

ECE 376 - Homework #2

Assembler & Flow Charts - Due Monday, January 27th

Assembler Programming

1) Determine the contents of registers W, A, and B after each assembler command:

Command	W	A	B
<code>; Start</code>	15	11	6
<code>incf B,W</code>			
<code>iorwf A,W</code>			
<code>decf A,F</code>			
<code>andwf B,F</code>			
<code>movlw 17</code>			
<code>subwf A,W</code>			

2) Convert the following C code to assembler (8-bit operations)

```
unsigned char A, B, C;  
A = 2*B + 3*C + 4;
```

3) Convert the following C code to assembler: (16-bit operations)

```
unsigned int A, B, C;  
A = 2*B + 3*C + 4;
```

4) Convert the following C code to assembler (if-statements)

```
unsigned char A, B, C;  
  
if(A > B) C = 5  
else if (A < B) C = 6  
else C = 7
```

5) The flow chart on the left is for turning your PIC into a 20-sided die for D&D

- Each time you press and release RB0, a random number from 1..20 is displayed on PORTC
- If the roll is a 20, all of the lights on PORTD turn on

Write the corresponding assembly code

6) The flow chart to the right generates a three-level flash light

- RB0: Lights turn off
- RB1: Half of the lights on PORTC and PORTD turn on
- RB2: All of the lights on PORTC and PORTD turn on

Write the corresponding assembly code

