National University of Computer and Emerging Sciences, Lahore Campus

Course:	COAL	**Course Code:**	EE2003
Program:	BS(CS,DS)	**Semester:**	Fall 2022
Duration:	1 Hour	**Total Marks:**	30
Paper Date:	14-10-2022	**Page(s):**	4
Section:	All	**Roll No.**	
Exam:	Midterm-I Retake	**Your Section:**	

Instruction/Notes: **This is an open notes/book exam. Sharing notes and calculators is NOT ALLOWED.** All the answers should be written in provided space on this paper. Rough sheets can be used but will not be collected and checked. In case of any ambiguity, make reasonable assumptions. Questions during exams are not allowed.

Question 1 [CLO 1] [3x5 = 15 Marks]: Short questions

  i. Consider CS=0xA950 and ES = 0xB001

  The overlap between two segments starts at 0xA950 : 0x_____ and 0xB001 : 0x_____

  The overlap between two segments ends at 0xA950 : 0x_____ and 0xB001 : 0x_____

  Show your working below to get credit:

ii. Write assembly code that uses TEST instruction and sets AX=0 if a 16-bit number "*num*" is a multiple of 4 and sets AX to 1 otherwise. DIV instruction is not allowed.

iii. AX = 0xF0F0, BX=0xABCD, CX=0x1234, DX=0x5678

Write value of required registers after execution of following instructions:

OR BX, AX   ; **BX = _____**

AND CX, AX   ; **CX = _____**

XOR DX, AX   ; **DX = _____**

Question 2 [CLO 3] [15 Marks]: Write assembly language program that removes all the numbers less than 0xA0 from an array (of 5 numbers) and keeps rest of the numbers in start of the array, placing zeros in the end.

Example 1	Example 2
Array before Execution of your program: array: 0xF6, 0x96, 0x15, 0x54, 0xA1 Array after Execution of your program: Array: 0xF6, 0xA1, 0, 0, 0	Array before Execution of your program: array: 0x96, 0xB6, 0x15, 0xA4, 0xC1 Array after Execution of your program: Array: 0xB6, 0xA4, 0xC1, 0, 0

Solution: