Name: **Id#**

COE 202, Term 132
Digital Logic Design

Quiz# 1

Date: Sunday, Feb. 9

Q1. Assume that an analogue signal has a range of **0 to 5 volts**. Suppose that we need to quantize the analogue signal into a digital signal using only **4** different values. Determine these values and the maximum <u>quantization error</u>.

Q2. Determine the **decimal** value of the following numbers:

    i. $(10110111.011)_2$

    ii. $(3F.A)_{16}$

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

    i. $(191.4)_{10}$

ii. $(CE.5)_{16}$

Q4. Perform the following arithmetic operations:

     i. $(01101011)_2 + (00110101)_2$

     ii. $(F8)_{16} - (AA)_{16}$

     iii. $(3B)_{16} * (29)_{16}$

Q5. Fill in the Spaces: (Show all work needed to obtain your answer)

    a. The largest 2-digit hexadecimal number has the decimal value_____.

    b. The number **24** is represented in **BCD** as _____.

    c. Given that an 8-bit register stores the ASCII code of a character in the least significant 7 bits and a parity bit in the most significant bit. Assuming that the register contains the hexadecimal value **E4** representing a character, the character stored in the register is _____ and the parity used is _____(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.