. [Note: *Calculate the percentage of marks obtained in three subjects (each out of 100) by student A and in four subjects (each out of 100) by student B.*]

3. *Calculate the area of a rectangle, a square and a circle.* Create an abstract class 'Shape' with three abstract methods namely 'RectangleArea' taking two parameters, 'SquareArea' and 'CircleArea' taking one parameter each. The parameters of 'RectangleArea' are its length and breadth, that of 'SquareArea' is its side and that of 'CircleArea' is its radius. Create another class 'Area' containing all the three methods 'RectangleArea', 'SquareArea' and 'CircleArea' for printing the area of rectangle, square and circle respectively. Create an object of class 'Area' and call all the three methods.