Name: **Id#**

COE 202, Term 112
Digital Logic Design

Quiz# 1

Date: Saturday, Feb. 11

Q1. Assume that a signal has a range of 0 to 10 volts. Suppose that we need to quantize the signal into a digital signal using only 4 different values. Determine these values and the maximum quantization error.

Q2. Determine the decimal value of the following numbers:

    i. $(11110101.011)_2$

    ii. $(3E.8C)_{16}$

Q3. Represent the following numbers in **binary** and **hexadecimal**. Use as many bits as needed, and approximate the fraction to **4 <u>binary</u> digits**:

    i. $(500.6)_{10}$

ii. $(654.37)_8$

Q4. Perform the following arithmetic operations:

   i. $(11001111)_2 + (00111011)_2$

   ii. $(E1)_{16} - (5F)_{16}$

Q5. Determine, in **binary, hexadecimal** and **decimal**, the *smallest* number and the *largest* number that can be stored in a **12-bit** register.

Q6. Assuming that an 8-bit register contains the hexadecimal value E3 representing a character, determine the character stored and type of parity used (i.e. even or odd parity). Note that the ASCII code of character 'A' is 41h and the ASCII code of character 'a' is 61h.