

## Tutorial (TD): Series of Exercises n°2

### Exercise 1

1. Convert the following decimal values into the binary, octal and hexadecimal system

$$(63.25)_{10} \quad (25.75)_{10} \quad (32.625)_{10}$$

2. Convert the following values into the decimal system

$$(ABCD.EF)_{16} \quad (371.24)_8 \quad (1101011.11)_2$$

### Exercise 2

1. Convert the following octal values to the hexadecimal system without going from the decimal system

$$(523.46)_8 \quad (115.22)_8 \quad (7417.06)_8$$

2. Convert the following hexadecimal values to the octal system without going from the decimal system

$$(BAC.EDF)_{16} \quad (10C.16)_{16} \quad (9A37.08)_{16}$$

### Exercise 3

1. Convert the following binary values to octal and hexadecimal without going from the decimal system

$$(1110011.010)_2 \quad (110101011.001)_2 \quad (111111001101.1)_2$$

### Exercise 4

1. Make the following conversions

$$2^3 + 2^{-2} \quad (10) = \dots \dots \dots (2) = \dots \dots \dots (16) \quad 9 \times 8^2 + 5 \times 8^{-1} \quad (10) = \dots \dots \dots (8)$$

$$5 \times 16^{-1} \quad (10) = \dots \dots \dots (2) = \dots \dots \dots (16)$$

### Exercise 5

1. Give the Gray code of the following

$$(1010001)_2 \quad (20)_{10} \quad (47)_8 \quad (1B)_{16}$$

2. Give the decimal values of the following Gray codes

$$(1101)_{\text{Gray}} \quad (101101)_{\text{Gray}} \quad (11100011)_{\text{Gray}}$$

3. Give the BCD and Excess-3 codes of the following Decimal values

$$(137)_{10} \quad (68)_{10} \quad (45)_{10} \quad (902)_{10}$$

4. Give the BCD and Excess-3 codes of the following Octal values

$$(234)_8 \quad (45)_8 \quad (103)_8 \quad (47)_8$$

5. Give the BCD and Excess-3 codes of the following hexadecimal values

$$(2F)_{16} \quad (47)_{16} \quad (20)_{16} \quad (AB)_{16}$$

6. Perform the following operations in BCD then in Excess-3

$$(99)_{10} + (39)_{10} \quad (55)_8 + (132)_8 \quad (89)_{16} + (3B)_{16}$$