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| **National University of Computer and Emerging Sciences, Lahore Campus** | | | | |
| C:\Users\saif\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.Word\final design.jpg | **Course:** | **Introduction to computing Lab** | **Course Code:** | **CS 101** |
| **Program:** | **BS(Computer Science)** | **Semester:** | **Fall 2016** |
| **Duration:** | **140mins** | **Total Marks:** | **50** |
| **Date** | **17-10-16** | **Weight** | **15%** |
| **Section:** | **F** | **Pages:** | **2** |
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NOTE:

* Plagiarism will lead to straight **F** in Lab.
* Use of internet, notes (hard or soft form) and any other helping code is **NOT** allowed.
* No extra time will be given. Manage your time properly and Submit within time.
* Submit **ONLY .CCP Files** in this format (Your Roll no. and problem number):

YY-XXXX**P1**.ccp

YY-XXXX**P2**.ccp

**Problem 1: (5 Marks)**

Calculate the Product of two numbers WITHOUT using the \* operator.

**Problem 2: (10 Marks)**

Write a C++ program to enter two numbers and find LCM using for loop.

Write a C++ program to read Hexadecimal number from user and convert it to Octal number system.

print the pattern using only one loop.

(User will enter the height of pattern.)

1

12

123

1234

12345

Hint. You can extend your loop to n\*n.

**Problem 2: (15 Marks)**

Write a program that will take as input the type of restaurant the user ate at, the cost of the meal, the number of people in his/her party, and how good the service was. Determine the dollar amount of the tip:

Base Tip:

Diner: 12%

Good Restaurant: 15%

Fancy Restaurant: 20%

Additions/Subtractions:

Poor Service: -2%

Good Service: +0%

Excellent Service: +2%

1-5 in party: +0%

6-10 in party: +3%

more than 10: +5%

**Problem 2: (15 Marks)**

Write a C++ program to find discriminant and all roots of a Quadratic equation. Also Print that roots are real, imaginary or equal?

Example:

Input a: 4

Input b: -2

Input c: -10

Output root1: 1.85

Output root2: -1.35

Roots are real and distinct.

The quadratic equation is given by:

*ax*2+*bx*+*c* = 0

The solution to the quadratic equation is given by 2 numbers x1 and x2.

The solution to the quadratic equation is given by the quadratic formula:

http://www.rapidtables.com/math/algebra/quadratic_equation/quadratic_solution.gif

To find square root: use **sqrt()** command.