CS231 – Lab 1 – Numbering System

1. Find the value of these unsigned numbers, and convert them to binary representation
   a. $(12EFB35C)_{16} = (?)_{2}$

2. Use unsigned binary to decimal conversion for following binary numbers
   a. $(00011111)_2 = (?)_{10}$
   b. $(0000\ 0000\ 0000\ 0000\ 0000\ 0000\ 0001\ 1111)_{2} = (?)_{10}$

3. Do the following decimal to binary conversion for unsigned numbers.
   a. Convert $(104)_{10}$ to 8 bit binary representation
   b. Convert $(140)_{10}$ to 32 bit binary representation

4. Do the following conversion
   a. $(10111111011011000101010100)_2 = (?)_{16}$

5. Perform the arithmetic operation value of "-15 – 35" in 8-bit signed binary system.

6. Suppose:
   $x = (1111\ 1111\ 1111\ 1111\ 1111\ 1111\ 1111\ 1100)_2$
   $y = (0011\ 1011\ 1001\ 1010\ 1000\ 1010\ 0000\ 0000)_2$

   a. Is x bigger than y if using 32-bit unsigned binary system. Prove it.
   b. Is x bigger than y if using 32-bit signed binary system. Prove it and show your work.

7. Can you represent $(128)_{10}$ as a signed 8-bit binary number? Explain

8.

   a. What is the largest value you can represent using 256 bit unsigned integer?
   b. What is the largest positive value you can represent using 256 bit signed integer?

9. What is 16 bits singed binary representation of
   a. -26
   b. -452

10. What is 8 bits singed binary representation of -43.

11. Suppose A=11001111 and B= 11000011. Do the following logical operation.
    a. A AND B
    b. A OR B
    c. A XOR B

12. What is decimal representation of the following 8 bits signed binary numbers?
    a. 10110101
    b. 00101010
    c. 11110000