Name: Id#

COE 202, Term 141

Digital Logic Design

Quiz# 1

Date: Tuesday, Sep. 16

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# **Q1.** Assume that an analogue signal has a range of **0 to 10 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 quantization error.

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

## (11110011.111)2

## (4A.C)16

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

## (250.6)10

## (EF.2)16

# **Q4.** Perform the following arithmetic operations:

## (01101111)2 + (00100111)2

## (8A)16 - (2B)16

## (2F)16 \* (15)16

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

1. The largest decimal value that can be expressed using 4 binary integer digits and 4 binary fractional digits is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. The number **59** is represented in **BCD** as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. 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 **C5** 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.