**Assignment-24**

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

Ans-#include <iostream>

using namespace std;

int primeornot(int x)

{

int i,flag;

for(i=2;i<=x/2;i++)

{

if(x%i==0)

{

flag=0;

break;

}

}

if(flag==0)

return 0;

else

return 1;

}

int main()

{

int a;

cout<<"Enter a number";

cin>>a;

if(primeornot(a))

cout<<a<<" is a prime number";

else

cout<<a<<" is not a prime number";

return 0;

}

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

Ans-#include <iostream>

using namespace std;

int highest(int x)

{

int re,Max;

re=x%10;

Max=re;

x=x/10;

while(x!=0)

{

re=x%10;

if(Max<re)

Max=re;

x=x/10;

}

return Max;

}

int main()

{

int a;

cout<<"Enter a number";

cin>>a;

cout<<"Highest digit in "<<a<<" is "<<highest(a);

return 0;

}

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

Ans-#include <iostream>

using namespace std;

float power(float x,int y)

{

float MUL=1;

int i;

if(y>0)

{

for(i=1;i<=y;i++)

{

MUL=MUL\*x;

}

}

else

{

for(i=y;i<0;i++)

{

MUL=MUL\*(1/x);

}

}

return MUL;

}

int main()

{

int b;

float a;

cout<<"Enter two number";

cin>>a>>b;

cout<<a<<"^"<<b<<" = "<<power(a,b);

return 0;

}

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

Ans-#include <iostream>

using namespace std;

int fact(int x)

{

int mul=1,i;

for(i=1;i<=x;i++)

{

mul=mul\*i;

}

return mul;

}

int comb(int n,int r)

{

int p;

p=fact(n)/(fact(n-r)\*fact(r));

return p;

}

void Pascal(int n)

{

int i,j,k,p=0,q;

for(i=1;i<=n;i++)

{

k=1;

q=0;

for(j=1;j<=((n\*2)-1);j++)

{

if(j>=((n+1)-i)&&j<=((n-1)+i)&&k)

{

cout<<comb(p,q);

q++;

k=0;

}

else

{

cout<<" ";

k=1;

}

}

cout<<"\n";

p++;

}

}

int main()

{

int N;

cout<<"Enter the size of pascal triangle: ";

cin>>N;

Pascal(N);

return 0;

}

5. Define a function to check whether a given number is a term in a Fibonacci series or

not.

Ans-#include<iostream>

using namespace std;

int fibo(int x)

{

int a=-1,b=1,c,i,flag;

for(i=1;i<=x\*2;i++)

{

c=a+b;

a=b;

b=c;

if(c==x)

{

flag=0;

break;

}

}

if(flag==0)

return 1;

else

return 0;

}

int main()

{

int a;

cout<<"enter a number";

cin>>a;

fibo(a);

if(fibo(a))

cout<<a<<" is present in Fibonacci series";

else

cout<<a<<" is not present in Fibonacci series";

return 0;

}

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

Ans-#include<iostream>

using namespace std;

void swap(int &x,int &y)

{

int temp;

temp=x;

x=y;

y=temp;

}

int main()

{

int a,b;

cout<<"enter two numbers";

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.

Ans-#include<iostream>

using namespace std;

int add(int,int,int=0);

int add(int a,int b,int c)

{

return (a+b+c);

}

int main()

{

int a,b,c;

cout<<"enter 2 numbers";

cin>>a>>b;

cout<<"sum of "<<a<<" and "<<b<<" is "<<add(a,b);

cout<<endl<<"enter 3 numbers";

cin>>a>>b>>c;

cout<<"sum of "<<a<<" ,"<<b<<" and "<<c<<" is "<<add(a,b,c);

return 0;

}

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

Triangle

Ans-#include<iostream>

#include<math.h>

using namespace std;

float area(float r)

{

return (3.14\*r\*r);

}

float area(float a,float b)

{

return (a\*b);

}

float area(float a,float b,float c)

{

float peri,p;

peri=(a+b+c)/2;

p=peri\*(peri-a)(peri-b)(peri-c);

return sqrt(p);

}

int main()

{

float a,b,c;

cout<<"enter radius of a circle";

cin>>a;

cout<<"Area is "<<area(a);

cout<<endl<<"enter the side of a rectangle";

cin>>a>>b;

cout<<"Area is "<<area(a,b);

cout<<endl<<"enter the side of a triangle";

cin>>a>>b>>c;

cout<<"Area is "<<area(a,b,c);

return 0;

}

9. Write functions using function overloading to find a maximum of two numbers and

both the numbers can be integer or real.

Ans-#include<iostream>

#include<math.h>

using namespace std;

/\*int greatest(int a,int b)

{

if(a>b)

return a;

else

return b;

}\*/

float greatest(float a,float b)

{

if(a>b)

return a;

else

return b;

}

int main()

{

int a,b,c;

cout<<"enter two numbers";

cin>>a>>b;

cout<<"Greater Number is "<<greatest(a,b);

return 0;

}

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

types.

Ans-#include<iostream>

#include<math.h>

using namespace std;

float add(float,float);

float add(float a,float b)

{

return (a+b);

}

/\*int add(int a,int b)

{

if(a>b)

return a;

else

return b;

}

float add(float a,float b)

{

if(a>b)

return a;

else

return b;

}\*/

int main()

{

float b;

int a;

cout<<"enter two numbers";

cin>>a>>b;

cout<<"Sum is "<<add(a,b);

return 0;

}