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**Iqra National University Peshawar Pakistan**

**Department of Computer Science**

Spring Semester, Final Term Exam, July 2020

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| Paper : | **Programming Fundamentals (Lab)** | Date and Starting Time: | **09/July/2020, 09:00 am** |
| Program: | **BS (CS & SE)** | Uploading Date and End Time: | **09/July/2020, 3:00 pm** |
| Teacher Name: | **Dr. Fazal-e-Malik** | Marks | **100** |

**Note: Attempt all Questions.**

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| **NAME**  | **Moazzam****Ajmal** | **Submit DATE** **9/July/2020** |
| **I'D**  | **16977** | **PROGRAMMING FUNDAMENTALS (LAB)** |
| **BS**  | **Cs** | **SUBMIT TO SIR** **Dr.FAZAL-E-MALIK**  |

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| --- | --- |
| Q. 1 | Read A, B and C representing the three sides of a triangle. Write a program to find out its area the formula is given below:$$Area=\sqrt{S(S-A)(S-B)(S-C)}$$Where S= $\frac{A+B+C}{2}$ |

Program

1#include <bits/stdc++.h>

using namespace std;

 float findArea(float a, float b, float c)

{

 // Length of sides must be positive

 // and sum of any two sides

 // must be smaller than third side.

 if (a < 0 || b < 0 || c < 0 ||

 (a + b <= c) || a + c <= b ||

 b + c <= a)

 {

 cout << "Not a valid trianglen";

 exit(0);

 }

 float s = (a + b + c) / 2;

 return sqrt(s \* (s - a) \*

 (s - b) \* (s - c));

}

 // Driver Code

int main()

{

 float a = 3.0;

 float b = 4.0;

 float c = 5.0;

 cout << "Area is " << findArea(a, b, c);

 return 0;

}

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| Q. 2 | Write a C++ program to get marks obtained by a student in percentage ***P*** and then find the division according to the below rules:* If Percentage P is above or equal to 60 then display…………..1st Division.
* If Percentage Pis between 50 & 59 then display…………………2nd Division.
* If Percentage P is between 40 & 49 then display….……………3rd Division.
* If Percentage P is less than 40 then display………………………Fail.
 |

Program

#include <stdio.h>

int main()

{

 int phy, chem, bio, math, comp;

 float per;

 /\* Input marks of five subjects from user \*/

 printf("Enter five subjects marks: ");

 scanf("%d%d%d%d%d", &phy, &chem, &bio, &math, &comp);

 /\* Calculate percentage \*/

 per = (phy + chem + bio + math + comp) / 5.0;

 printf("Percentage = %.2f\n", per);

/\* Find division according to the percentage \*/

 if(per >= 70)

 {

 printf("1st Division");

 }

 else if(per >= 60)

 {

 printf("2nd Division");

 }

 else if(per >= 50)

 {

 printf("3rd Division");

 }

 else if(per >= 40)

 {

 printf("Fail");

 return 0;

}

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| Q. 3 | Write a C++ program to convert 5 feet to the equivalent number of (a) Inches (b) Yards. Where 1foot =12 Inches and 1 yard=3 feet) |

Program

#include <iostream>

using namespace std;

int

main ()

{

 int inches;

 int feet;

 int yards;

 cout << "Number of Inches\n";

 cin >> inches;

 cout << "Number of Yards is\n";

 yards = inches % 36;

 cout << yards;

 cout << "number of feet\n";

 feet = inches % 12;

 cout << feet;

 cout << "number of inches\n";

 cout << inches;

 yards = inches / 36;

 cout << yards;

 return 0;

}

|  |  |
| --- | --- |
| Q.4 | Write a C++ program to find the sum of the following series:**2+4+6+8+10** |

Program

#include <iostream>

using namespace std;

int main()

{

 int i, n, sum = 0;

 cout << "\n\n Find the sum of the series 2+4+6+8+10 (n+n):\n";

 cout << "------------------------------------------------------------------------------------\n";

 cout << " Input the value for nth term: ";

 cin >> n;

 for (i = 1; i <= n; i++)

 {

 sum += i + i;

 cout << i << "+" << i << " = " << i + i << endl;

 }

 cout << " The sum of the above series is: " << sum << endl;

}

|  |  |
| --- | --- |
| Q.5 | Write a C++ program to input Hours Worked and Hour Rate of an Employee. Calculate and display the Gross-Pay, Tax and Net-Pay; whereGross-Pay=Hour-Worked\*Hour-RateTax=10% of Gross-PayNet-Pay=Gross-Pay - Tax |

Program

#include <iostream>

#include <stdio.h>

#include <stdlib.h>

using namespace std;

int

main ()

{

 double hourly\_rate;

 double hours;

 double gross\_pay;

 printf ("Please input the hourly rate of the employee: ");

 cin >> hourly\_rate;

 printf ("Please input the number of hours worked by the employee: ");

 cin >> hours;

 if (hours <= 40)

 {

 gross\_pay = hours \* hourly\_rate;

 }

 else

 {

 gross\_pay = (40 \* hourly\_rate) + (hours - 40) \* (hourly\_rate \* 1.5);

 }

 cout << "The gross pay of this employee is $" << gross\_pay << "." << endl;

 system ("pause");

 return 0;}

 THE END

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