**PSG COLLEGE OF TECHNOLOGY, COIMBATORE – 641 004**

**DEPARTMENT OF APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES**

**I M.Sc SS (11.7.19) / TCS(09.07.19) - C Programming Lab**

1. Scissor-Rock-Paper Game

The rule for this popular game is: the scissor cuts the paper; the rock knocks the scissor; and the paper wraps the rock.

Write a program to simulate the game. Your program:

* randomly generates a number (0, 1, or 2) to represent scissor, rock, or paper
* prompts the user to enter “scissor”, “rock”, or “paper”
* and displays the computer or the user wins, loses, or draws.

2. Write a program to read two integers with the following significance.

The first integer value represents a time of day on a 24 hour clock, so that 1245 represents quarter to one mid-day, for example.

The second integer represents a time duration in a similar way, so that 345 represents three hours and 45 minutes.

This duration is to be added to the first time, and the result printed out in the same notation, in this case 1630 which is the time 3 hours and 45 minutes after 12.45.

Typical output might be Start time is 1415. Duration is 50. End time is 1505.

Start time is 2300. Duration is 200. End time is 100.

3. Write a program to compute Electricity Bill payment of different users based on their consumption. In order to promote savings, TNEB charges a lower rate to users with lower consumption as shown in table below. Charges break down basis as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| User Code | User Type | First Rate | Second Rate |
| 1 | Domestic | 0.25 for first 500 units | 0.37 for the following units |
| 2 | Office | 0.50 for first 1000 units | 0.63 for the following units |
| 3 | Factory | 0.65 for first 1500 units | 0.75 for the following units |

Allow the user to repeat calculation as many times as needed and enter ‘n’ to stop.

Sample Input:

Tamilnadu Electricity Board

Enter the customer name: Raja

User Type:

1. Domestic user
2. Office
3. Factory

Please Enter user type( 1/2/3 or D/O/F) : D

Enter the initial meter reading : 1200

Enter the current meter reading : 1750

Output:

Tamilnadu Electricity Board

Date of payment: 05/07/2012

Customer Name: Raja

Initial reading: 1200 Current reading:1750

Total usage : 550 units

Total amount to be paid: Rs. 143.50 /-

4. Write a program that asks user to enter values for the double variables (a, b, c, d) in the following formula. It then computes the result (res) and prints it with three digits after.



5. Consider the following triangle. Write a program that asks user to enter A in degrees, *a* and *b* in cm, then computes

B=? in degrees

C=? in degrees

*c*=? in cm

area=? in cm2



6. Write a program that finds the intersection of two lines and the angle between them.

7. Write a C program to compute the following



8. Write a C program to find the following



i)



ii)

9. Write a C Program that swaps the contents of variables x and y.

* Using another temporary variable
* With using temporary variable.