LAB-2

Question 1

A student studying computer science at a college is examined by the practical work during the course and the final written examination. Each component of the assessment carries a maximum of 50 marks. The following rules used by the examiners in preparation of result. A student must score a total of 40% or more in order to pass. A total mark of 39% is moderated to 40%. However, each component must be passed with a minimum mark of 15. If a student scores 40% or more but does not achieve the minimum mark in one component is given a technical fail of 39% (This mark is not moderated to 40%).

Design a suitable Java class Student and display the marks and result of 5 sample students.

CODE:

```
import java.util.Scanner;

public class q1

{

 public static void main (String args[])

 {

  Scanner in = new Scanner(System.in);

  int n,i;

  float t,l,total;

  System.out.print("Enter no:of Students: ");

  n=in.nextInt();

  for(i=0;i<n;i++)

  {

   System.out.println("Student "+(i+1)+": ");

   System.out.print("Enter Theory Marks: ");

   t=in.nextFloat();

   System.out.print("Enter Lab Marks: ");

   l=in.nextFloat();

   if(t>50 || l>50)

   System.out.println("One component mark exceeds 50");

   else

   {
```

```
        if(t<15 || l<15)
        System.out.println("Failed");
        else
        {
          total=(t+l);
          if(total==39)
          {
            total=40;
            System.out.println("Passed");
          }
          else if(total>=40)
          System.out.println("Passed");
          else
          System.out.println("Failed");
        }
      }
     System.out.println();
    }
  }
}
```

OUTPUT:

```
C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab2>javac q1.java

C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab2>java q1
Enter no:of Students: 5
Student 1:
Enter Theory Marks: 19
Enter Lab Marks: 20
Passed

Student 2:
Enter Theory Marks: 14
Enter Lab Marks: 30
Failed

Student 3:
Enter Theory Marks: 16
Enter Lab Marks: 18
Failed

Student 4:
Enter Theory Marks: 25
Enter Lab Marks: 15
Passed

Student 5:
Enter Theory Marks: 14
Enter Lab Marks: 13
Failed
```

Question 2

The electrical resistance R of a cylindrical wire with length L (in meter) and diameter d (in meter) can be computed from the area A of its diameter (m2) and the resistivity P of the material (rho, meter times Ohm). The formula: R = P (L / A)

Compute the electrical resistance of a wire with length 1m and a diameter of 1mm for copper (P = 1.78*10-8) and for silicon (P = 2300)

CODE:

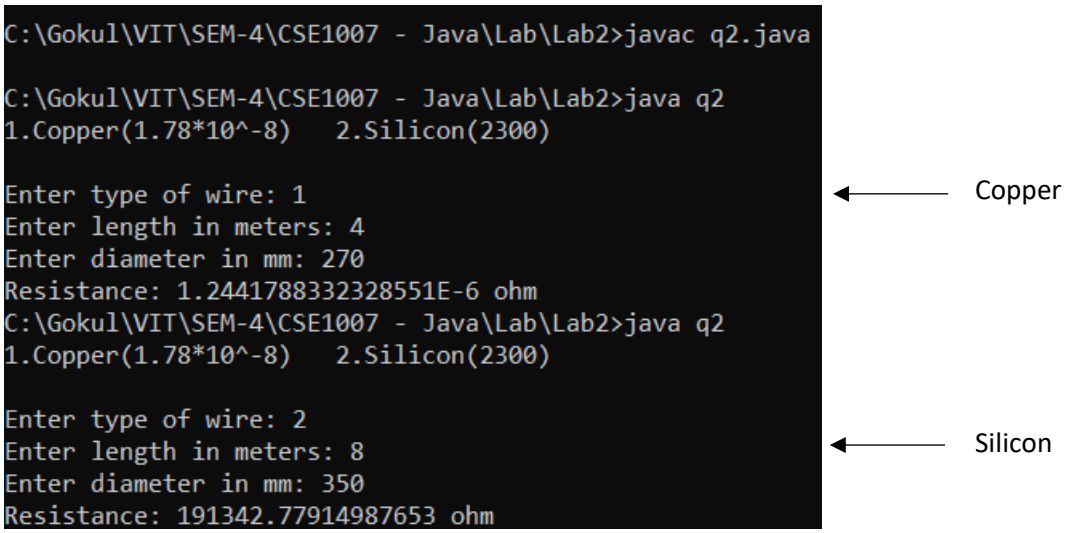
```
import java.util.Scanner;


public class q2
{
   public static void main (String args[])
   {
      Scanner in = new Scanner(System.in);
      int type;
      double R,L,D,A,P;


      System.out.println("1.Copper(1.78*10^-8)   2.Silicon(2300)");
      System.out.println();
      System.out.print("Enter type of wire: ");
      type=in.nextInt();
      if(type==1)
      P=1.78*(Math.pow(10,-8));
      else
      P=2300;
      System.out.print("Enter length in meters: ");
      L=in.nextDouble();
      System.out.print("Enter diameter in mm: ");
      D=in.nextDouble();
      D=D/1000;
      A=3.14*(Math.pow(D/2,2));
```

```
        R=P*(L/A);
        R=Math.round (R * 100.0) / 100.0;
        System.out.print("Resistance: "+R+" ohm");
    }
}
```

OUTPUT:



Question 3

A man takes a job for 30 days. His pay for the first day is Rs.25/. His pay for the second day is Rs.50/. and for the third day is Rs.100/. Each day's pay is twice his pay of the previous day. Write a program to find his total pay for 30 days.

CODE:

```
import java.util.Scanner;

public class q3

{

   public static void main (String args[])

   {

      Scanner in = new Scanner(System.in);

      int days, d, pay=25, total=0;

      System.out.print("Enter no:of days: ");

      days=in.nextInt();

      d=days;

      while(days>0)

      {

         total=total+pay;

         pay=pay*2;

         days--;

      }


      System.out.println("Total after "+d+" days: "+total);

   }

}
```

OUTPUT:

```
C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab2>java q3
Enter no:of days: 30
Total after 30 days: 1073741799
```

Question 4

In order to attract its customers, a jewellery shop gives a silver coin to its every 100th customer and a gold coin to every 250th customer. If a customer is eligible for both silver and gold coin, he gets then only gold coin. Design a Java application that gets all customer names and prints only the customer's name who wins either a silver coin or a gold coin. For the sake of auditing purpose, it should also print the number of customers won silver coin or gold coin.

CODE:

```
//Silver for every 2nd customer and Gold for every 5th customer


import java.util.Scanner;
public class q4
{
   public static void main (String args[])
   {
      Scanner in = new Scanner(System.in);
      int n,i,silver=0,gold=0;
      String[] names=new String[100];
      System.out.print("Enter no:of customers: ");
      n=in.nextInt();
      System.out.println("Enter names of "+n+" customers: ");
      for(i=0;i<=n;i++)
      names[i]=in.nextLine();
      System.out.println();
      System.out.println("Winners:");
      for(i=1;i<=n;i++)
      {
         if(i%2==0 && i%5==0)
         {
            gold++;
            System.out.println("Customer-"+i+" : "+names[i]+" -Gold");
         }
```

```
        else if(i%2==0)
        {
           silver++;
           System.out.println("Customer-"+i+" : "+names[i]+" -Silver");
        }
        else if(i%5==0)
        {
           gold++;
           System.out.println("Customer-"+i+" : "+names[i]+" -Gold");
        }
     }
     System.out.println();
     System.out.println("No:of Silver Winners: "+silver);
     System.out.println("No:of Gold Winners  : "+gold);
  }
}
```

OUTPUT:

```
C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab2>javac q4.java

C:\Gokul\VIT\SEM-4\CSE1007 - Java\Lab\Lab2>java q4
Enter no:of customers: 10
Enter names of 10 customers:
Raj
Sonu
Amin
Adithyan
Chirag
Rayz
Lishad
Linsha
Renjan
Gopika

Winners:
Customer-2 : Sonu -Silver
Customer-4 : Adithyan -Silver
Customer-5 : Chirag -Gold
Customer-6 : Rayz -Silver
Customer-8 : Linsha -Silver
Customer-10 : Gopika -Gold

No:of Silver Winners: 4
No:of Gold Winners  : 2
```