UNIT 2.
FUNCTIONAL ELEMENTS OF A COMPUTER
Activities-4 (review)

Computer Systems
CFGS DAW

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2020/2021
Versión:201215.1743

Licencia

Nomenclatura

A lo largo de este tema se utilizarán distintos símbolos para distinguir elementos importantes dentro del contenido. Estos símbolos son:

UD02. FUNCTIONAL ELEMENTS OF A COMPUTER
Activities-3

(Exercise 1) We have a hypothetical computer with this instruction set. Each character in the instruction field corresponds to a bit.

Code	Instrucction	Description
LOAD RX,MMMM	00rxmmmm	Loads content of memory *mmmm* in Register *rx*
STORE MMMM,RX	01rxmmmm	Stores content of Register *rx* in memory *mmmm*
ADDi RX,RY	1000rxry	Performs *rx+ry* and sends the result to the register ***R1***
SUBi RX,RY	1100rxry	Performs *rx-ry* and sends the result to the register ***R2***
MULTi RX,RY	1111rxry	Performs *rx*ry* and sends the result to the register ***rx***

The memory has the following information (numbers are in binary representation):

Address	**Content**
0000	
0001	
0010	
0011	
0100	
0101	
0110	
0111	
1000	
1001	
1010	00000111
1011	00001111
1100	
1101	
1110	00100001
1111	00000110

Register	**Content**
R1	00000000
R2	00000000
R3	00000000

And the following instructions of a program to be executed (numbers are in hexadecimal representation):

```
i1: LOAD R1, #A
i2: LOAD R2, #F
i3: ADDi R1,R2
i4: STORE #5, R1
i5: MULTi R1, R3
i6: MULTi R2, R3
i7: LOAD R1, #B
i8: LOAD R2, #E
i9: SUBi R2, R1
i10: STORE #4, R2
```

Execute each instruction and update the values of registers and memory addresses and their content. It is recommended to resolve these types of exercises using pen and paper, and without a calculator 😉

Address	**Content**
0000	
0001	
0010	
0011	
0100	
0101	
0110	
0111	
1000	
1001	
1010	
1011	
1100	
1101	
1110	
1111	

Register	**Content**
R1	
R2	
R3	