EASTERN UNIVERSITY, SRILANKA

DEPARTMENT OF MATHEMATICS

THIRD YEAR EXAMINATION IN SCIENCE-2012/2013

SECOND SEMESTER (SEPT. / OCT. , 2015)

OC 352 –PRACTICAL WORK ON FUNDAMENTAL OF JAVA PROGRAMMING

(PROPER & REPEAT)

Answer all questions   **Time allowed: Two Hours**

Q1.

1. Write a java program to print the following pattern in a class called **PrintParallelogram** using for loops.

    ```
        #
        # #
        # # #
        # # # #
        # # # # #
        # # # # # #
          # # # # #
            # # # #
              # # #
                # #
                  #
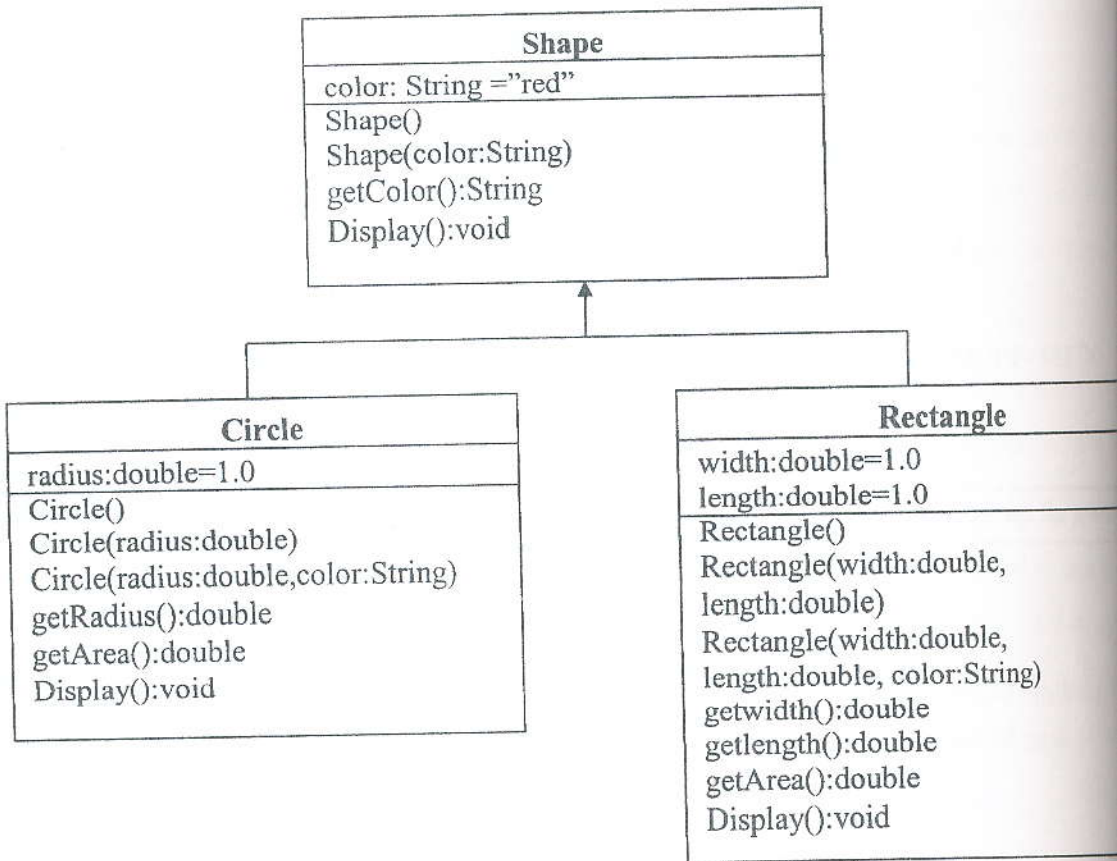    ```

2.  Write a java program read the value from keyboard and calculate the sum of the value and reverse of the value.

    For example:

    Input          : 1234
    Output         : 1234 + 4321 = 5555

Q2. Write a java program to do the following tasks.

```
                        Shape
        color: String ="red"
        Shape()
        Shape(color:String)
        getColor():String
        Display():void
```

```
              Circle
    radius:double=1.0
    Circle()
    Circle(radius:double)
    Circle(radius:double,color:String)
    getRadius():double
    getArea():double
    Display():void
```

```
            Rectangle
    width:double=1.0
    length:double=1.0
    Rectangle()
    Rectangle(width:double,
    length:double)
    Rectangle(width:double,
    length:double, color:String)
    getwidth():double
    getlength():double
    getArea():double
    Display():void
```

Create a super class called **Shape** (as shown in the class diagram), which contains:

- A variable color (String).

- Two constructors: Default constructor that initializes the color to "red", and a parameterized constructor that initializes the color to the given value.

- **getColor()** method that returns the color value.

- A **Display()** method that returns "A Shape with color of xxx ".

Create two subclasses of Shape called **Circle** and **Rectangle**, as shown in the class diagram.

The **Circle** class contains:

- A variable radius (double).

- Three constructors as shown in the class diagram. Default constructor initializes the radius to 1.0.

- **getRadius()** method that returns the radius value.
- Method **getArea()** to calculate area of the circle.
- Override the Display() method inherited, to return "A Circle with radius=xxx, which is a subclass of yyy", where yyy is the output of the Display() method from the super class.

The **Rectangle** class contains:

- Two variables width (double) and length (double).
- Three constructors as shown in the class diagram. Default constructor initializes the width and length to 1.0.
- **getwidth()** and **getlength()** that returns the width and length values.
- Method **getArea()** to calculate the area of rectangle.
- Override the Display () method inherited, to return "A Rectangle with width=xxx and length=zzz, which is a subclass of yyy", where yyy is the output of the Display () method from the super class.

Create objects for the sub classes and print the values.