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 two's complement on 6 bits and specify the cases of overflow

$+10$	-11	$+12$	-21
1/ ± 09	2/ ± 07	3/ -12	4/ -17
$+13$	-19	$+15$	-26
5/ ± 23	6/ -24	7/ ± 18	8/ ± 15

EXERCISE 04 : Perform the following operations in 5-bit, two's complement and specify the overflow cases, then convert the operation into decimal form

1 1 0 0 1	**1 0 0 0 1**	**1 1 1 0 1**	**1 1 1 0 1**	**0 1 1 0 1**	**1 1 1 0 1**
1/ 1 0 1 0 1	**2/ 0 1 1 0 1**	**3/ 1 0 0 0 1**	**4/ 0 1 0 0 1**	**5/ 0 0 1 0 1**	**6/ 1 1 0 0 1**

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 :

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