EE 354 **September 9, 2019**

Sample Problems for Exam 1

1. Assume PA9 has been set up for output. Write an assembly sequence to clear PA9 without altering any other bits.

2. In Problem 3 write a short sequence to complement PA9 without changing any other bits.

3. Assume that port B is set up for output. Write an assembly sequence to count up on PB0 to PB7 forever.

4. Assume that port B is set up for output and PA0 is set up for input. Write an assembly sequence to check PA0 and count up on PB0 to PB7 if PA0 is zero and count down on PA0 to PA7 if PA0 is one.

5. A) Write an assembly sequence that sets the carry flag to one.
B) Write an assembly sequence that clears the carry flag.

6. Assume PB is set up for input. Write an assembly sequence to input to branch to the label *zero* if the least significant byte of Port B is all zeros – otherwise branch to a the label *one.*

7. Assume PB0 is set up for output. Write a sequence that sends R5 one bit at a time to PB0 as fast as possible. Begin with the lsb of R5.

8. Assume that PB is set up for input. Input the least significant three bits from Port 3. Treat these three bits as a number and shift R5 to the left this number of times. For example, if the three bits at 101 we want to shift R5 to the left five times.

9. Show what is in the registers shown after the following sequence runs:

```
ldr r0, =0;
ldr r1, =1;
ldr r2, =2;
ldr r3, =3;
ldr r4, =4;
push {r0-r1}
push {r4}
push {r3}
push {r2}
pop {r1}
pop {r5}
pop {r2-r3}
pop {r4}
```

r0 = __0_____
r1 = __2_____
r2 = __4_____
r3 = __0_____
r4 = __1_____
r5 = __3_____

10. Assume port A is output and port B is input. Write a sequence to input from PB0 and output to PA0 such that that the LED goes on when the switch is pushed.