

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

Computer Systems CFGS DAW

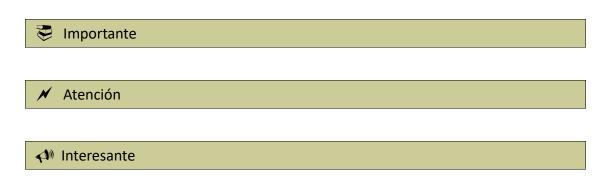
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Nomenclatura

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	n Loads content of memory	
		${\it mmmm}$ in Register ${\it rx}$	
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 ${\it rx}$	

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

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

egister	Content
R1	0000000
R2	0000000
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	Register	Content
0000		R1	
0001		R2	
0010		R3	
0011			
0100			
0101			
0110			
0111			
1000			
1001			
1010			
1011			
1100			
1101			
1110			
1111			