Name: **Id#**

COE 202, Term 142
Digital Logic Design

Quiz# 1

Date: Tuesday, Feb. 10, 2015

Q1. Assume that we would like to transmit four different values v1, v2, v3 and v4 using a voltage range from **0 to 12 volts**. Determine the voltage values that will be used to represent these values with **maximum noise tolerance**. Determine the maximum noise tolerance achieved.

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

    i. $(11110001.101)_2$

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

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

    i. $(416.4)_{10}$

ii. $(C2.3)_{16}$

Q4. Perform the following arithmetic operations:

      i.   **$(01101111)_2 + (00111001)_2$**

      ii.   **$(EA)_{16} - (AF)_{16}$**

      iii.   **$(4A)_{16} * (32)_{16}$**

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

   a. The largest decimal value that can be expressed using 8 binary integer digits and 4 binary fractional digits is _____.

   b. The number **128** 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 **E3** representing a character, the character stored in the register is _____ and the <u>parity</u> 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.