Name: KEY **Id#**

COE 205, Term 071

Computer Organization & Assembly Programming

Quiz# 5

Date: Saturday, Dec. 8, 2007

Q1. Write the **minimum** number of instructions to do the following using only **logical** instructions:

1. Clear bit 0, Set bit 7, and Complement bit 4 of register AL.

   AND AL,01111110B
   XOR AL,10010000B

2. Store the content of register CX into register AX using only **XOR** instructions.

   XOR AX, AX; **AX=0**
   XOR AX, CX; **AX = 0 XOR CX = CX**

Q2. Given that **TABLE** is defined as: **TABLE db 'This Is Not Difficult'**

Determine the content of register **AL** after executing the following code and describe briefly what the code is doing:

```
        MOV ECX, lengthof TABLE
        XOR AL, AL
        LEA EBX, TABLE
        DEC EBX
Next:   JECXZ ENL
        INC EBX
        MOV AH,  [EBX]
        OR AH, 20h
        CMP AH, 'i'
        LOOPNE Next
        JNE  ENL
        INC AL
        JMP Next
ENL:
```

Content of AL=4. The program counts the number of character 'i' both upper and lower case.

Q3. Write an assembly program to implement the following code assuming that **unsigned** numbers are represented in registers:

WHILE (AX ≥ 0) {
IF (BX < CX) OR (BX <= 100) {
BX = BX + DX;
} ELSE {
BX = BX – 2;
}
AX = AX – 1;
}
	While:
	CMP AX, 0
	JB EndWhile
	CMB BX, CX
	JB Then
	CMP BX, 100
	JBE Then
	SUB BX, 2
	JMP EndIf
	Then:
	ADD BX, DX
	EndIf:
	DEC AX
	JMP While
	EndWhile: