

Name:

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COE 205, Term 023
Computer Organization & Assembly Programming

Quiz# 2

Date: Saturday, July 12, 2003

Q1. Consider an 8-bit register that has the binary number 11101110. Determine the decimal value of the number if it represents:

- i. An unsigned number.

- ii. A signed number in sign-magnitude representation.

- iii. A signed number in 1's complement representation.

- iv. A signed number in 2's complement representation.

Q2. Perform the following arithmetic operations assuming that numbers are represented using 8-bit 2's complement representation. Indicate in your answer when an overflow occurs.

- i. $7F + FF$

ii. FE – 7F

Q3. Fill the blanks in the following questions:

(i) The binary number 01100011 represents character _____, and uses an _____ parity bit. Note that the ASCII code of character **A** is 41H and that of character **a** is 61H.

(ii) Assuming 8-bit 2's complement representation, the smallest (negative) number is _____ in binary and _____ in decimal and the largest (positive) number is _____ in binary and _____ in decimal.

(iii) If you type the word A1a on your keyboard, the binary sequence sent to the computer using 8-bit ASCII code with the 8th bit being an even parity bit is _____.
Note that the ASCII code for character 0 is 30H.