CMPE/CSCI 2333 Homework 4 Name ___________________________

Due: November 8, 2016

Use the following data definitions:

```
byte1 BYTE    0FFh,1,2
byte2 BYTE    14h
word1 WORD    0FFFFh,1,2
word2 WORD    3
word3 WORD    7FFFh,8000h
word4 WORD    9000h
dword1   DWORD 10h,20h,30h,40h
```

1. Write one or more statements that move the contents of word1 to word2.

2. For each of the following instructions, indicate whether it is legal (L) or illegal (I):
   a. mov byte2, 0FFh
   b. mov word1, byte2
   c. mov word2, 10000h
   d. mov si, word1

3. For each of the following instructions, indicate whether it is legal (L) or illegal (I):
   a. movzx ax, byte1
   b. movzx edx, bl
   c. movzx word2, al
   d. movsx dl, al

4. Indicate the hexadecimal value of the destination operand next to each instruction. Use the letter I to indicate that a particular instruction is illegal:
   mov dx, word3 a.
   movsx eax, byte1 b.
   mov dh, al c.
   mov bx, dx d.

5. Indicate the hexadecimal value of the destination operand next to each instruction. Use the letter I to indicate that a particular instruction is illegal:
   mov ax, [word3+2] a.
   mov eax, [dword1+4] b.
   mov al, [byte1+1] c.
   mov eax, [word3+4] d.

6. Where marked by a letter (a, b, c, d), indicate the hexadecimal value of the destination operand:
   mov ax, word1
   inc ax a.
   dec ax b.
   mov ax, word3
   neg ax c.
   add ax, 0C2A5h d.

7. Where marked by a letter (a, b, c, d), indicate the hexadecimal value of the destination operand and the flags:

```
mov al, 7Fh
add al, 2          a:  al=        ZF,CF,SF,OF=
sub al, 5          b:  al=        ZF,CF,SF,OF=
mov al, 80h
add al, 80h        c:  al=        ZF,CF,SF,OF=
neg al             d:  al=        ZF,CF,SF,OF=
```

8. Which instruction loads the low byte of the EFLAGS register into AH? (Note: This is not covered in the slides – look in the textbook)

9. Write an instruction that moves the 32-bit address of word1 into the ESI register (assume 32-bit Protected mode).

10. Write an instruction that moves the lower 16 bits of dword1 into the BX register (hint: use PTR).

11. Write an instruction that moves the lower 8 bits of word2 into the AL register.

12. Write an instruction that moves EBX to location word1: