Assignment – 1 (Chapter-2)

1. Perform the following binary additions:
   (a) 1001 + 1110 (b) 10111 + 11101
2. Perform the following binary subtractions:
   (a) 1101 - 0101 (b) 1011 - 0101
3. Perform the indicated binary operations:
   (a) 1110 x 101 (b) 1111 / 101
4. Express each decimal number in binary as an 8-bit sign-magnitude number:
   (a) -85 (b) +100 (c) -113
5. Express each decimal number as an 8-bit number in the 1's complement form:
   (a) - 65 (b) +126 (c) -98

6. Express each decimal number as an 8-bit number in the 2's complement form:
   (a) -58 (b) +112 (c) -136

7. Determine the decimal value of each signed binary number in the sign-magnitude form:
   (a) 10011101 (b) 01110100 (c) 10111011

8. Determine the decimal value of each signed binary number in the 1's complement form:
   (a) 10111001 (b) 01100100 (c) 10111101

9. Determine the decimal value of each signed binary number in the 2's complement form:
   (a) 10111011 (b) 01010100 (c) 10011000

10. What is the largest decimal number that can be represented in binary with eight bits?
11. Determine the weight of the 1 in the binary number 10000.
12. Convert each pair of decimal numbers to binary and add using the 2's complement form(8bit representation) :
    (a) -38 and -27 (b) 59 and -39 (c) - 58 and 65 (d) -102 and – 85
    (e) 29 and -72 (f) 111 and -49