

16.317: Microprocessor Systems Design I

Fall 2013

Lecture 29: Key Questions

November 20, 2013

1. (Review) Describe the instructions used for conditional execution on the PIC 16F684.

2. **Example:** Show the values of all changed registers after each of the following sequences. What high-level operation does each perform?

a. movf a, W
 sublw 0xA
 btfsc STATUS, Z
 goto L1
 incf b, W
 goto L2
L1
 decf b, W
L2
 movwf a

b. movf NUM2, W
 subwf NUM1, W
 btfss STATUS, C
 goto BL
 movf NUM1, W
 goto Done
BL
 movf NUM2, W
Done
 movwf MIN

3. Describe how to write PIC code to implement operations that deal with two registers (e.g. moving the contents of one register to another; adding two registers).

4. Describe how to implement conditional jumps.

5. Describe how to implement shift and rotate operations.

6. Translate these x86 operations to PIC code. Assume that there are registers defined for each x86 register (e.g. AL, AH, BL, BH, etc.)

- OR AL, BL

- SUB BL, AL

- JNZ label

- JL label

- SAR AL, 1

- ROL AL, 5