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

Home Assignment No-1[CLO1]

Subject:	**Digital Logic Design**	Marks:	**50**
Course:	**BSCS-14ABC**	Issue:	**26Feb 2024**
Teacher:	**Engr. Arshad Nazir**	Due on:	**04 Mar 2024**
			(11AM)

Note:
- ✓ *Attempt the given problem set in a sequential order.*
- ✓ *Make an index showing summary of the problems solved with page numbers and also specify the missing ones.*
- ✓ *No late submissions will be accepted unless a prior approval from the teacher is obtained with extremely genuine reasons. The assignments submitted after the due date/time will be graded **zero**.*
- ✓ *University has zero tolerance for plagiarism and serious penalties apply. All assignments found mutually copied will be marked **zero**.*
- ✓ *The students will submit a certificate with the assignment work stating the originality of their efforts and no copying from others.*
- ✓ ***Five** marks are reserved for neat and clean work, table of contents, and certificate to be attached with the assignment work.*

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

$369.3125_{10} = (\quad)_2 = (\quad)_8 = (\quad)_{16}$

$10111101.101_2 = (\quad)_{10} = (\quad)_8 = (\quad)_{16}$

$326.5_8 = (\quad)_{10} = (\quad)_2 = (\quad)_{16}$

$F3C7.A_{16} = (\quad)_{10} = (\quad)_2 = (\quad)_8$

$3BA.37_{14} = (\quad)_6$

  b. 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.

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

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

Redo it using it using 1's complement method.

Problem No-3 Convert the following unsigned decimal numbers into BCD and perform subtraction M-N using 10's complement method.

$M=976_{10}; N=625_{10}$

Express your answer in the following codes: -

i. 6,3,1,1 code
ii. 2-out-of-5 code
iii. Excess-3 code
iv. Gray Coded Decimal code with odd parity

"Good Luck"