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| Programming Fundamentals Mid-Term Exam |
| Assignment |

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| Haseeb Javed  4-15-2020  ID:- 16890 |

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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 number  cout << num1 << "+" << num2 << " = "<< num1+num2 << endl;  //Subtraction of two number  cout << num1 << "-" << num2 << " = "<< num1-num2 << endl;  //Multiplication of two number  cout << num1 << "\*" << num2 << " = "<< num1\*num2 << endl;  //Division of two number  cout << 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 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: -**    **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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