Fast**National University of Computer & Emerging Sciences, Karachi  
Fall-2017 CS-Department  
Lab Final Exam**

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| **Course Code:** EL-213 | **Course Name:** Computer Organization & Assembly Lang Lab | |
| **Instructor Name(s):** Syed Zain ul Hassan, Sehrish Saeed, Sumaiyah Zahid | | |
| **Student Roll No:** | | **Section No: H** |
| **Date: 7-12-2017** | | **Time: 1:30 - 3:30** |

**Instructions:**

Attempt all tasks

Return the question paper after exam

**Max Marks**: 20 points

**Task1: (5 marks)**Write a program which takes a string of length 10 from user and encrypt that string using recursion. In each recursive call only one character would be encrypted. Count of rotation for a character would be its index. In addition to that, all vowels will rotate right while consonants will rotate left.

Hint: 2nd character will rotate 2 times, 8th character will rotate 8 times.

**Task 2: (5 marks)**Write a program which counts the frequency of each character and display it in well-defined format.

String: “A brown burnt bear on a brushed bridge”

**Task 3: (5 marks)**

Write a program in C++ which takes inputs from user and create a 5\*5 array.

You have to implement following tasks using inline assembly.

* Show sum, average, minimum, maximum of each row in the results
* Show sum, average, minimum, maximum of each column in the results

**Command Line:** ml -c -Zi "-Fl$(IntDir)%(Filename).lst" "-Fo$(IntDir)%(Filename).obj" "%(FullPath)"

**Outputs:** $(IntDir)%(Filename).obj

**Task 4: (5 marks)**

Suppose the class records is stored as follows

BYTE ‘MARY ALLEN ’ 61,45,9,33

BYTE ‘SCOTT BAYLIS ’,76,6,1,44

BYTE ‘GEORGE FFANK ’82,12,89,40

BYTE ‘SAM WCNG ’ ,78,76,92,60

Each name occupies 12 bytes. Write a program to print the name of each student and his or her

average (truncated to an integer) for the four exams.