National University of Computer and Emerging Sciences, Lahore Campus

Course Name:	Computer Organization and Assembly Language	Course Code:	EE213
Program:	BS(Computer Science)	Semester:	Spring 2018
Duration:	60 Minutes	Total Marks:	35
Paper Date:		Weight	15%
Section:	ALL	Page(s):	3
Exam Type:	Mid-1		

Student : Name:_____ **Roll No.**_____ **Section:**_____

Instruction/Notes:

1. Exam is Open book, Open notes.
2. Properly comment your code.
3. You **CANNOT** use an instruction **NOT** taught in class.
4. Write your answer in the space provided. You **can take extra sheets BUT they WONT BE ATTACHED WITH THE QUESTION PAPER OR MARKED.**
5. No need to copy code from book. If you need any code/part of code, just mention the line numbers and page no.

Q1 to Q5 carry 5 marks each.

Q1. To address 1-MB of memory we need 20 bits of addressing, then how much megabytes of memory can be accessed using 30 bits of addressing. _____ MB.

Q2. Given the following jump statement and its opcode, identify the type of jump (near or short) and the offset (logical address in CS) to which the jump will take place.

Offset of Opcode	Opcode	Type of Jump?	Offset ?
0125	EBE9 ;EB is opcode of jump		

Q3. Given the following sequential set of instructions of same program, write down the values of CF, PF, ZF after each instruction: (initially all flags are zero.)

	CF	PF	ZF
xor ah, ah	_____	_____	_____
mov al, 0x4A	_____	_____	_____
shl al, 2	_____	_____	_____
rcr ah, 3	_____	_____	_____
sub ah, al	_____	_____	_____

Q4. Write an instruction which reads the first byte of its own op-code and stores it into al register.

Q5. Write assembly code to compare two 32-bit numbers such that if num1 is equal to equal to num2 it sets ZF=1 else ZF=0. (Declare two 32-bit numbers in memory to compare)

Q6. Write an assembly program, such that given an array of **ten** integers, your program finds and stores the sum of unique elements of array in a memory label called **"sum"** (defined word). **[10 Marks]**

💣☠ GOOD LUCK! 💣☠