Name __ Auswors

CE-1901-11 - Dr. Durant - Quiz 1 Winter 2016-'17, Week 1

1. (1 point) An analog voltage signal is allowed to vary continuously within some range. An ideal digital voltage signal takes on a finite number of levels; when there are only 2 levels, we have a base-2 or binary system. What is a key **advantage** of a digital/binary system over an analog one?

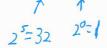
knowing the actual, intended value is at a discrete level, we close the meanest value attaining some immunity to noise in the signal

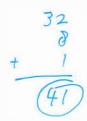
2. (2 points) Write all the 4-bit unsigned numbers in both binary and decimal.

0000 0 1000 8
0001 1 1001 9
0010 2 1010 10
0011 3 1011 11
0100 4 1100 12
0101 5 1101 13
0110 6 1110 14
0111 7 1111 15

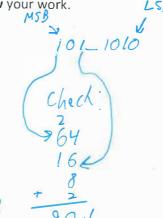
3. (2 points) List/calculate the powers of 2 from 2^0 to 2^9 as decimal numbers.

4. (2 points) Convert 101001 from binary to decimal. Show your work.





5. (2 points) Convert 90 from decimal to binary. Show your work.



- 6. (1 point) What is the largest unsigned number that can be represented with 8 bits?
 - a. Write the answer as a binary (base 2) number:

2 145 RO LSB=2°=1's place 2 122 R1 2 11 RO 2 LS R1

1111_1111

b. Write the answer as a decimal (base 10) number:

add up 1+2+4+...+128= [255] A, tak the shortcut:

1 less then 1-0000-0000

28-1= 256-1= 2551