COE 205 Computer Organization & Assembly Language – Fall 2005

Assignment 3: Basic Instructions, Addressing Modes

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Due Date: Wednesday, October 19, 2005

Q1. (5 pts) Consider a program that has the following data segment:

```
I       EQU         07Fh
J       DB          '1234'
K       EQU         250
L       DW          0FFh
```

Indicate whether the following are valid or invalid 8086 instructions. If valid, give the result of the operation. If invalid, give the reason.

```
1. MOV AL, I+1                  6. MOV I, L
2. MOV AX, J                    7. MOV DS, I
3. MOV AL, J[2]                 8. MOV L, WORD PTR J
4. MOV AX, J*3                  9. MOV L, OFFSET J
5. MOV BH, I*2                  10. INC [J+1]
```

Q2. (10 pts) The initial content of some registers and memory locations is given below:

```
AX=FE01H     BX=7FEDH   CX=F1A4H   DX=00FFH
SI =0010H    DI =0020H  DS=2000H
```

Memory Address (hex)	Contents (hex)
2000: 0010	FF
0011	1A
0012	01
0013	06
0014	FE
0015	50
0016	40

Show the content of the destination operand and the state of the flag bits (OF, SF, ZF, AF, PF, and CF) after the execution of the following instructions. Use the initial content of the registers and memory locations for the execution of each instruction.

```
1. ADD BX, CX
2. INC Byte PTR [DI-10]
3. DEC Byte PTR 4[SI]
4. NEG Word PTR [BX-7FDBh]
5. SUB AL, 2+[SI]
```

Q3. (5 pts) Write an assembly language program that reads one hex digit with values from A to F and displays its decimal equivalent on the next line.