COE 205, Term 001

Computer Organization & Assembly Programming

Quiz# 2

Date: Monday, Oct. 9

Suppose that you have the following initial content of the Intel 8086 registers:

AX=FAB1H	BX=FFFFH	CX=FFFAH	IP =011AH
SI =0003H	DI =0005H	DS =4AEBH	CS =9000H

(1)   Suppose that the following data segment is allocated in the segment given in the DS register with an offset of 0. Show the content of the allocated memory, and determine the <u>physical address of variable J</u>. Note that the ASCII code of character `0` is 30H.

I	*DB*	*-100, `12`*	*Address (Hex)*	*Memory Content*
(hex)				
	DW	*-100, `12`*		
	DD	*-1*		
L	*EQU*	*255*		
J	*DB*	*L-25*		
	DW	*offset I+2*		
K	*DB*	*2, 2 dup(5, 3 dup(-10))*		

(2)   Show the content of the registers and memory locations modified after the execution of each of the following instructions. Use the <u>initial content</u> of the registers and memory locations as initial values for the subsequent instructions. Furthermore, specify the <u>addressing modes</u> of the *source and destination operands* in each instruction.

a.   SUB CL,   J-1

b.   MOV WORD PTR J-1, offset I+2

c.   ADD [DI-3], AL

d.   MOV WORD PTR [BX+SI+12], -2

(3)   Write an 8086 assembly program to (a) Ask the user to enter a lower-case character, (b) Display the character in upper case. Note that the ASCII code of LF is equal to 10, CR is equal to 13, `A` is equal to 41H and `a` is equal to 61H.

            <u>Sample Execution:</u>
            Enter a lower case character: e
            The character in upper case is: E