EE 354 **August 29, 2016**
Practice Problems
Assembly Language Shorts

1. Increment P0, P1, P2, and P3 in an endless loop.

2. Input data from P1 and perform the logical AND operation on the data with AAh. Output the result to Port 3. Repeat for the OR, ExOR, SWAP, and Rotate functions.

3. Load memory locations 40 and 41 with the data 18F0h. Load locations 42 and 43 with 1888h. Do a double precision add on these two 16-bit numbers and put the result in memory locations 44 and 45.

4. Write a program which will increment P0 10 times and use djnz for a loop instruction. Decrement P1 20 times and use jnz as a loop instruction. Increment P3 until its value gets to 30 using the compare and jump instruction.

5. Suppose Port 0 is set up such that P0.0 and P0.1 are inputs tied to push button switches and P0.7 is an output tied to an LED which is on when P0.7 is low. Write an assembly language segment that runs forever and turns on the LED if and only if both input bits are a logical one.

6. Write an assembly language program segment to put a zero on port 0 bit 0 and a one on port 0 bit 1. Do not alter any other port bits.

7. Write an assembly language program to do a 16-bit left shift of the number in R2 and R3 where R2 has the least significant byte. Note that this processor has no shift instructions – only an 8-bit rotate. You can accomplish a shift by preloading the carry with zero and using RLC to rotate register 2. The MSB from R2 will rotate into the carry. You can then do a RLC on R3 and the MSB from R2 will become the LSB of R3.