**BCSE103E - COMPUTER PROGRMMING: JAVA**

**Q.No:1**

Every student in a class takes a test in 5 different subjects. The total marks for each test is 100 and the pass mark is 50. Write a Java programme to obtain a student's name register number and marks for five subjects and calculate his grade using the following rules:

1) Grade O: The average is greater than 80% and marks scored in all subjects is greater than 80. Also, the student should have obtained pass mark in all subjects.

2) Grade A: The average is greater than 70% and marks scored in at least three subjects is greater than 80. Also, the student should have obtained pass mark in all subjects.

3) Grade C: The average is greater than 60% and marks scored in at one subject is greater than 80. Also, the student should have obtained pass mark in all subjects.

4) Grade D: The average is greater than 50%  and have obtained pass mark in all subjects.

5) Grade E: Otherwise

**Input:**

Name: Arvind

Register Number: 190872

Subject 1 Marks: 80

Subject 2 Marks: 81

Subject 3 Marks: 89

Subject 4 Marks: 70

Subject 5 Marks: 77

**Output:**

Arvind has obtained Grade A

**Q.No: 2**

To develop a Java application to generate Electricity bill. Create a class with the following members: Consumer no., consumer name, previous month reading, current month reading, type of EB connection (i.e domestic or commercial). Compute the bill amount using the following tariff.

If the type of the EB connection is domestic, calculate the amount to be paid as follows:

First 100 units - Rs. 1 per unit

101-200 units - Rs. 2.50 per unit

201 -500 units - Rs. 4 per unit

> 501 units - Rs. 6 per unit

If the type of the EB connection is commercial, calculate the amount to be paid as follows:

First 100 units - Rs. 2 per unit

101-200 units - Rs. 4.50 per unit

201 -500 units - Rs. 6 per unit

> 501 units - Rs. 7 per unit

**Input:**

Enter consumer number: 1001

Enter Type of connection (D for Domestic or C for Commercial): D

Enter consumer name:  Sachin

Enter previous month reading: 3000

Enter current month reading: 4000

**Output:**

Consumer number = 1001

Consumer name = Sachin

type of connection = DOMESTIC

Current Month Reading = 4000.0

Previous Month Reading = 3000.0

Total units = 1000.0

Total bill = RS 6000.0

**Q.No: 3**

The Point of Sales Terminal software requires to print the cumulative total amount of a purchase to be amassed from a customer by providing the accompanying information in its display to customize the payment easy. Develop a Java program to display the demonstration of the total amount in minimum number of notes of currency (Rs. 2000, 1000, 500, 200, 100, 50, 20, 10, 5, 2, 1).

**Input :**

Enter the Currency: 15453

**Output:**

List of Currency Notes:

Rs. 2000 x 7

Rs. 1000 x 1

Rs. 200 x 2

Rs. 50 x 1

Rs. 2 x 1

Rs. 1 x 1

**Q.No: 4**

Write a Java program to create a 3x3 matrix and fill it with prime numbers. Get the starting number as input from the user, from the starting number generate 9 prime numbers subsequently.

**Input:**

Enter the First Limit: 1

Enter the Last Limit: 25

**Output:**

2    3     5

7    11   13

17  19    23

**Q.No. 5**

Illustrate the concept of constructor overloading through a java program which when given an input 1 will output ‘This is the parrot’ and when given an input 2 will output ‘this is the main’ and when given an input 3 will output ‘This is the 20 years sparrow’.

**Input:**

Input 1

**Output :**

This is the parrot

**Q.No. 6**

A hall comprised of M X N seating arrangements. Their aptitude level is mentioned as rating 1 to 5. (represented in M X N matrix). We have to identify the winning possibilities by analyzing their neighbour aptitude level:

1. If number of people with greater aptitude measure is greater than number of people with the lower aptitude measure then winning possibility is “ -1”

2. If number of people with greater aptitude measure is lesser than number of people with the lower aptitude measure then winning possibility is “1”

3. If number of people with greater aptitude measure is equal to the number of people with the lower aptitude measure, then winning possibility is “0” Print the winning possibility matrix.

Print how many are in winning category ( 1) , losing category (-1) , neutral(0)

**Input:**

4

2

1

3

2

4

5

1

2

1

3

**Output:**

1 -1 -1 1

-1 1 1 -1

1 1 -1 1

**Q.No. 7**

In a theatre four types of audience come to watch movies. They are,

1. Singles

2. Couples

3. A set of parents + 1 kid

4. A set of parents + 2 kid

The theatre ticket rate for any audience group as follows:

 1st person in the group -Rs.400/-

 2nd person in the group -Rs.300/-

 3rd person in the group -Rs.200/-

 4th person in the group -Rs.100/-

The theatre wants to collect the names of all audience who visit the theatre and calculate the total amount collected as fare for the tickets from the audience. Write a Java program that implements the above using the concept of Constructor Overloading (Polymorphism).

**Input 1:**

Enter the total number of audience group : 2

Enter the group category: 1

Enter name of first person: Kaushik

Enter the group category: 3

Enter name of first person: Ashmi

Enter name of second person: Krish

Enter name of third person: Mahi

**Output 1**

The audience names are

Kaushik

Ashmi

Krish

Mahi

The total amount collected: 1300

**Input 2:**

Enter the total number of audience group : 3

Enter the group category: 1

Enter name of first person: Kaushik

Enter the group category: 3

Enter name of first person: Ashmi

Enter name of second person: Krish

Enter name of third person: Mahi

Enter the group category: 4

Enter name of first person: Rashmi

Enter name of second person: Rakesh

Enter name of third person: Jesi

Enter name of fourth person: Meha

**Output 2**

The audience names are

Kaushik

Ashmi

Krish

Mahi

Rashmi

Rakesh

Jesi

Meha

The total amount collected: 2300

**Q.No. 8**

Let there are ‘n’ number of students in a class. Write a Java program to get the name and register number of each student by representing each student as an object in an array of objects. Also write an instance method which accepts an object as input parameter to check if there are duplicates in the record.

**Input 1**:

Enter the number of students: 3

Enter name and reg no of student 1:

Ram

1234

Enter name and reg no of student 2:

Tom

1235

Enter name and reg no of student 3:

Ram

1234

**Output 1**

Duplicates 1 3

**Input 2:**

Enter the number of students: 3

Enter name and reg no of student 1:

Ram

1234

Enter name and reg no of student 2:

Tom

1235

Enter name and reg no of student 3:

Seetha

1236

**Output 2:**

Duplicates 0

**Input 3:**

Enter the number of students: 4

Enter name and reg no of student 1:

Ram

1234

Enter name and reg no of student 2:

Tom

1235

Enter name and reg no of student 3:

Ram

1234

Enter name and reg no of student 4:

Tom

1235

**Output 3**

Duplicates

1 3

2 4