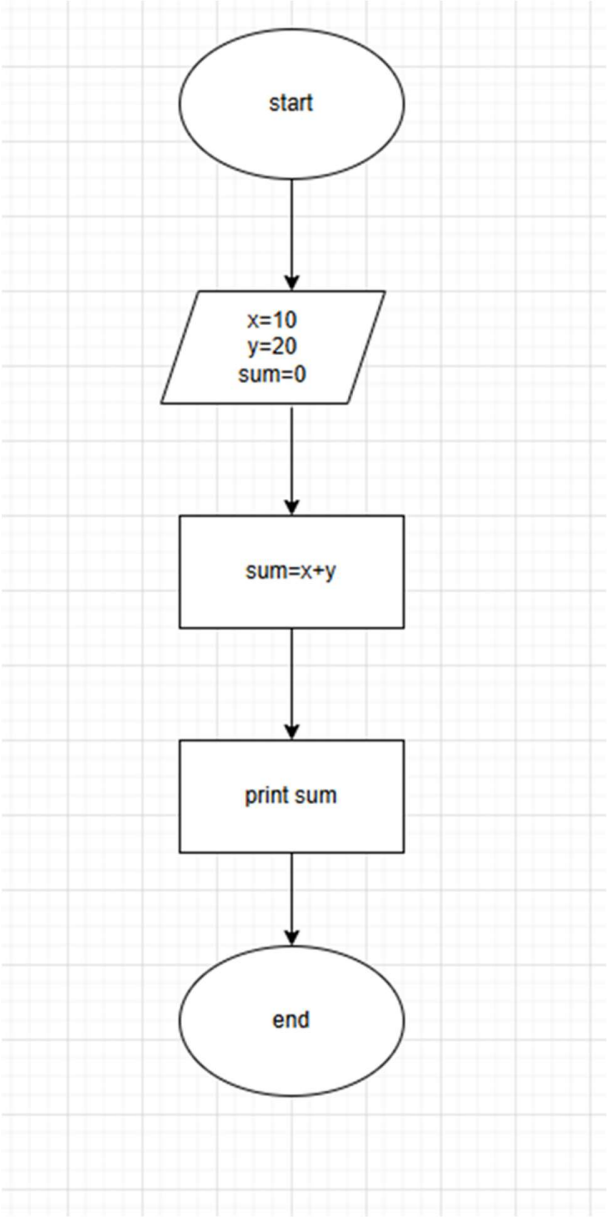
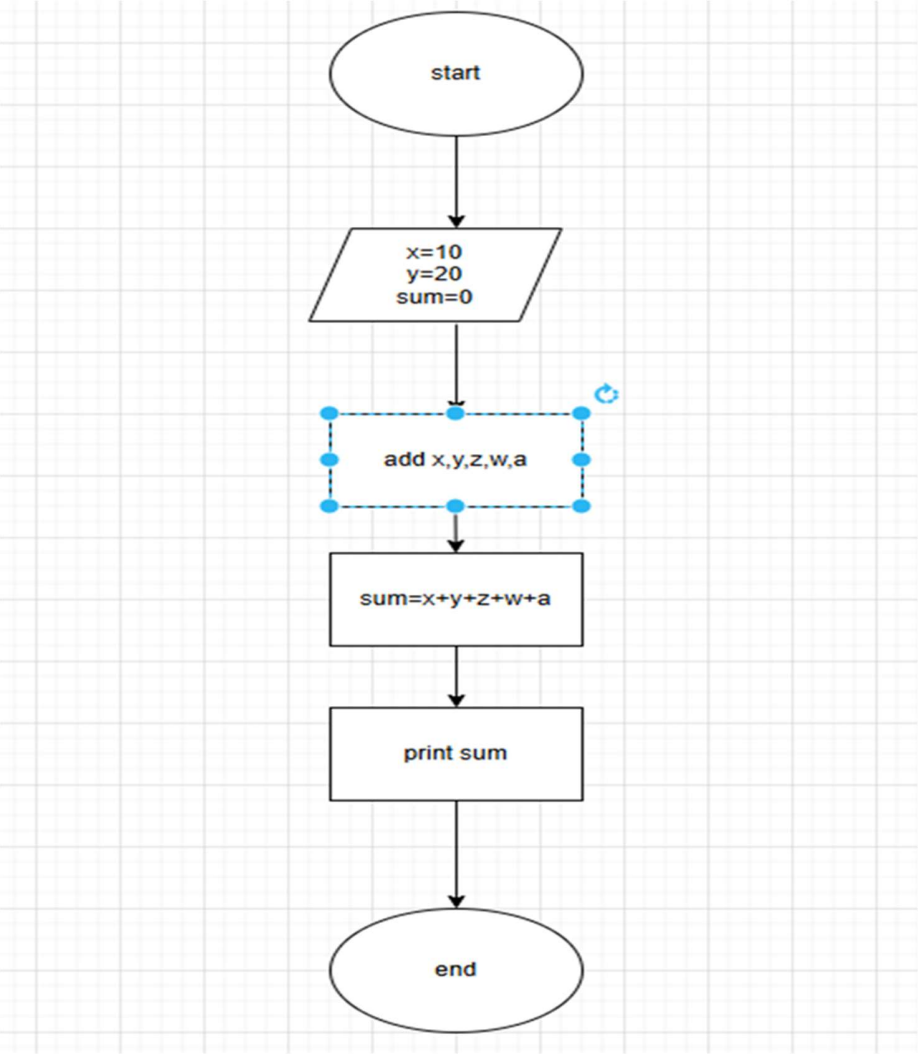
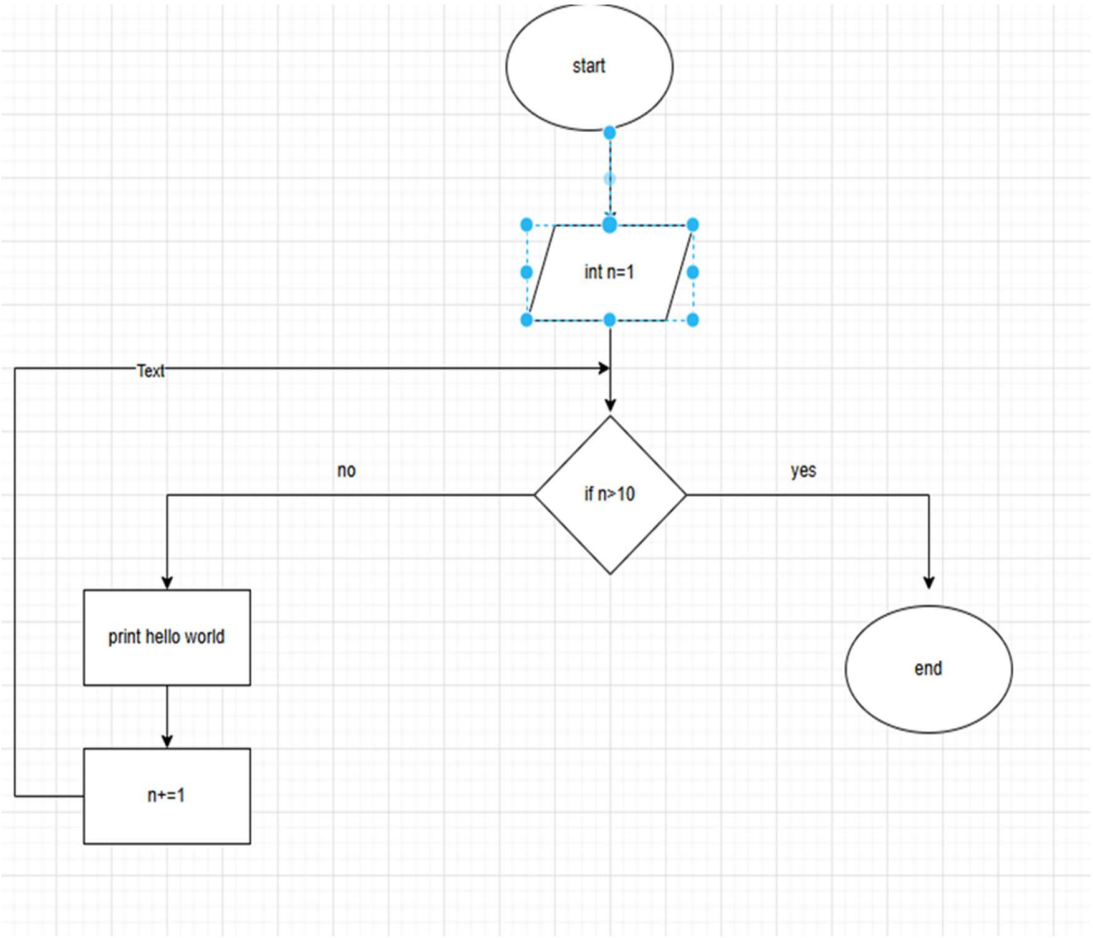
*draw a flowchart thats Add 10 and 20 and put it in sum.*



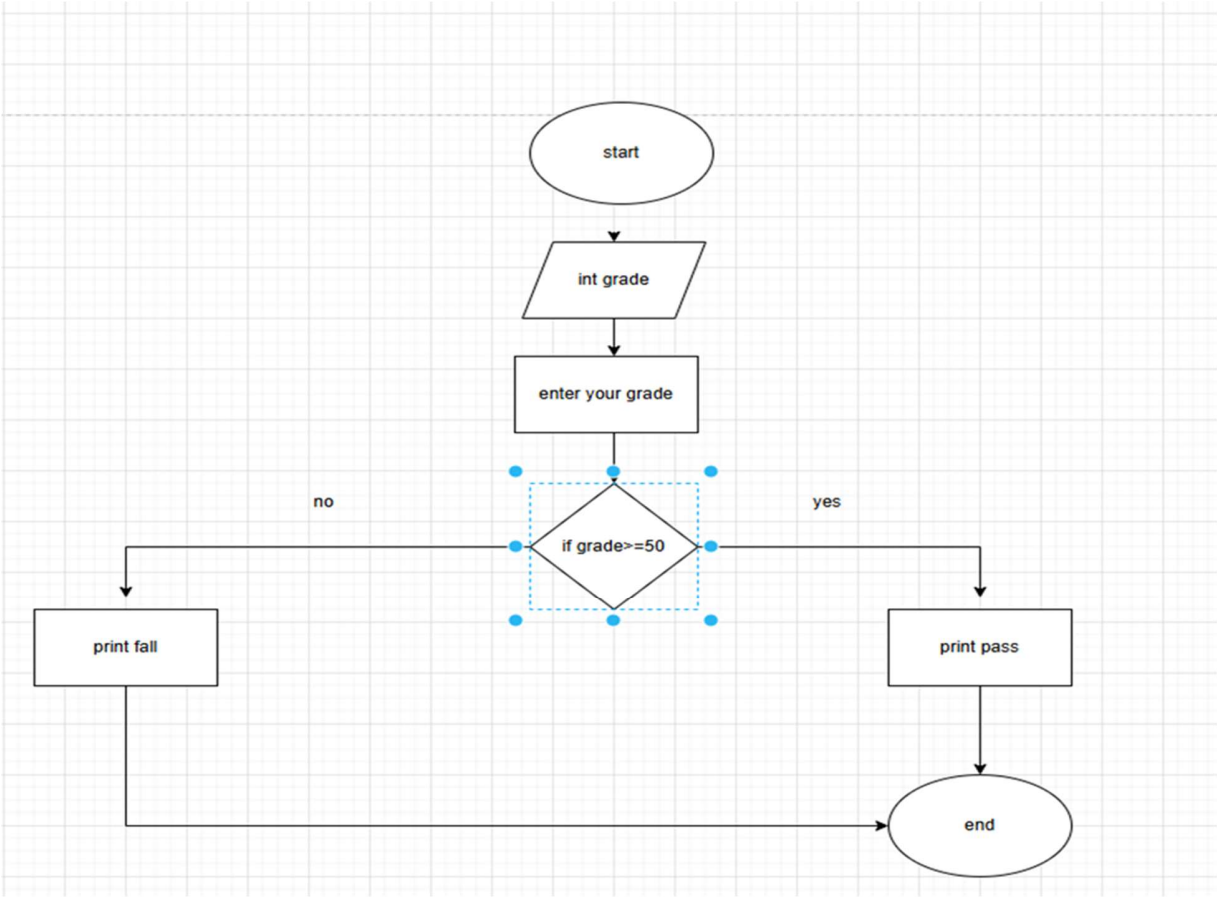
*draw a flowchart thats Find the sum of 5 numbers.*



*draw a flowchart Print Hello World 10 times. .*



*draw a flowchart to determine the state of a student (succeeded of failed ) depending on his mark in the exam, full make is assumed to bo 100.*




Convert:

4- 1011101010 from b to h = 2EA

4- *FFEA from H to B* = 1111111111101010

4- 76 from D to B = 1001100

4- 84 from D to H = 54

C++ questions :

6_

*Write a c++ program that given 2 resistances (R1,R2) outputs the equivalent resistance (Req) when they are connected in series and when they are connected in parallel*

```
#include <iostream>
using namespace std;
int main() {
  // Write C++ code here
 float R1 ;
 cout<<" enter value of R1";
 cin>> R1;
 float R2 ;
 cout<<" enter value of R2";
 cin>> R2;
 float Rseries=R1+R2;
  float Rparallel=(R1*R2)/(R1+R2);
  cout<<"Rseries ="<<Rseries;
```

```
    cout<<"Rparallel ="<<Rparallel;
    return 0;
}
```

7- *Write a C++ program Count Change to count change. Given -7the number of quarter, dimes* ,
*nickels and cents the program should output the total as a single value in dollars and cents*

```
int q;
cout<<"enter q";
cin>>q;
int d;
cout<<"enter d";
cin>>d;
int n;
cout<<"enter n";
cin>>n;
int c;
cout<<"enter c";
cin>>c;
float quarte= q*25;
float dime =d*10;
float nickel=n*5;
float result=(quarte +dime+ nickel+c)/100;
cout<<result;
```

8- *a = m^2 – n^2*

*b = 2mn*

*c = root ( a^2 + b ^ 2 )*

*Write a C++ program that prints the values of the Pythagorean Triple generated by the formulae above, given m and n*

```
 int m ;
  cout << "enter the value of m";
cin>>m;
   int n ;
  cout << "enter the value of n";
cin>>n;
int a = pow(m,2)- pow(n,2);
int b= 2*m*n;
float c= sqrt(pow(m,2)+ pow(n,2));
cout<<"a="<<a<<"\n";
cout<<"b="<<b<<"\n";
cout<<"c="<<c<<"\n";
```

9- *Write a C++ program that for a given number of apples, tells the user how many dozens of apples(s) he has and how many extra apples are left over*

```
  int napples ;
  cout << "enter the num of apples";
cin>>napples;

int dozens =napples%12 ;
```

```
int apples = napples/12;


cout<<"dozens="<<dozens<<"\n";
cout<<"apples="<<apples<<"\n";
```

# Sheet2

1) Write a program that prints all solutions to the quadratic equation . (aX^2 + bX + C = 0 ) . Read in a, b, c and use the quadratic formula. If the discriminant is (b^2 4ac ) negative, display a message stating that there are no solutions. Else solve it

```
#include <iostream>
# include <cmath>
using namespace std;
int main() {
   float a,b,c;
cout << "add value of a b c ";
cin>> a >>b>>c;
float  discriminant,sol1,sol2,sol3 ;
 discriminant =(b*b)-(4*a*c);
 if( discriminant<0){
    cout<<"no solutions";
 }
else if ( discriminant ==0){
   sol1=--b / (2 * a);
   cout<<"solution1="<<sol1<<"\n";
}
else{
   sol2=(-b + sqrt(discriminant)) / (2 * a);
   sol3=(-b - sqrt(discriminant)) / (2 * a);
   cout<<"solution2="<<sol2<<"\n";
   cout<<"solution3="<<sol3<<"\n";

}
   return 0;
}
```

2_ A year with 366 days is called a leap year. A year is a leap year if it is divisible by four (for example, 1980), except that it is not a leap year if it is divisible by 100 (for example, 1900); however, it is a leap year if it is divisible by 400 (for example, 2000). There were no exceptions before the introduction of the Gregorian calendar on October 15, 1582 (1500 was a leap year). Write a program that asks the user for a year and computes whether that year is a leap year. Your program should contain a single if statement

```
int year ;
cout<<"enter the year";
cin>>year;
if( (year < 1582 && year % 4 == 0) ||
      (year >= 1582 &&
      (year % 400 == 0 || (year % 4 == 0 && year % 100 != 0))) )
     cout << "Leap year";

}
else{
  cout<<"Not Leap year ";
}
```

3_ Write a program that asks the user to enter a month (1 for January, 2 for February, and so on) and then prints the number of days in the month. For February, print “28 or 29 days”

```
  int month;
  cout << "Enter the month: ";
  cin >> month;

  if (month == 2)
    cout << "28 or 29 days";
  else if (month == 4 || month == 6 || month == 9 || month == 11)
    cout << "30 days";
  else if (month >= 1 && month <= 12)
    cout << "31 days";
  else
    cout << "Invalid month";
```

4_: Assume we want to implement a football game. A player can do the following

```
char x;
cout<<"enter the x";
cin>>x;
switch(x){
  case 'w':
  case 'W':
  cout<<"move up";
  break;
```

```
 case 's':
case 'S':
cout<<"move down";
break;

 case 'd':
case 'D':
cout<<"move right";
break;

 case 'a':
case 'A':
cout<<"move left";
break;

 case 'k':
case 'K':
cout<<"Kick the ball";
break;

 case 'p':
case 'P':
cout<<"pass the ball";
break;

 case 'o':
case 'O':
cout<<"over the ball";
break;
}
```

5_ 5- Write a C++ program that designs a calculator . The program should read from the user two integer numbers and a character which indicates the type of operation desired .

```
int num1, num2;
 char op;

 cout << "Enter two integers: ";
```

```
  cin >> num1 >> num2;

  cout << "Enter operation (+, -, *, /): ";
  cin >> op;

  switch (op) {
    case '+':
      cout << "Result = " << num1 + num2;
      break;

    case '-':
      cout << "Result = " << num1 - num2;
      break;

    case '*':
      cout << "Result = " << num1 * num2;
      break;

    case '/':
      if (num2 != 0)
        cout << "Result = " << num1 / num2;
      else
        cout << "Error: Division by zero";
      break;

    default:
      cout << "Invalid operation";
  }
```

6- - How can you find the minimum/maximum of three numbers using the conditional operator ,in just one line ?

```
int x,y,z;
cout <<"enter value of x,y,z";
cin>>x>>y>>z;
(x>y && x>z)? x : (y>z)? y  : z  ;
```

7- table

| Col1: | Col2: |
|---|---|
| 1 0 1 | 1 1 1 |