School of Electrical Engineering and Computer Science
National University of Sciences & Technology (NUST)

Practice Home Assignment No-2

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Problem No-1 Convert the following numbers from the given base to the indicated bases:

a. $1305.375_{10}=(\ )_2=(\ )_8=(\ )_{16}$
b. $E7C.B_{16}=(\ )_6=(\ )_8=(\ )_{10}$
c. $3BA.37_{14}=(\ )_6$
d. Noting that $3^2=9$, formulate a simple procedure for converting base3 numbers directly to base9. Use the procedure to convert 211020110222011.2_3 to base9.

Problem No-2 Perform the subtraction A-B on the following signed binary numbers using 2's complement method. Indicate if an overflow occurs. Verify your result through decimal arithmetic.

$A=11101000.11_2$; $B=10000000_2$

Redo the problem using 1'complement method.

Problem No-3 The following calculation was performed by a particular breed of unusually intelligent chicken. If the radix r used by the chicken corresponds to its total number of toes, how many toes the chicken have on each foot?

$$((34)_r+(24)_r)\times(21)_r=(1460)_r$$

Problem No-4 Perform the subtraction X-Y of following signed decimal numbers in BCD using 10's complement method.

X= -875; Y=+149

Express the answer in 12-bit sign-magnitude, sign-1’s complement and sign-2’s complement forms.
