LAB 6

Objective(s):

To understand function programming, its types and function-call

1) Write a program to add, subtract, multiply and divide two integers using user defined type function with return type.

```
#include<stdio.h>
#include<conio.h>
int sum(int,int);
int sub(int,int);
int mul(int,int);
int div(int,int);
int main()
{
    int num1,num2;
    printf("Enter any two integer:\t");
    scanf("%d%d",&num1,&num2); printf("\nSum =
    %d",sum(num1,num2)); printf("\nProduct =
    %d",mul(num1,num2)); printf("\nDifference =
    %d",sub(num1,num2)); printf("\nQuotient =
    %d",div(num1,num2)); getch();

    return 0;
}
   int sum(int x,int y)
   {
       return (x+y);
   }
   int sub(int x,int y)
   {
       return (x-y);
   }
   int mul(int x, int y)
   {
       return (x*y);
   }
   int div(int x, int y)
   {
       return (x/y);
   }
```

2) Write a program to calculate sum of first 50 natural numbers using recursive function.

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

    printf("\nSum of first 50 natural num is
%d",sum());
    getch();
    return 0;
}
int sum()
{
   static int i=1,s=0;
    s=s+i;
    i=i+1;
    if(i<=50)
    {
        sum();
    }
    return s;

}
```

3) Define a function named fact() to calculate factorial of a number n and then write a program that uses this function fact() to calculate combination and permutation.

```
#include<stdio.h>
#include<conio.h>
long int fact(int);
int main()
{
    int n,r,p,c;
    printf("Enter the value of n and r:\t");
    scanf("%d %d",&n,&r); p=fact(n)/fact(n-
    r); c=fact(n)/(fact(n-r)*fact(r));
    printf("\npermutation = %d",p);
    printf("\ncombination = %d",c);
```

```
    getch();
    return 0;
}
long int fact(int n)
{
    int f=1,i;
    for (i=2;i<=n;i++)
    {
        f=f*i;
    }
    return f;
}
```

4) Write a program to find the Fibonacci series up to given number using:
a. recursive function b. without recursion

```
/*Write a program to find the Fibonacci series up to
given number using:
a. recursive function*/

#include<stdio.h>
#include<conio.h>
void fibo(int);
int main()
{
    int n;
    printf("Enter the value of
    n:\t"); scanf("%d",&n);
    if(n==1)
    {
        printf("0");
    }
    else
    {
        printf("0  1");
    }
    fibo(n);
    getch();
    return 0;
}
void fibo(int n)
```

```
{
    static int a=1,b=1,f=1,i=2;
    if(i<n)
    {
        printf("  %d",f);
        f=a+b;
        a=b;
        b=f;
        i=i+1;
        fibo(n);


    }
}

/*Write a program to find the Fibonacci series up to
given number using:
b. without recursion*/

#include<stdio.h>
#include<conio.h>
void fibo(int);
int main()
{
    int n;
    printf("Enter the value of
    n:\t"); scanf("%d",&n);
    if(n==1)
    {
        printf("0");
    }
    else
    {
        printf("0  1");
    }
    fibo(n);
    getch();
    return 0;
}
void fibo(int n)
{
```

```
    int a=1,b=1,f=1,i=2;
    while(i<n)
    {
        printf("  %d",f);
        f=a+b;
        a=b;
        b=f;
        i=i+1;
    }
}
```

5) Write a program that includes a function which returns 1 if the argument passed to it is a prime number and 0 otherwise.

```
/*) Write a program that includes a function which
returns 1 if the argument
passed to it is a prime number and 0 otherwise.*/

#include<stdio.h>

#include<conio.h>
int primech(int);
int main()
{
    int num,c;
    printf("Enter a integer:\t");
    scanf("%d",&num);
    c=primech(num);
    if(c==1)
    {
        printf("%d is prime",num);
    }
    else
    {
        printf("%d is not prime",num);
    }
    getch();
    return 0;
}
int primech(int n)
{
    int i;
    for(i=2;i<n;i++)
    {
```

```
        if(n%i==0)
        {
            break;
        }
    }
    if(i==n)
    {
        return 1;
    }
    else
    {
        return 0;
    }
}
```

6) Write a program that illustrates use of local, global and static variables.

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int a=50;
    {
        int a=100;
        printf("a=%d",a);
    }
    printf("\na=%d",a);
    getch();
    return 0;

}
```

```
#include<stdio.h>
#include<conio.h>
int a=100;
void fun1();
void fun2();
int main()
{
    printf("From main a=%d",a);
    fun1();
    fun2();
    getch();
```

```
    return 0;
}
void fun1()
{
    printf("\nFrom fun1 a=%d",a);
}
void fun2()
{
    printf("\nFrom fun2 a=%d",a);
}
```

```
#include<stdio.h>
#include<conio.h>
void fun1();
int main()
{
    fun1();
    fun1();
    fun1();
    return 0;
}

void fun1()
{
    int a = 1;
    static int b = 100;
    printf("a = %d\n", a);
    printf("b = %d\n\n", b);
    a++;
    b++;
}
```

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int a=50;
    {
        int a=100;
        printf("a=%d",a);
    }
    printf("\na=%d",a);
    getch();
    return 0;
```

```
}
```