Tutorial – 1 (ECSE104L)

1. Discuss brief regarding need of different number systems.

2. Convert $(10101)_2$ to $(?)_{10}$.

3. Convert $(41)_{10}$ to $(?)_2$.

4. Convert the followings.

    a. $(127.4)_8 = (?)_{10}$
    b. $(B65F)_{16} = (?)_{10}$
    c. $(0.6875)_{10} = (?)_2$
    d. $(117.23)_{10} = (?)_8$
    e. $(10001.101)_2 = (?)_{10}$

5. Using A, B, C, and D for the last four digits, list the numbers from 11_{10} to 30_{10} in base 14.

6. Perform the following arithmetic operations.

    a. $(456)_8 + (123)_8 = (?)_8$
    b. $(267)_8 + (31)_8 = (?)_8$
    c. $(123)_4 + (321)_8 = (?)_8$

7. Represent -5 in the following 3 ways with 8-bits. (a) signed-magnitude, (b) signed 1's complement, (c) signed 2's complement.

8. Represent -9 in the following 3 ways with 8-bits. (a) signed-magnitude, (b) signed 1's complement, (c) signed 2's complement.