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| Programming Fundamentals Mid-Term Exam |
| Assignment |

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| Subject: | **Programming Fundamentals** | Issue Date: | **13/April/2020****Iqra National University Peshawar Pakistan****Department of Computer Science**Spring Semester, Mid-Assignment, April 2020 |
| Program: | **BS (CS & SE)** | Submission Date: | **18/April/2020** |
| Teacher Name: | **Dr. Fazal-e-Malik** |  |  |

**Note: Attempt all Questions..**

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| Q.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.**C++ Program:-**#include<iostream>using namespace std;int main(){float num1, num2;cout << "Enter two Number: ";cin >> num1 >> num2;//Addition of two numbercout << num1 << "+" << num2 << " = "<< num1+num2 << endl;//Subtraction of two numbercout << num1 << "-" << num2 << " = "<< num1-num2 << endl;//Multiplication of two numbercout << num1 << "\*" << num2 << " = "<< num1\*num2 << endl;//Division of two numbercout << num1 << "/" << num2 << " = "<< num1/num2 << endl;return 0;}**Flowchart: -** |  |
|  |  | **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. |  |
|  |  | **Flowchart: -****C++ Program:-**#include <iostream>using namespace std;int main(){int c=0;int f=0;cout<<" Please Enter the temperature in Celcius : ";cin>>c;f=c\*9/5+32;cout<<"\nthe temperature in ferenheit is :"<<f;12;} |  |
| 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: -****C++ Program:-**#include <iostream>using namespace std;int main(){string a;char x,y,z; cout<<”Enter three characters (one at a time) :”;cin>>x;cin>>y;cin>>z;cout<<”Hello “<<x<<y<<z<<”! We hope you have a nice day.”;cout<<”\nNow enter a name :”;cin>>a;} |  |
|  | 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: -****C++ Program:-** |  |
|  |  | #include <iostream>using namespace std;int main(){float r=0,c=0,a=0;cout<<”Enter the radius of a circle :”;cin>>r;c=(2\*3.14)\*r;a=3.14\*(r\*r);cout<<”The Area of the Circle is :”<<a;cout<<”\nThe Parameter of the Circle is :”<<c;} |  |
| 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: -****C++ Program:-**#include <iostream>using namespace std;int main(){int s1=0,s2=0,s3=0;cout<<”Total Marks =50\n\n\n\n\n”;cout<<”Enter Marks Obtained in 1st Subject :”;cin>>s1;cout<<”Enter Marks Obtained in 2nd Subject :”;cin>>s2;cout<<”Enter Marks Obtained in 3rd Subject :”;cin>>s3;float marks=s1+s2+s3;cout<<”your percentage is :”<<marks/150\*100<<”%”;} |  |
|  | 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. **Flowchart: -****C++ Program:-**#include<iostream> using namespace std;int main(){ float initialTemperature, finalTemperature, kilograms, joules, M, Q;cout << "Enter the Amount of Water in Kilograms : ";cin >> kilograms;cout << "Enter the final temperature : ";cin >> finalTemperature;cout << "Enter initital temperature :";cin >> initialTemperature;Q = M\*(finalTemperature-initialTemperature)\*4184; cout << "Q : " << joules << endl;return 0; } |  |

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