ASSIGNMENT-24

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

Ans-
```
#include<iostream>

using namespace std;

void prime(int n){
  int flag=0;
   for (int i = 2; i <n; i++)
     {
        if(n%i==0){
        flag=1;
        break;
        }
     }
     if(flag==1)
            printf("Not Prime NUmber");
        else
            printf("Prime Number");
}

int main(){
  int num;
  cout<<"Enter the NUmber:";
  cin>>num;
  prime(num);

return 0;
}
```

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

Ans-
```
#include<iostream>

using namespace std;

void highestdigit(int num){

int remider, Largest= 0;
while (num > 0)
{
   remider = num % 10;
   if (Largest < remider){
      Largest = remider;
    }
```

```
        num = num / 10;
}
cout<<"The Largest Digit is "<< Largest;
}

int main(){
  int number;
  cout<<"Enter the NUmber:";
  cin>>number;
  prime(number);

return 0;
}
```

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

```
Ans- #include<iostream>

#include<math.h>

using namespace std;

void power(int p,int q){
int result=0;
    result=pow(p,q);
    cout<<"The power of x is "<<result;
}

int main(){
  int x,y;
  cout<<"Enter the Numbers:";
  cin>>x>>y;
  power(x,y);

return 0;
}
```

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

```
Ans- #include<iostream>

#include<math.h>

using namespace std;

void printPascal(int n)
{
    int arr[n][n];
    for (int line = 0; line < n; line++)
```

```
    {
     for (int i = 0; i <= line; i++){
       if (line == i || i == 0)
          arr[line][i] = 1;
        else
          arr[line][i] = arr[line - 1][i - 1] + arr[line - 1][i];
        cout << arr[line][i] << " ";
        }
        cout << "\n";
    }
}

int main()
{
    int n;
    cout<<"Enter the value of n:";
    cin>>n;
    printPascal(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;

void checkfabo(int num){
  int a = 0 ,b =1;
  int c = a+b;
  while (c<num) {
    a = b;
    b = c;
    c = a + b; }
  if(c==num)
    cout<<"Number is present";
  else
    cout<<"Number is not present";
}
int main(){
int num;
cout<<"Enter the number u want to check in a fabonnice series : ";
cin>>num;

checkfabo(num);
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 the value of a and b:";
    cin>>a>>b;
    cout<<endl;
    cout<<"Before swapping: a= "<<a<<" and b= "<<b;;
    swap(a, b);
    cout<<endl<<"After swapping:"<<"a= "<<a<<" and 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 sum(int x, int y, int z = 0)
{
    return (x + y + z);
}

int main()
{
    cout << sum(10, 15) << endl;
    cout << sum(10, 15, 25) << endl;
    cout << sum(10, 15, 35) << endl;
    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;
```

```
void area(float r) {
    float pi = 3.14;
    cout<<"Area of circle is "<<pi*r*r<<endl;
}
void area(float l, float b) {
    cout<<"Area of rectangle is "<<l*b<<endl;
}
void area(float a, float b, float c) {
    float s, area;
    if((a+b)>c && (b+c)>a && (a+c)>b) {
        s = (a+b+c)/2;
        area = sqrt(s*(s-a)*(s-b)*(s-c));
        cout<<"Area of triangle is "<<area<<endl;
    }
    else cout<<"Triangle does not form"<<endl;
}
int main() {
    int choice;
    float r, l, b, x, y, z;
    cout<<"Whose area you want to calculate?"<<endl;
    cout<<"1 - Area of circle"<<endl;
    cout<<"2 - Area of rectangle"<<endl;
    cout<<"3 - Area of triangle"<<endl;
    cin>>choice;
    switch (choice)
    {
    case 1:
        cout<<"Enter the radius of circle."<<endl;
        cin>>r;
        area(r);
        break;

    case 2:
        cout<<"Enter the sides of rectangle."<<endl;
        cin>>l>>b;
        area(l,b);
        break;
    case 3:
        cout<<"Enter the sides of triangle."<<endl;
        cin>>x>>y>>z;
        area(x,y,z);
        break;
    default:
        cout<<"Choose from 1, 2, 3"<<endl;
        break;
    }
    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>
using namespace std;

int max(int a,int b){
    int max;
    if(a>b)
    max=a;
    else
      max=b;
    return max;
}
float max(float a,float b){
    float max;

    if(a>b)
    max=a;
    else
      max=b;
    return max;
}

int main(){
float a,b,c;
cout<<"Enter the two numbers : ";
cin>>a>>b;
c = max(a,b);
cout<<"Maximum Number is:"<<c;
return 0;
}
```

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

```
Ans- void add(int a, int b)

{
  cout << "sum = " << (a + b);
}

void add(double a, double b)
{
    cout << endl << "sum = " << (a + b);
}
```

```
// Driver code
int main()
{
    add(10, 2);
    add(5.3, 6.2);

    return 0;
}
```