**NAME: HAMZA MEHMOOD I.D:12715**

Q1 (a) **Draw the flow chart and write a c++ program** to get two integer items from keyboard **and then** display to the screen their sum, difference, product and Quotient**.**

* **Flow chart:**

Input

Int add

Int sub

Int mul

Int div

Int z

Process

r=a+b

r=a-b

r=a\*b

r=a/b

passing value to z

Output

Print on screen

Cout =z

**Program:**

#include<iostream>

using namespace std;

int ad (int a,int b);

int sub(int a,int b);

int mul(int a,int b);

int div(int a,int b);

int main()

{

 int z;

 z=ad (3,5);

 cout<<"The result is "<<z<<endl;

 z=sub(5,3);

 cout <<"The result is "<<z<<endl;

 z=mul(2,3);

 cout <<"The result is "<<z<<endl;

 z=div(15,3);

 cout <<"The result is "<<z<<endl;

 }

 int ad(int a,int b)

 {

 int r;

 r=a+b;

 return(r);

 }

 int sub(int a,int b)

 {

 int r;

 r=a-b;

 return(r);

 }

 int mul(int a,int b)

 {

 int r;

 r=a\*b;

 return(r);

 }

 int div (int a,int b)

 {

 int r;

 r=a/b;

 return (r);

 }

|  |  |  |
| --- | --- | --- |
|  |  | **Draw the flow chart and write a C++ program to** prompt the user for a temperature in degrees Celsius (C), then convert the temperature in degrees Fahrenheit (F) using the following formula and display temperature in Fahrenheit (F) on monitor. |

**Flow chart:**

Input

C and f

Process formula



Output

Print on screen

Cout F

**Program:**

include<iostream>

using namespace std;

int main()

{

float c,f;

cout<<"Enter the value of temp in degree celsius=";

cin>>c;

f=9.0/5\*c+32;

cout<<"The value of temp in degree fahrenhite is="<<f;

return 0;

}

|  |  |  |
| --- | --- | --- |
| Q.2 | a) | **Draw the flow chart and write a C++ program** that will prompt an operator to input three characters, receive those three characters, and display a welcoming message to the screen such as ‘**Hello xxx! We hope you have a nice day**.’  |

**Flow chart:**

input

Enter name 3times

aname,bname,cname

Process

String hello….. we hope you have a nice day

Output

Print on screen

Cout aname,bname,

cname

**Program:**

#include<iostream>

using namespace std;

int main()

{

string aname,bname,cname;

cout<<"Enter first name=";

cin>>aname;

cout<<"Enter the second name=";

cin>>bname;

cout<<"Enter the third namE=";

cin>>cname;

cout<<"Hello "<<aname<<"!we hope you have a nice day."<<endl;

cout<<"Hello "<<bname<<"!we hope you have a nice day."<<endl;

cout<<"Hello "<<cname<<"!we hope you have a nice day."<<endl;

system ("pause");

return 0 ;

}

|  |  |
| --- | --- |
| b) | You were asked by your project leader to write a simple program that obtains the radius of a circle. The program calculates the area and perimeter then prints radius, the area and the perimeter. **Draw the flow chart and write a C++ program.** |

**Flowchart:**

Input

A,P,,r,c,mul,R

r=entering radius of circle

c=for entering parameter

Processing

Finding area using formula(pi\*r\*r)pi value is already entered

Finding parameter formula(2\*pi\*r)

Finding radius(P/2\*pi)

Output

Print on screen

A(area)

P(parameter)

R(radius)

**Program:**

#include<iostream>

#define pi 3.14

using namespace std;

int main()

{

int c,r;

float A,P,R,mul;

cout<<"enter the parameter=";//parameter is must for finding radius

cin>>c;

cout<<"enter the radius=";// radius is must for finding area and parameter

cin>>r;

A=pi\*r\*r;

P=2\*pi\*r;

mul=2\*pi;

R=c/mul;

cout<<"Area is= "<<A<<endl;

cout<<"parameter is="<<P<<endl;

cout<<"radius is="<<R;

return 0;

}

|  |  |  |
| --- | --- | --- |
| Q.3 | a) | A student has to take three tests per semester. Each test has maximum marks of 50. By using a system, lecturer can enter marks obtained for each test as input. Draw a flowchart and write C++ program to calculate the percentage obtained by the student. Print the result. |

**Answer:**

**Flow chart:**

Input mark1,mark2,

mark3,obtainedmarks,percentage

entering marks

Processing

Add marks give obtain marks

Percentage using formula

(Obtained marks/full marks)\*100

Output

Print on screen

Percentage and obtained marks

**Program:**

#include<iostream>

using namespace std;

int main()

{

float mark1,mark2,mark3,obtained,per;

cout<<"Enter marks of programing c++=";

cin>>mark1;

cout <<"Enter marks of data structure and algorithm=";

cin>>mark2;

cout <<"Enter marks of computer communication and network=";

cin>>mark3;

obtained=mark1+mark2+mark3;

per=(obtained/150)\*100;

cout<<"Total marks of student is :"<<obtained<<endl;

cout<<"percentage of student is :"<<per<<endl;

}

|  |  |  |
| --- | --- | --- |
|  | b) | **Draw the flow chart and write a C++ program** to calculate energy needed to heat water from an initial temperature to a final temperature. The user will enter the water amount (in kilograms) and its initial and final temperatures. The formula to compute the energy isQ = M \* (final temperature – initial temperature) \* 4184where M is the weight of the water (in kilograms), temperatures are in Celsius and energy Q is measured in joules.  |

**Flow chart:**

Input

M,F,I,Q,Ans

M(amount of water)

F(final temp)

I(initial temp)

Processing

Ans(subtraction initial temp and final temp)

Finding energy

Q(M\*ANS\*value)

Value(which has already entered in program)

Output

Print on screen

Cout (Q)

**Program:**

#include<iostream>

#define value 4184

using namespace std;

int main()

{

 int M,F,I,Q,Ans;

 cout<<"Amount of water=";

 cin>>M;

 cout<<"Intial temperature=";

 cin>>I;

 cout<<"Final temperature=";

 cin>>F;

 Ans=F-I;

 Q=M\*Ans\*value;////it is formula but I divide into 2 parts for accurate ansr.

 cout<<"Final result is="<<Q;

 return 0;

}