Lab 5

Objective(s):

To understand the programming using Loop & nested loop

Statements (for, while, do-while)

1. Write a program to input two integer numbers and display the sum of even numbers between these two input numbers.

```
#include<stdio.h>
#include<conio.h>
int main()
{
   int i,start,end,c,sum=0;
   printf("Enter starting number:\t");
   scanf("%d",&start);
   printf("Enter ending number:\t");
   scanf("%d",&end);
   if(start>end)
   {
       c=start;
       start=end;
       end=c;
   }
   for(i=start;i<=end;i++)
   {
       if(i%2==0)
       {
           sum=sum+i;
       }
   }
   printf("The sum of even numbers between %d and %d
is %d",start,end,sum);
}
```

2. Write a program to find HCF and LCM of two numbers.

```
#include<conio.h>
#include<stdio.h>
int main()
{
```

```
    int num1,num2,r,t1,t2,hcf,lcm;
    printf("Enter two numbers:\t");
    scanf("%d%d",&num1,&num2);
    t1=num1,t2=num2;
    do
    {
        r=num1%num2;
        if(r==0)
        {
            hcf=num2;
            printf("\nHCF between %d and %d is
%d.",t1,t2,hcf);
            break;

        }
        num1=num2;
        num2=r;

    }while(r>0);
    lcm=(t1*t2)/hcf;
    printf("\nLCM between %d and %d is
%d.",t1,t2,lcm);
    getch();
    return 0;

}
```

3. Write a program to find the sum of all individual digits of the number.(using do while loop).

```
    #include<stdio.h>
    #include<conio.h>
    int main()
{
    int num,r,sum=0;
    printf("Enter a number:\t");
    scanf("%d",&num);
    do
    {
        r=num%10;
        sum=sum+r;
```

```
        num=num/10;
    }while(num>0);
    printf("\nThe sum of digits= %d",sum);
    getch();
    return 0;
}
```

4. Write a program to print the even numbers from 1 to 50.

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int i;
    for (i=1;i<=50;i++)
    {
        if(i%2==0)
        {
            printf("%d  ",i);
        }

    }
    getch();
    return 0;
}
```

5. Write a program to print the number from 1 to 100 which is exactly divisible by 7.

```
/*Write a program to print the number from 1 to 100
which is exactly divisible
by 7. */


#include<stdio.h>
#include<conio.h>
int main()
{
    int i;
    for(i=1;i<=100;i++)
    {
        if(i%7==0)
```

```
        {
          printf("%d   ",i);
        }

    }
}
```

6. Write a program to find the factorial of a given number.

```
/*Write a program to find the factorial of a given
number*/

#include<stdio.h>
#include<conio.h>
int main()
{
    int i,num;
    long long int fact=1;
    printf("Enter a number:\t");
    scanf("%d",&num);
    for(i=2;i<=num;i++)
    {
        fact=fact*i;
    }
    printf("\nThe factorial of %d is
    %lld",num,fact); getch();
    return 0;
}
```

7. Write a program to generate fibonacci series until the term is less than 500.

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int a=1,b=1,f=1;
    printf("0  1");
    do
    {
        printf("  %d",f);
```

```
        f=a+b;
        a=b;
        b=f;
    }while(f<500);
    getch();
    return 0;
}
```

8. Write a program to calculate sum of the following series:

$$y=x+x_2+x_3+x_4...x_n$$

where x and n are given by users.

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
int main()
{
    float x,sum=0.0;
    int n,i;
    printf("Enter the value of
    x:\t"); scanf("%f",&x);
    printf("Enter the value of n:\t");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        sum=sum + pow(x,i);
    }
    printf("\nSum = %f",sum);
    getch();
    return 0;
}
```

9. Write a program to find sum as Y of the following series excluding prime numbers in the series.

$$Y = 1 + \frac{1}{1!} + \frac{2^2}{2!} + \frac{3^2}{3!} + \cdots + \frac{10^2}{10!}$$

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
int main()
{
  float y=2.0,f=1.0; int
    i,j,c;
    for (i=2;i<=10;i++)
    {
      f=f*i;
        c=0;
```

```
            for(j=2;j<i;j++)
            {
              if(i%j==0)
              {
                  c=c+1;
                  break;
              }
        if(c!=0)
        {
            y=y+pow(i,2)/f;
        }
    }
}   printf("sum= %f",y);
```

10. Write a program to display the following:

a.

```
1
1   4
1   4   9
1   4   9   16
1   4   9   16   25
```

b.

```
*
*   *
*   *   *
*   *   *   *
```

```
        a.#include<stdio.h>
#include<conio.h>
int main()
{
    int i,j;
    for(i=1;i<6;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d  ",(j*j));
        }
        printf("\n");
    }
    getch();
    return 12;
}
```

```
        b.#include<stdio.h>
#include<conio.h>
int main()
{
    int i,j;
    for(i=1;i<5;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("*  ");
        }
        printf("\n");
    }

    getch();
    return 0;
}
```