SERIE 2

EXERCISE 01 : Give the 8-bit binary representations using the three representations (Sign & Absolute Value, One's complement, Two's complement) of the following numbers:

-13, + 35, -56, +82, -114.

EXERCISE 02 : Find the relative numbers corresponding to these representations in 2's complement:

1/ 100101   2/ 001010   3/ 100001   4/ 010101   5/ 111111

EXERCISE 03 : Perform the following operations in 5-bit, two's complement and specify the overflow cases, then convert the operation into decimal form

$$\begin{array}{cccccc}
11001 & 10001 & 11101 & 11101 & 01101 & 11101 \\
1/\ 10101 & 2/\ 01101 & 3/\ 10001 & 4/\ 01001 & 5/\ 00101 & 6/\ 11001
\end{array}$$

EXERCISE 04 : Perform the following operations in two's complement on 6 bits and specify the cases of overflow

$$\begin{array}{cccc}
+10 & -11 & +12 & -21 \\
1/\ \pm 09 & 2/\ \pm 07 & 3/\ -12 & 4/\ -17
\end{array}$$

$$\begin{array}{cccc}
+13 & -19 & +15 & -26 \\
5/\ \pm 23 & 6/\ -24 & 7/\ \pm 18 & 8/\ \pm 15
\end{array}$$

EXERCISE 05

- Find the IEEE 754 single-precision representation of the numbers: : $(-13.25)_{10}$ $(+37.125)_{10}$
- Find the 32-bit single-precision representation of $(10.75)_{10}$ $(-19.25)_{10}$ knowing that the exponent is represented on 7 bits instead of 8 bits.

EXERCISE 06 : Find the floating-point number with the following IEEE754 representation :

- $(41DC0000)_H$
- $(BEE00000)_H$