EXERCISES.

FUNDAMENTALS OF COMPUTER TECHNOLOGY

UNIT 2. NUMBERING SYSTEMS

EXERCISE 1:

In the sign-magnitude form with 16 bits.

a) Calculate the range.

b) Represent the numbers 24 y -24

EXERCISE 2:

In the 1's complement form with 24 bits.

a) Calculate the range.

b) Represent the numbers 37 y -214

EXERCISE 3:

In the 2's complement form with 8 bits.

a) Calculate the range.

b) Represent the numbers 235 y -144

EXERCISE 4:

Given the 8 bits number: ***1010 1011***

a) Calculate its decimal value if it is represented in pure binary form.

b) Calculate its decimal value if it is represented in sign-magnitude form.

c) Calculate its decimal value if it is represented in 1C form.

d) Calculate its decimal value if it is represented in 2C form.

EXERCISE 5:

Given the following numbers represented in 1C form: A = 0100 0110 B = 1111 1000.

a) *Calculate A + B*
b) *Calculate A – B*
c) *Calculate B – A*
d) *Is there overflow in any case?*

EXERCISE 6:

Given the following numbers represented in 2C form: A = 0100 0110 B = 1111 1000.

e) *Calculate A + B*
f) *Calculate A – B*
g) *Calculate B – A*
h) *Is there overflow in any case?*

EXERCISE 7:

Given A = 0110 100, change its sign assuming that the number is represented in

a) *Pure binary*
b) *Sign-magnitude*
c) *1C*
d) *2C*

EXERCISE 8:

Given A = 1AF7h and B = FA59h, calculate A + B.