ECE 270 (Spring 2022)

Homework 2

Due on 01/28/2022 (Friday) by 11:59 pm sharp on BrightSpace.

Note: Only legibly handwritten or typed submissions in PDF format are allowed.

You should work alone (no discussion)

1. Convert the binary number 011101010001 to octal and hexadecimal formats. Neatly show your work.

2. Convert $(211101222211122)_3$ to base-9. What's the resulting number?

3. Solve for X in $(135)_{12} = (X)_8 + (78)_9$?

4. Solve problem 2.28 on page 85 in the textbook (5^{th} Edition). For those using the 4^{th} edition, please solve the same problem quoted as 2.17 on page 72.

5. Express the following numbers as signed 10-bit binary numbers: -233, 127

6. Perform binary addition and subtraction of

    a) 110111 and 11011

    b) 101110 and 100111

7. Express $(606526)_7$ in decimal, binary, hexadecimal and octal formats.

8. (a) What is the range of numbers that can be represented using 6 bits in 2's complement form in general?

    (b) What is the range of numbers that can be represented using 6 bits in signed-magnitude form?

9. Perform the following operations as shown below :

$(752)_8$	$(F32B)_{16}$
$-\ (424)_8$	$+\ (2AE6)_{16}$
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10. Solve textbook problem 2.40 on page 87 (5^{th} edition). For those using the 4^{th} edition, please solve the same problem quoted as 2.28 on page 73.