Chapter-2 (Practice Questions Week-2)

1. Express each decimal number in binary as an 8-bit sign-magnitude number:
   (a) -96 (b) +111 (c) -173
2. Express each decimal number as an 8-bit number in the 1's complement form:
   (a) - 78 (b) +109 (c) -89
3. Express each decimal number as an 8-bit number in the 2's complement form:
   (a) -86 (b) +101 (c) -117
4. Determine the decimal value of each signed binary number in the sign-magnitude form:
   (a) 10011101 (b) 01110110 (c) 10110011
5. Determine the decimal value of each signed binary number in the 1's complement form:
   (a) 10111001 (b) 01100100 (c) 10110011
6. Determine the decimal value of each signed binary number in the 2's complement form:
   (a) 10110111 (b) 01110111 (c) 10011101
7. Express each of the following sign-magnitude binary numbers in single-precision floating point format:
   (a) 0111110000101011 (b) 100110000011000
8. Determine the values of the following single-precision floating-point numbers:
   (a) 0 10000011 01011001110001000000000
   (b) 1 11001101 10010111110100100000000
   (c) 1 10011001 10000100010100110000000

9. Convert each pair of decimal numbers to binary and add using the 2's complement form: (a) 38 and 27 (b) 59 and -39 (c) - 58 and 55 (d) -102 and – 75

10. Convert each hexadecimal number to binary:
    (a) 4715 (b) 5628 (c) B526 (d) 1A4F6

11. Convert each binary number to hexadecimal:
    (a) 11010110 (b) 10101011 (c) 1011011011011 (d) 101110011010 (e) 101111101000

12. Convert each hexadecimal number to decimal:
    (a) 4236 (b) 7446 (c) 3B27 (d) FBC27 (e) AF225

13. Convert each decimal number to hexadecimal:
    (a) 3854 (b) 5824 (c) 7926 (d) 851 (e) 4632
14. Convert each of the following decimal numbers to BCD (8421):
    (a) 4124 (b) 6139 (c) 918 (d) 2341 (e) 225 (f) 36455

15. Convert each of the BCD numbers to decimal:
    (a) 10001111000 (b) 00100110111 (c) 00101010111000110 (d) 011100100001
    (e) 0111010110100 (f) 10000111110000 (g) 1001011110111000 (h) 1101011010110011

16. Add the following BCD numbers:
    (a) 1001 + 1110 (b) 0011 + 1001
    (c) 1011 + 1101 (d) 1001 + 1111
    (e) 10110101 + 010100111
    (f) 11010011 + 11011000
    (g) 10010101 + 10010110
    (h) 010101101011 + 001101101000