CSE341: Introduction to Microprocessor
Fall 2025
Theory Quiz - 2
Duration: 40 Minutes

B

Name:	ID:	Section:

Question 1(5): Memory Contents:

Address	14005h	14004h	14003h	14002h	14001h	14000h	13FFEh	13FFDh	12006h	12005h	12004h	12003h
Data	80h	7Fh	FFh	01h	88h	1Ch	00h	50h	34h	12h	A5h	F0h

DS = 1200h, CS = 0A00h, SS = 8500h, ES = 1300h AX = 0000h, BX = 4000h, CX = 0002h, DX = FFFFh SI = 2000h, DI = 0003h, BP = 0FFDh

MOV AX,[DI+SI]
ADD AX, 0A01h

a. What is the physical address accessed by the MOV? [2]
   PA= SEG*10 + OFFSET
    = 14003H
b. What value is in AX after MOV? [1]
   AX=7FFF H
c. What value is in AX after ADD? [0.5]
   7FFF+0A01=8a00
d. Which flags are set after ADD? (ZF, SF, CF, OF, PF) [1.5]
   0111 1111 1111 1111
   0000 1010 0000 0001
   1000 1010 0000 0000
   CF=0 SF=1 AF=1 OF=1 PF=1 ZF= 0

Question 2(4): Memory Contents:

Address	31234h	31235h	12000h	12001h	30600h	30601h	2A456h	2A457h
Data	12h	34h	56h	04h	11h	21h	78h	56h

DS=1000h, CS = 3000h, SS = 8A40h, SI = 0020h, DI = 030Fh, BP = 1234h

instruction: **JMP [BX]** After execution: The 8086 jumps to physical address 30456h , BX = ????h

JMP [BX]

IP_VALUE_ADDRESS= DS*10+BX

12000= 10000+BX | BX=2000H

PA(JUMP)=CS X 10 + IP

30456h=30000+IP

Question 3(3): Identify the addressing mode

(a) MOV SI, [SI] - REGISTER INDIRECT

(b) MOV [BX+SI+80h] - INVALID

(c) MOV 1234h, [BX]- INVALID

Question 4(3): Convert the instruction to machine code

a. MOV AX,[BX]

b. MOV 1876h[SI], CX

c. MOV DX,[0023h]

MOD / RM	00	01	10	11	
				W = 0	W = 1
000	[BX] + [SI]	[BX] + [SI] + d8	[BX] + [SI] + d16	AL	AX
001	[BXI + [DI]	[BX] + [DI] + d8	[BX] + [DI] + d16	CL	CX
010	[BP] + [SI]	[BP] + [SI] + d8	[BP] + [SI] + d16	DL	DX
011	[BP] + [DI]	[BP] + [DI] + d8	[BP] + [DI] + d16	BL	BX
100	[SI]	[SI] + d8	[SI] +d16	AH	SP
101	[DI]	[DI] + d8	[DI] +d16	CH	BP
110	d16 (direct address)	[BP] + d8	[BP] +d16	DH	SI
111	[BX]	[BX] + d8	[BX] + d16	BH	DI

A) 100010 1 1 00 000 111->8B07

B) 100010 0 1 10 001 100 01110110 00011000

C) 100010 1 1 00 010 110 00100011 00000000