

Name:

Id#

COE 205, Term 003  
Computer Organization & Assembly Programming

Quiz# 2

Date: Tuesday, July 10

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 physical address of next instruction to be fetched from memory. Note that the ASCII code of character `0` is 30H.

<i>I</i>	<i>DB</i>	<i>-100, `12`</i>	<u><i>Address (Hex)</i></u>	<u><i>Memory Content</i></u>
				<i>000A</i>
	<i>DW</i>	<i>-100, `12`</i>		<i>000B</i>
	<i>DD</i>	<i>-1</i>		<i>000C</i>
<i>L</i>	<i>EQU</i>	<i>255</i>		<i>000D</i>
<i>J</i>	<i>DB</i>	<i>L-25</i>		<i>000E</i>
	<i>DW</i>	<i>offset I+2</i>		<i>000F</i>
<i>K</i>	<i>DB</i>	<i>2, 2 dup(5, 3 dup(-10))</i>		<i>0010</i>
<i>M</i>	<i>DB</i>	<i>`Q#2`, `\$`</i>		<i>0011</i>
				<i>0012</i>
			<u><i>Address (Hex)</i></u>	<u><i>Memory Content (hex)</i></u>
			<i>0000</i>	<i>0013</i>
			<i>0001</i>	<i>0014</i>
			<i>0002</i>	<i>0015</i>
			<i>0003</i>	<i>0016</i>
			<i>0004</i>	<i>0017</i>
			<i>0005</i>	<i>0018</i>
			<i>0006</i>	<i>0019</i>
			<i>0007</i>	<i>001A</i>
			<i>0008</i>	<i>001B</i>
			<i>0009</i>	<i>001C</i>
				<i>001D</i>

*Physical address of next instruction to be fetched =*

(2) Show the content of the registers and memory locations modified after the execution of each of the following instructions. Use the initial content of the registers and memory locations as initial values for the subsequent instructions. Furthermore,

specify the addressing modes 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) Give on a separate line the characters displayed on the screen by each of the following code fragments.

a. MOV DX, offset M  
MOV AH, 09H  
INT 21H

b. MOV DX, offset M+2  
MOV AH, 09H  
INT 21H

c. MOV DL, M  
MOV AH, 02H  
INT 21H