Assignment - 24

Functions in C++

1. Define a function to check whether a given number is a Prime number or not.

```
#include<iostream>
using namespace std;
void check_prime(int num)
{
   int flag=1;
   for(int i=2;i<num;i++)
   {
      if(num%i==0)
      {
         flag=0;
         break;
      }
   }
   if(flag)
   cout<<"given number is prime";
   else
   cout<<"given number is not prime";
}
int main()
{
   int prime;
   cout<<"enter any number: ";
   cin>>prime;
   check_prime(prime);
   return 0;
}
```

2. Define a function to find the highest value digit in a given number.

```
#include<iostream>
using namespace std;
void greater1(int a,int b)
{
 a<b?cout<<b<<" is greatest":cout<<a<<" is greatest";
}
int main()
{
   int a,b;
   cin>>a>>b;
   greater1(a,b);
}
```

3. Define a function to calculate x raised to the power y.

```
#include<iostream>
#include<math.h>
using namespace std;
void power(int a,int n)
{
cout<<a<<"^"<<n<<"="<<pow(a,n);
}
int main()
{
   int a,n;
   cout<<"enter base and power: ";
   cin>>a>>n;
   power(a,n);
   return 0;
```

```
}
```

4. Define a function to print Pascal Triangle up to N lines.

```
#include<iostream>
using namespace std;
int factorila(int n)
{
   int fact=1;
   if(n==0)
   return 1;
   for(int i=1;i<=n;i++)
   {
      fact=fact*i;
   }
   return fact;
}
void ncr(int n,int r)
{
   // if(n==0)
   // cout<<"1";
   // else if(r==0)
   // {
      cout<<factorila(n)/(factorila(n-r)*factorila(r))<<" ";
   // }
}

void pascal(int n)
{
   for(int i=0;i<n;i++)
   {
      for(int j=0;j<=i;j++)
```

```
      {
         ncr(i,j);
      }
      cout<<endl;
   }
}
int main()
{
   int n;
   cin>>n;
   pascal(n);

}
```

5. Define a function to check whether a given number is a term in a Fibonacci series or not.

```
#include<stdio.h>
int main()
{
   int a=1,b;
   int c;
   b=++a + ++a;
   printf("%d %d",a,b);
}
```

6. Define a function to swap data of two int variables using call by reference

```
#include<iostream>
using namespace std;
void swap(int &a,int &b)
```

```
{
 a=a+b;
 b=a-b;
 a=a-b;
}
int main()
{
   int a,b;
   cout<<"enter the value od a and b: ";
   cin>>a>>b;
   swap(a,b);
   cout<<"a= "<<a<<" b="<<b;
   return 0;
}
```

7. Write a function using the default argument that is able to add 2 or 3 numbers.

```
#include<iostream>
using namespace std;
int add(int a,int b,int c=0)
{
   return a+b+c;
}
int main()
{
   int a,b,c;
   cout<<"enter two number:";
   cin>>a>>b>>c;
   cout<<a<<"+"<<b<<"+"<<c<<"=="<<add(a,b,c)<<endl;
   cout<<a<<"+"<<b<<"=="<<add(a,b);
   return 0;
```

```
}
```

8. Define overloaded functions to calculate area of circle, area of rectangle and area of triangle

```
#include <iostream>
#include<math.h>
using namespace std;
void area(int r)
{
   cout << "area is " <<3.14*r*r<<endl;
}
void area(int l, int b)
{
   cout << "area is " <<l*b<<endl;
}
void area(int a, int b, int c)
{
   int s;
   s=(a+b+c)/2;
   cout << "area is " <<sqrt(s*(s-a)*(s-b)*(s-c))<<endl;
}
int main()
{
   int r,l,b;
   cout<<"enter radius: ";
   cin>>r;
   area(r);
   cout<<"enter l and b";
   cin>>l>>b;
```

```
   area(l,b);
   cout<<"enter a,b,c";
   cin>>r>>l>>b;
   area(r,l,b);
   return 0;
}
```

9. Write functions using function overloading to find a maximum of two numbers and both the numbers can be integer or real.

```
#include<iostream>
using namespace std;
void max(int a,int b)
{
   a>b?cout<<a<<" is max":cout<<b<<" is max"<<endl;
}
void max(double a,double b)
{
   a>b?cout<<a<<" is max":cout<<b<<" is max";
}
int main()
{
   int a,b;
   double c,d;
   cout<<"enter value of a,b,c,d";
   cin>>a>>b>>c>>d;
   max(a,b);
   max(c,d);
   return 0;
}
```

10. Write functions using function overloading to add two numbers having different data Types

```
#include <iostream>
using namespace std;
void add(int a, double b)
{
   cout << (a + b)<<endl;
}
void add(int a, float b)
{
   cout << (a + b)<<endl;
}
void add(char a, float b)
{
   cout << (a + b)<<endl;
}
int main()
{
   int a;
   float b;
   char c;
   double d;
   cin>>a>>b>>c>>d;
   add(a,b);
   add(a,d);
   add(c,b);
}
```