CS/ECE/EEE/INSTR F241 – MICROPROCESSOR PROGRAMMING & INTERFACING

MODULE 3: ADDRESSING MODES OF 80X86

QUESTIONS

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Q1. If the register field "REG" of an instruction contains 101 and "w"=0 , What is the register selected assuming that instruction is a 16-bit mode instruction?

Q2. The instruction MOV DS, 2300h gives an error. Why?

Q3. For the following instructions determine the addressing mode and the Machine code

Assume instructions are in 16-bit mode of operation

- MOV ECX ,CC001267H
- MOV AX,SI
- MOV [SI],CL
- MOV AX,CS:[DI+1000H]
- MOV CL,[EDX+EDI]
- MOV EAX,4020[BX+DI]
- MOV BX,[EBX+2*ECX]
- MOV BL,SS:[ECX]
- MOV CX,CX
- MOV EBX, DS: [EBP+ 4H]
- MOV [DI+BP+2000H], EAX
- MOV EDX, EBP

Q4. Suppose that CS =1000_H, ES = 8000_H, DS=$A000_H$, SS =7000_H , ESI= 0000 0200_H , EDI = 0000 0410_H, EBP = 0000 2300_H , EBX= 0000 0200_H EAX=0000 0400_H , ECX = 0000 0020_H, EDX = 0000 0008_H For the instructions given below determine the machine code, address & addressing mode. Processor is working 32-bit mode

- MOV [SI+100_H],EAX
- MOV [EAX+2*EBX],CL
- MOV DH,CS:[EBX+4*EAX+1000_H]
- MOV [BP+SI+2000_H],CX
- MOV AX, ES:[DI+BP+04_H]

Q5. Suppose that in 8086 DS = 1300_H, BP = 0100_H, SS =1000_H ,SI = 0250_H. Determine the address accessed by each of the following instructions

- MOV AX,[BP+200H]
- MOV AL,[BP+SI-200H]
- MOV AL,[SI-0100H

Q6. Determine the instruction from the opcode assume the processor is working in 16-bit mode.

All instructions are some form of MOV.

- 66 89 D8
- 89 46 10
- B1 45
- 67 8A 44 7D 02

Q7. In an 80386 processor that is working in real mode and 16-bit mode: Suppose that CS =0000_H ,ES = $F000_H$, DS=4000_H , SS = 2000_H ,ESI= 0000 0100_H , EDI = 0000 0210_H ,EBP = 0300_H , EBX=0000 4000_H , EAX=0000 0200_H , ECX = 0000 0010_H, EDX = 0000 0004_H For the instructions given below determine the following: Memory Address, Addressing Mode and Machine Code **[Give Values only in Hex and treat instructions as separate individual instructions]**

- MOV ES: [1000_H], AH
- MOV EAX, SS:[EBX+ 8]
- MOV CH,[SI+BP+100_H]
- MOV EAX, [SI+BX]
- MOV AL,[EBX+8*ECX+20_H]