

Name:

Id#

COE 205, Term 033
Computer Organization & Assembly Programming

Quiz# 4 Solution

Date: Tuesday, July 20, 2004

Q1. Suppose that you have the following initial content of 8086 registers:

AX=00F7H

BX=0004H

CX=FFF2H

DX=0000H

- (i) Determine the content of the destination operand after the execution of each of the following instructions. Indicate the effect on the overflow flag. Use the initial content of the registers for the execution of each instruction.

1. MUL BL

$AX = F7 * 04 = 03DC$

OF = 1 since the result does not fit in AL i.e. AH is not equal to 0.

2. IMUL BL

$AX = F7 * 04 = -9 * 4 = -36 = FFDC$ (note that $36 = 0024$)

OF = 0 since the result fits in AL i.e. AH is a sign-extension of AL.

3. DIV BX

We are dividing DX:AX over BX \Rightarrow 0000:00F7 / 0004

This gives a quotient of 003D and a remainder of 0003. So, DX=0003 and AX=003D.

OF is undefined.

4. IDIV CX

We are dividing DX:AX over CX \Rightarrow 247 / -14

This gives a quotient of -17 and a remainder of 9. So, DX=0009 and AX=FFEF.

OF is undefined.