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Class : **BS SE**
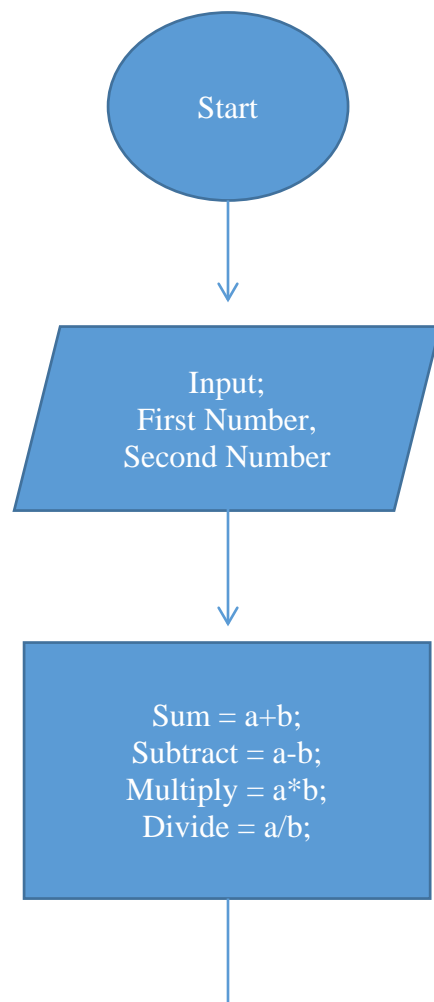
Section : **B**

Date : 15 – 04 - 2020

Q 1.
a) Draw the flow chart and write c++ program to get two integer items from keyboard and then display to the screen their sum, differentiate, product and quotient

Answer a: Flow chart

Program

```
#include<iostream>
#include<conio.h>
using namespace std;

main(){

        int a,b;
        cout<<"----------------Mid Assignment----------------------"<<endl;
        cout<<"--------------Question # 1 part a Answer--------------------"<<endl;
        cout<<"Please enter first value"<<endl;
        cin>>a;
        cout<<"Please enter second value"<<endl;
        cin>>b;
        cout<<endl;
        cout<<"Sum is : " << a + b <<endl;
        cout<<endl;
        cout<<"Subtract is : " << a - b <<endl;
        cout<<endl;
        cout<<"Multiply is : " << a * b <<endl;
        cout<<endl;
        cout<<"Divide is : " << a / b <<endl;
        getche();
}
```

Q 1:

b) Draw a flow chart and write a c++ program to prompt the user for a temperature in degree celsius (c). Then convert the temperature in degree Fahrenheit(f). Using the following formula and display temperature in Fahrenheit (f) on monitor.

$$F=9/5 * C =32$$

Answer b: Program

```cpp
#include <iostream>
using namespace std;

int main()
{
    float frh, cel;
            cout << "\n\n Convert temperature in Celsius to Fahrenheit
:\n";
            cout << "---------------------------------------------
--\n";
    cout << " Input the temperature in Celsius : ";
    cin >> cel;
    frh = (cel * 9.0) / 5.0 + 32;
    cout << " The temperature in Celsius    : " << cel << endl;
    cout << " The temperature in Fahrenheit : " << frh << endl;
     cout << endl;
    return 0;
}
```

Flow Chart:

```
using namespace std;

End

int main()

float frh, cel;
cout << "\n\n Convert temperature in Celsius to Fahrenheit :\n";
cout << "---------------------------------------------------\n";
cout << " Input the temperature in Celsius : ";
cin >> cel;
frh = (cel * 9.0) / 5.0 + 32;
cout << " The temperature in Celsius    : " << cel << endl;
cout << " The temperature in Fahrenheit : " << frh << endl;
cout << endl;
return 0;

End
```
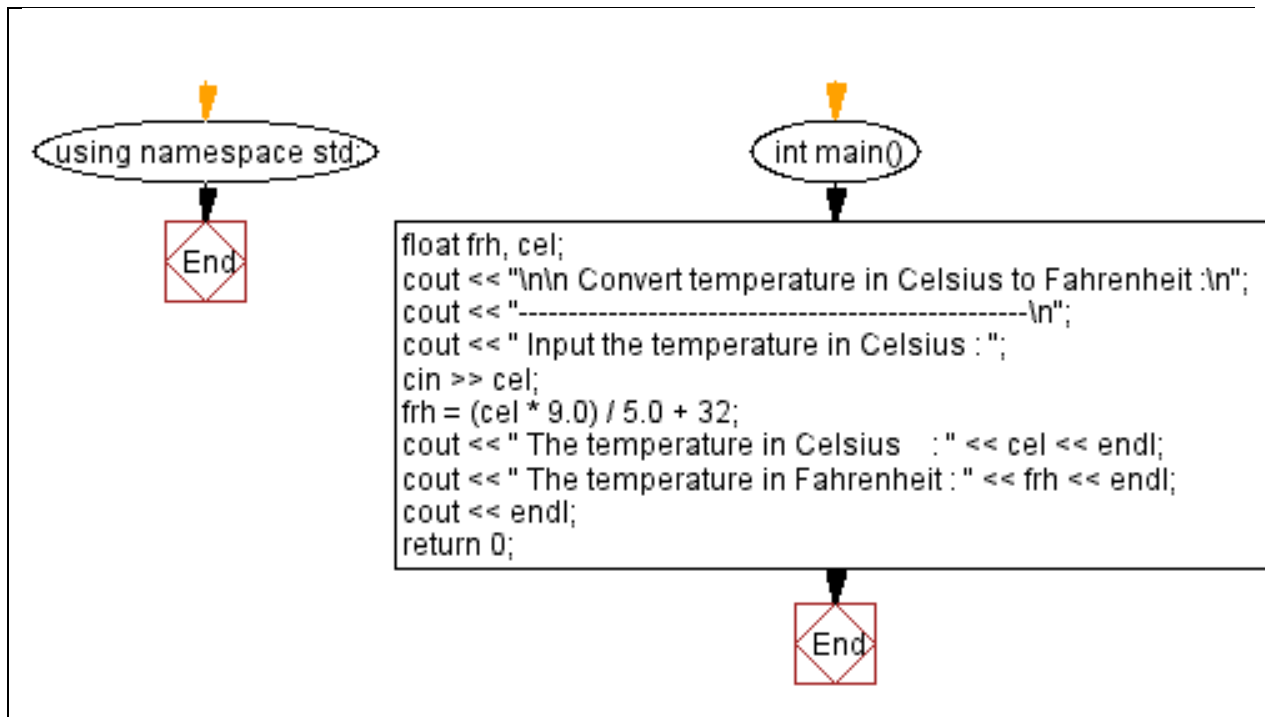
Q 2;
a) Draw the flowchart and write a c++ program an operator to input three characters receive those three character and display a welcoming message to the screen such a hello xxx! we hope you have a nice day

Answer a: Program

```cpp
#include<iostream>
using namespace std;

int main()
{
        char ch1, ch2, ch3;
        cout<< "\nEnter First character : ";
        cin>>ch1;
        cout<< "\nEnter Second character : ";
        cin>>ch2;
        cout<< "\nEnter Third character : ";
        cin>>ch3;
        cout<<endl;
//      ch++;
        cout<<"Hello "<<ch1<<ch2<<ch3<<"!";


        return 0;
}
```
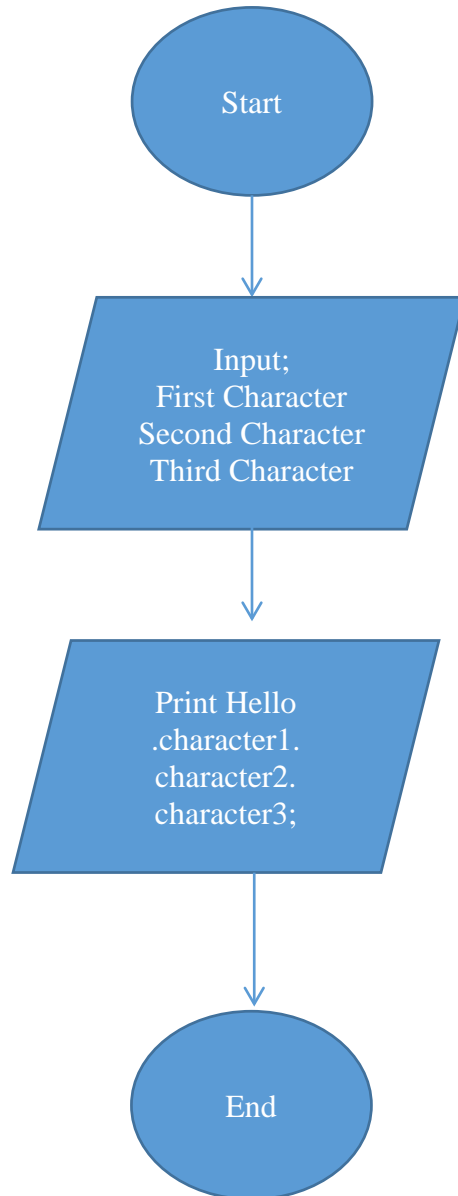
Flow Chart:

Start

Input;
First Character
Second Character
Third Character

Print Hello
.character1.
character2.
character3;

End

Q 2:

b) You were asked by your project leader to write a simple program that obtains the radius of a circle the program calculate the area and perimeters then prints radius the area and perimeters. Draw the flow chart and write a c++ program .

Answer b: Program

Code:
```cpp
#include <iostream>
using namespace std;


int main()
{
        const double pi = 3.14;
        double radius, area, circumference;

        cout << "please input radius : ";
        cin >> radius;
        cout << endl;

        circumference = 2 * pi * radius;
        area = pi * radius * radius;


        cout << "area :  " << area << endl;

        cout << "circumference : " << circumference << endl;

     cin.ignore( 1000, '\n' ) ; // extract and discard the new line charecter remaining in the input
buffer
        cin.get(); // keep the console open till user presses enter


        // return 0; // this is not required; there is an implicit return 0 at the end of main
}
```
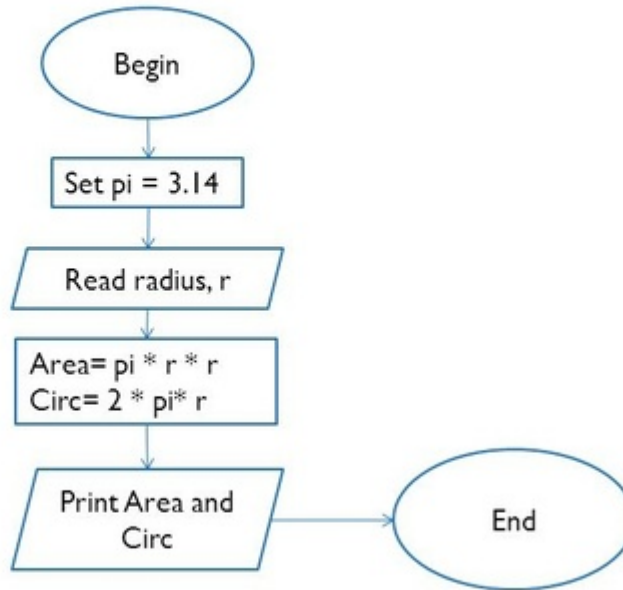
Flow Chart:

Answer

▶ Flowchart

Q 3:
a) A student has to take three test per semester. Each test has maximum marks of 50. By using a system lecture can enter marks obtains for each test as input. Draw a flowchat and write c++ program to calculate the percentage obtained by the student. Print the result

Answer a: Program

```
Code:
#include <iostream>
using namespace std;


int main(){

        int firstSubjectMarks, secondSubjectMarks,thirdSubjectMarks, totalMarks = 50;
        cout<<endl;
        cout<<"Result Card generator"<<endl;
        cout<<endl;
        cout<<"Please Enter First subject Marks: ";
        cin>>firstSubjectMarks;
```

```cpp
        cout<<"Please Enter Second subject Marks :";
        cin>>secondSubjectMarks;
        cout<<"Please Enter Third subject Marks :";
        cin>>thirdSubjectMarks;
        cout<<endl;

        cout<<"First subject Total Marks is: "<< totalMarks<<endl;
        cout<<"First subject Obtained Marks is: "<< firstSubjectMarks<<endl;
        cout<<"First Subject Percentage is :" << (firstSubjectMarks *100)/totalMarks<<endl;
        cout<<endl;
        cout<<"Second subject Total Marks is: "<< totalMarks<<endl;
        cout<<"Second subject Obtained Marks is: "<< secondSubjectMarks<<endl;
        cout<<"Second Subject Percentage is :" << (secondSubjectMarks
*100)/totalMarks<<endl;
        cout<<endl;
        cout<<"Third subject Total Marks is: "<< totalMarks<<endl;
        cout<<"Third subject Obtained Marks is: "<< thirdSubjectMarks<<endl;
        cout<<"Third Subject Percentage is :" << (thirdSubjectMarks *100)/totalMarks<<endl;

return 0;
}
```

Result:
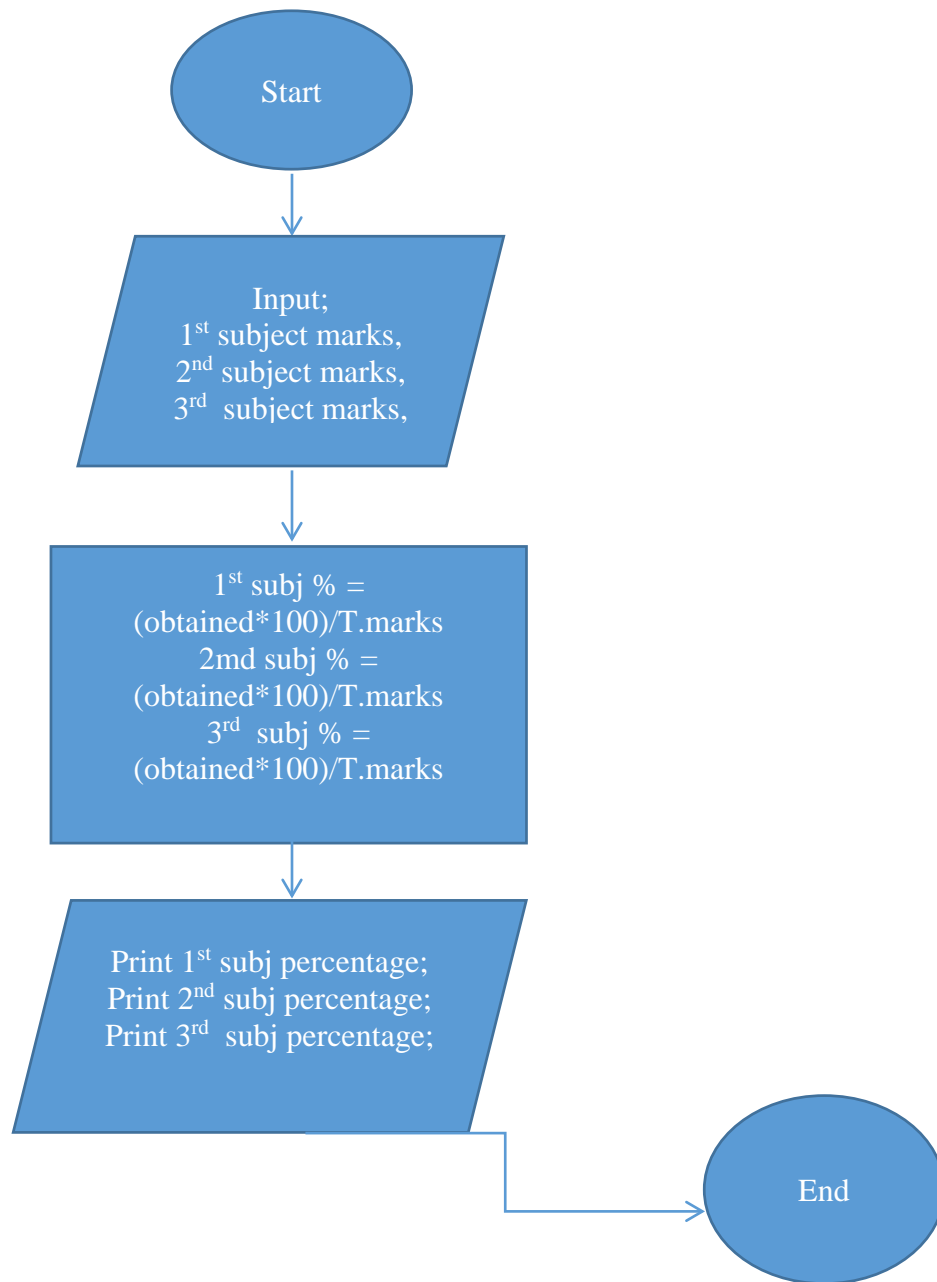
Flow Chart:

Q 3:

b) Draw the flow chart and write the c++ program to calculate the energy needed to heat water from an initial temperature to a final temperature. The user will enter the amount (in kilometre) and its initial and final temperature. The formula to compute the energy is

$Q = M * (\text{final temperature} - \text{initial temperature}) * 4184$

Where M is the weight of the water (in kilograms) temperature are in celsius and energy Q is measured in joules.

Answer b: Program

```cpp
Code:
#include <iostream>
using namespace std;


int main(){

        double waterMass, energy;
        double initialTemp, finalTemp;
        cout<<"Please enter amount of water in Kilograms : ";
        cin>>waterMass;
        cout<<"Please enter Initial Temperature : ";
        cin>>initialTemp;
        cout<<"Please enter Final Temperature :";
        cin>>finalTemp;
        cout<<endl;

        energy = waterMass * (finalTemp - initialTemp) * 4184;

        cout<<" Enegy needed to heat water is :" <<energy;

        return 0;
}
```

Flow Chart:

Start

Input;
Mass of water,
Initial Temp,
Final temp,

Energy = Mass *(Final Tem –
Initial Temp) * 4184;

Print Energy