# **Sheet No.3**

Due Date: One week after your lab session- Complete by yourself.

#### **Exercise 1:**

Write a C++ program to calculate factorial n.

$$n!= n \times (n-1) \times (n-2) \times ... \times 3 \times 2 \times 1$$

### **Exercise 2:**

Write a C++ program that reads in a umber and gives the shown output:

Enter a number: 8

the number 8 is devisable the numbers 1, 2, 4, 8

Enter a number: 45

the number 45 is devisable the numbers 1, 3, 5, 9, 15, 45

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### **Exercise 3:**

Write a program to display the following numbers

### **Exercise 4:**

Write a program to get the average of 100 numbers.

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# Exercise 5:

1- Write a program to print the following

| X | $\mathbf{x}^2$ | $x^{3} + 5$ |
|---|----------------|-------------|
| 1 | 1              | 6           |
| 2 | 4              | 13          |
| 3 | 9              | 32          |
| 4 | 16             | 69          |
| 5 | 25             | 130         |

### **Exercise 6:**

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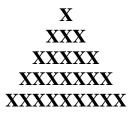
Write a program to generate the following table, formatting it into 10 columns.

```
14
           21
                 28
                       35
                            42
                                  49
                                       56
                                             63
                                                   70
77
     84
           91
                 98
                      105
                            112
                                  119
                                       129
                                             133
                                                   140
147
    154
           161
                168
                      175
                            182
                                  189
                                       196
                                             203
                                                   210
```

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## **Exercise 7:**

Use for loops to construct a program that displays a pyramid of Xs on the screen. The pyramid should look like this



#### **Exercise 8:**

Write the exact output for the following programs:

| a. | #include <iostream.h></iostream.h>   | b. | #include <iostream.h></iostream.h>                |
|----|--|----|---|
|    | main ( )   |    | main( )   |
|    | { int i, k;  |    | { int first=4, last=6, s=1;                       |
|    | for(i=1;i<4;i++)   |    | for(int i=first;i <last;i++)< th=""></last;i++)<> |
|    | for(k=1;k<3;k++)   |    | {s=s+i;   |
|    | cout< <i+k<<" ";="" th="" }<=""><th></th><th>cout&lt;<s<endl;} th="" }<=""></s<endl;}></th></i+k<<"> |    | cout< <s<endl;} th="" }<=""></s<endl;}>           |
| C. | #include <iostream.h></iostream.h>   | d. | #include <iostream.h></iostream.h>                |
|    | main ( )   |    | main( )   |
|    | { int i;   |    | $\{ for(int j=81;j>=1;j/=3) \}$                   |
|    | char letter='Z';   |    | cout< <j<<"\n";< th=""></j<<"\n";<>               |
|    | for(i=26;i>0;i)  |    | 1   |
|    | cout<< letter; }   |    | ſ   |

```
f.
   #include<iostream.h>
                                         #include<iostream.h>
    main()
                                         main()
      { int i;
                                           { int i;
        for(i=1;i<7;i++)
                                             for(i=1;i<7;i++)
                                               if(i <= 3)
          if(i==3)
          continue;
                                               continue;
          cout<<i<<endl;
                                               cout<<i<<endl;
                                         #include<iostream.h>
   #include<iostream.h>
                                    h.
g.
    main ( )
                                          main()
      { int i;
                                            { int i;
        for(i=1;i<7;i++)
                                             for(i=1;i<7;i++)
        if(i<4)
                                              if(i==4)
                                              break;
        break;
        cout<<i<<endl;
                                              cout<<i<<endl;
i.
   #include<iostream.h>
                                   j.
                                         #include<iostream.h>
   main ()
                                           main()
     {
                                            {
     char start='A', stop ='E',
                                          int start=3, stop =9,
     index;
                                          index;
     index = ++start;
                                          index = start;
                                             while (index < stop)
     while (index < stop)
        cout<<index<< "\n";
                                              cout<<index<< "\n";</pre>
                                               index++;
        index++;
                                               }
     cout<<++index;
                                             }
```

| Exercise 9:   |
|---|
| Write a program to print even numbers (0 : 100).                        |
| Exercise 10:  |
| write a C++ program to print number of zeros of a series of 10 number   |
| entered by the user.  |
| Exercise 11:  |
| write a C++ program to print number of values > 10 of a series of 10    |
| numbers entered by the user.  |
| Exercise 12:  |
| Write a C++ program to accept 10 numbers from the user and calculate    |
| how many even numbers and how many odd numbers.                         |
| Exercise 13:  |
| Write a C++ program to accept 10 numbers from the user and calculate    |
| the sum of the factorials of these numbers. ( Your program should check |
| for the negative numbers and zeros.)                                    |
| Exercise 14:  |
| Write a program that gives the sum of squares of numbers from 10 to 20. |
| Exercise 15:  |
| Write a program to calculate the value of $sin(x)$ .                    |

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