CL-1002
Programming Fundamentals
Lab # 5

Objectives:

1. Exhibit the understanding of pseudocode of repetitive problems.
2. Exhibit the understanding of drawing Flow Charts of repetitive problems.
3. Understanding cout<< statement in C programming.

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. First think about statement problems and then write your logic on Paper.
2. Write pseudocode/Flowchart in handwritten form on **Paper using Pen.**
3. Write **Your Name** and **Roll No** on your Paper/Sheet's all pages.
4. Do not copy from any source otherwise you will be penalized with negative marks.
5. Complete your lab **within given Time Slot**.

Problem: Write pseudocode and draw flowcharts of the following problems.

Repetition Problems

1. **Write pseudocode to display the cube of the number up to given an integer.**

   Test Data:

   Input number of terms: 5

   Expected Output:

   Number is: 1 and cube of the 1 is :1

   Number is: 2 and cube of the 2 is :8

   Number is: 3 and cube of the 3 is :27

   Number is: 4 and cube of the 4 is :64

   Number is: 5 and cube of the 5 is :125

2. **Write pseudocode to display the multiplication table of a given integer.**

   Test Data:

   Input the number (Table to be calculated) : 15

Expected Output:

15 X 1 = 15

...

...

15 X 10 = 150

3. **Write a program in C to display the n terms of square natural number and their sum. 1 4 9 16 ... n Terms**

   Test Data:

   Input the number of terms: 5

   Expected Output:

   The square natural upto 5 terms are :1 4 9 16 25

   The Sum of Square Natural Number upto 5 terms = 55

4. **Write pseudocode to display the n terms of odd natural number and their sum.**
5. **Write a pseudocode to display the sum of the series [9 + 99 + 999 + 9999 ...].**

   Test Data:

   Input the number or terms :5

   Expected Output:

   9 99 999 9999 99999

   The sum of the series = 111105

6. **Write a pseudocode to check whether a given number is a perfect number or not.**

   Test Data :

   Input the number : 56

   Expected Output :

   The positive divisor : 1 2 4 7 8 14 28

   The sum of the divisor is : 64

   So, the number is not perfect.

7. **Write a pseudocode to find the perfect numbers within a given number of ranges.**

   Test Data :

   Input the starting range or number: 1

   Input the ending range of number: 50

   Expected Output:

   The Perfect numbers within the given range: 6 28

8. **Write a pseudocode to display the first n terms of Fibonacci series.**

   Fibonacci series 0 1 2 3 5 8 13 ....

   Test Data:

Input number of terms to display: 10

Expected Output:

Here is the Fibonacci series up to 10 terms:

0 1 1 2 3 5 8 13 21 34

Practicing: "cout<< " statement using escape "\n" escape sequence.

1. **Write a pseudocode to display the following pattern using single cout statement.**

   1

   01

   101

   0101

   10101

2. **Write a pseudocode to display the following pattern using single cout statement.**

   1

   2 3

   4 5 6

   7 8 9 10

3. **Write the output of the following cout statement.**

```
cout<<"*"<<endl<<"**"<<"\n"<<BSE<<"\n"<<"***"<<"Welcome";
```

4. **Write the output of the following cout statement.**

```
cout<<"1"<<endl<<"34"<<"\n"<<"2345"<<"\n"<<"\n"<<"789"<<"000"
<<"Endl"<<endl<<"111";
```

Best of Luck ☺

You need to done with your exercise within given time.