EE 354 **September 7, 2018**
Exam 1 Sample Problems

1. Assume that the PSW contains 78h and the accumulator contains 81h. What is the contents of the accumulator and the PSW after the following instruction executes: `rrc a`

A = _____ PSW = _____

2. Write a logical instruction sequence which does the same thing as the following bit instructions:

```
setb c
mov P1.5, c
```

3. Write a single assembly language instruction that copies the bit at 95H in internal memory to the carry flag.

4. Write a subprogram which does the following:
- Switches to register bank 2
- Adds r0 to r3 and puts the result in the accumulator
- Switches back to register bank 0
- returns.

5. Write an 8051 assembly language program to copy the data from port 3 to port 1 but with the nibbles reversed in order.

6. Write an 8051 assembly language program to do BCD addition of R4 and R5 and outputs the carry bit from the add to P1.3.

7. Suppose you want to set the most significant *bit* of the byte at 90h in data memory to a one. Write an instruction or instruction sequence to do this. Do not change any other bits in the byte.

8. Write an assembly language sequence to put zeros on the lower order 4 bits of port 1. Do not alter any other port bits.

9. How many times is the instruction **`mov P1.0, c`** executed in the sequence below.

```
    mov R2, #54
    mov a, #0AAh
LP1:mov R3, #22
LP2:djnz R3, LP2
    mov P1.0, c
    rrc a
    dec R2
    cjne R2, #0, LP1
```

10. Write a program to send the *bits* in R3 to P1.0 sequentially from LSB to MSB.