16.317: Microprocessor Systems Design I

Fall 2014

Homework 5

Due **1:00 PM, 10/31/14**

Notes:

- While typed submissions are preferred, handwritten submissions are acceptable.
- Any electronic submission must be in a single file. Archive files will not be accepted.
- Electronic submissions should be e-mailed to Dr. Geiger at Michael_Geiger@uml.edu.
- This assignment is worth a total of 100 points.

Show the result of each PIC 16F684 instruction in the sequences below. Be sure to show not only the state of updated registers, but also the carry (C) and zero (Z) bits.

1. (25 points)

```
cblock 0x20
    x
endc

movlw   0x05
sublw   0x15
clrf    x
comf    x, F
xorwf   x, F
swapf   x, W
btfsc   x, 7
bsf     x, 0
```

2. (20 points)

```
cblock  0x20
    A
    B
endc

clrf    A
movlw   0x11
movwf   B
addlw   0x34
subwf   A, F
comf    A, W
swapf   A, F
```

3. (25 points)

```
cblock 0x40
    var1
endc

movlw   0x1E
movwf   var1
rrf     var1, F
xorwf   var1, W
btfss   var1, 4
iorlw   0x06
andwf   var1, F
bcf     var1, 0
```

4. (30 points)

```
cblock 0x70
    num1, num2
endc

movlw   0xAA
andlw   0x0F
movwf   num1
xorlw   0xFF
movwf   num2
asrf    num2, F
lslf    num1, W
xorwf   num2, F
comf    num2, W
```