End

Sum

Quotient

**Iqra National University Peshawar Pakistan**

**Department of BS-SE**

# SpringSemester,Mid-Assignment,April2020

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| Subject: | **Programming**  **Fundamentals** | Issue Date: | **19/April/2020** |
| Program: | **BS (CS & SE)** | Submission Date: | **22/April/2020** |
| Teacher Name: | **Dr. Fazal-e-Malik** |  |  |

# Q.1

1. **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.

**FlowChart:**

Start

Insert 2 Numbers

Display Result

Product

Difference

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|  | **C++ Program:**  #inculde <iostream> Int main(){  Int a, b, sum, diff, pro, quot;  Cout << ”enter first number : ” <<endl; Cin >> a;  Cout << “\n enter second number : ” <<endl; Cin >> b;  Sum = a+b; Differ = a-b; Pro = a\*b; Quot = a/b;  Cout << “sum of two numbers = ” <<sum <<endl; Cout << “difference of two numbers = ” <<diff <<endl; Cout << “ product of two numbers = ” <<pro<< endl; Cout <<”quotient of two numbers = ”<<quot;  Cout<< endl;  Return 0;  } |
| b) | **Draw the flow chart and write a C++ program to** prompt the user for a temperature in degreesCelsius (C), then convert the temperature in degrees Fahrenheit (F) using the following formula and display temperature in Fahrenheit (F) on monitor.    **FlowChart:**  Start  Get temperatue in C  Convert temperature in F  Display result  End |

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|  |  | **C++ Program:**  #include <iostream> Int main(){  Int C, F;  Cout << “enter temperature in degree Celsius : ”;  Cin >> C;  F = (9/5)\*C+32;  Cout << “\n temperature in Farenheit = ”<<F;  Cout<< endl;  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**.  **FlowChart:**  Start  Insert 3 characters  Display message  End  **C++ Program:**  **#**include <iostream> Int main(){  Char char1 , char2 , char3;  Cout << “insert first character : ”;  Cin >> char1;  Cout << “\n insert second character : ”;  Cin >> char2;  Cout << “\n insert third character : ”;  Cin >> char3;  Cout << “\n Hello ”<< char1 << char2 << char3 <<”! We |

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|  | hope you have a nice day”;  Cout<< endl;  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.**  **Flow Chart:**  Start  Get radius of circle  Find circumference Find area  Display result  End  **C++ Program:**  #include <iostream> #define PI 3.14159 int main(){  float radius, area, circum;  cout<<" Input the radius(1/2 of diameter) of a circle : "; cin>>radius;  circum = 2\*PI\*radius; area = PI\*(radius\*radius);  cout<<" The area of the circle is : "<< area << endl;  cout<<" The circumference of the circle is : "<< circum << endl;  cout << endl; return 0;  } |

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| 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..  **FlowChart:**  Start  Get marks of 3 tests  Calculate percentage  Display result  End  **C++ Program:**  #include <iostream> Int main()  {  Int test1,test2,test3,totalmarks = 150, obtainedmarks; Float per;  Cout << “enter 1st test marks\n”; Cin >> test1;  Cout << “\n enter 2nd test marks \n”; Cin >> test2 ;  Cout << “ \n enter 3rd test marks \n”; Cin >> test3;  Obtainedmarks = test1+test2+test3; Per = (obtainedmarks/totalmarks)\*100;  Cout<< “percentage obtained by the student = ”<< per;  Return 0;  } |

1. **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

is

Q = M \* (final temperature – initial temperature) \* 4184

where M is the weight of the water (in kilograms), temperatures are in Celsius and energy Q is measured in joules.

**FlowChart:**

Start

Enter weight of water

Calculate energy

Enter final temperature

Enter initial temperature

Start

Display result

**C++ Program:**

#include <iostream> Int main(){

Int M,It,ft;

Float Q;

Cout<< “enter weight of water = \n”; Cin>> M;

Cout “\n enter initial temeperature = \n”; Cin>> It;

Cout “\n enter final temperature = \n ”;

Cin >> ft;

Q=M \* (ft- It) \* 4184;

Cout <<”\n the total energy required to heat water = ”<< Q;

Return 0;

}

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