

# EECE.3170: Microprocessor Systems Design I

Fall 2016

## Lecture 9: Key Questions

September 23, 2016

1. Explain the general operation of the AND, OR, XOR, and NOT instructions.

2. **Example:** Show the state of AL after each instruction in the following sequence:

```
MOV AL, 0x55  
AND AL, 0x1F  
OR AL, 0xC0  
XOR AL, 0x0F  
NOT AL
```

3. Explain the operation of shift instructions. What is the difference between SHR and SAR?

4. **Example:** Given  $AL = 0x15$ ,  $CL = 0x03$ , and  $CF = 0$ , show the state of AL and CF after each instruction in the sequence below:

```
SHL AL, 1  
SHR AL, CL  
SAL AL, 5  
SAR AL, 2
```