National University of Computer and Emerging Sciences, Lahore Campus

	Course:	**COAL Lab**	**Course Code:**	**EL 213**
	Program:	**BS(Computer Science)**	**Semester:**	**Fall 2022**
	Duration:	**30 mins**	**Total Marks:**	**20**
	Date	**07-10-22**	**Weight**	**5%**
	Section:	**3J**	**Pages:**	**1**

Read below Instructions Carefully

1. Understanding the question statement is also part of the quiz, so do not ask for any clarification.
2. Talking/Discussionisnotallowed.Itisyourresponsibilitytoprotectyourcodeandsaveit from being copied. If you don't protect it all matching codes will be considered copy/cheating cases.
3. Failure to observe above mentioned instructions will lead to **negative marking** in Exam.

Question 01:

Write a program that computes multiple of three of every value in an array Array1 and stores it to another array Array_x3. For example, if you read 2 from Array1 then you should store 6 as an answer in Array_x3, and if you read 10 from Array1 then you should store 30 as an answer in Array_x3. Modify the above given code by adding another loop (nesting loops) and use it to read and write in the arrays.

Array1: dw 1,2,3,4,5,6,7,8,9,10

Array_x3: dw 0,0,0,0,0,0,0,0,0,0

Your final Array_x3 should look like this

Array_x3: dw 3,6,9,12,15,18,21,24,27,30

Question 2:AX contains a non-zero number. Count the number of 0s as well as 1s in it.

- If both the number of 1s and 0s are equal, set BX=1.
- If number of 1s is more than the number of 0s, set BX=2.
- If the number of 1s is less than the number of 0s, set BX=3.

Make sure that the number in AX is not changed once you have completed the counting. (Value of AX can't be stored in any register/data label)

For Example:

If AX=0101010101010101b, set BX=1.
IF AX= 0001110011111111b, set BX=2.
IF AX=0000000011010000b, set BX=3

Question 03:

You are given an array with elements ranging from 0-255, its size and another variable/memory label named ‘num_rot’. Your task is to write an assembly program that rotates this array towards left ‘num_rot’ times.

You can create memory variables for any other thing as per your ease but the array should be rotated without making any copy of it.

For example: Given the following data:
Array: db 1,2,3,4,5,6
Size: dw 6
num_rot: dw 2
After completion of program, the array should look like this:
Array: db 3,4,5,6,1,2