

EECE.3170: Microprocessor Systems Design I

Key Questions

Logical instructions (Lecture 10)

QUESTIONS

1. Explain the general operation of the AND, OR, XOR, and NOT instructions.
2. Explain the operation of shift instructions. What is the difference between SHR and SAR?

EXAMPLES

1. 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
```

2. 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
```