16.317: Microprocessor Systems Design I

Fall 2013

Lecture 28: Key Questions
November 18, 2013

1. Describe the PIC goto, call, and return instructions.

2. Describe the instructions used for conditional execution on the PIC 16F684.

3. **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
```

4. 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).

5. Describe how to implement conditional jumps.

6. Describe how to implement shift and rotate operations.

7. 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