

16.216: ECE Application Programming

Summer 2014

Lecture 9: Key Questions

June 17, 2014

1. Describe how to represent decimal values in binary (base 2) and hexadecimal (base 16) and how to convert between those bases.

4. **Example:** Evaluate each of the following expressions if you have the following unsigned int variables: $A = 7$, $B = 10$, and $C = 0xFFFFFFFF$
- a. $A \& B$

b. $A \mid \sim B$

c. $A \wedge C$

d. $A \ll 4$

e. $B \gg 5$

f. $A \mid (B \ll 2)$

5. **Example:** Given an unsigned `int`, `n`, and a number, `b`, how would you:

- a. Clear all bits of `n`?
- b. Clear the lower 16 bits of `n` (mask out lower bits)?
- c. Flip all bits of `n`?
- d. Flip bit `b` of `n`?
- e. Set bit `b` of `n` (i.e., make sure bit `b` is 1)?
- f. Clear bit `b` of `n` (i.e., make sure bit `b` is 0)?

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7. Describe how to extract a group of bits from a larger value.

8. Describe how to print hexadecimal values.