

Name:

Id#

**COE 205, Term 032**  
**Computer Organization & Assembly Programming**

**Quiz# 2**

Date: Sunday, March 7, 2004

**Q1.** Consider an 8-bit register that has the binary number 11100010. 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.  $7F + 01$

ii. FE – 7F

**Q3.** Fill the blanks in the following questions:

(i) The binary number 01000100 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 7-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 phrase Abc2 on your keyboard, the binary sequence sent to the computer using 8-bit ASCII code with the 8<sup>th</sup> bit being an even parity bit is \_\_\_\_\_.  
Note that the ASCII code for character 0 is 30H.