

### Directed Work N° 01

#### Exercise 1:

Complete the conversion table:

| Decimal | Binary    | Octal | Hexadecimal |
|---------|-----------|-------|-------------|
| 507     |           |       |             |
|         | 101000100 |       |             |
|         |           |       | E1D         |
|         |           | 743   |             |

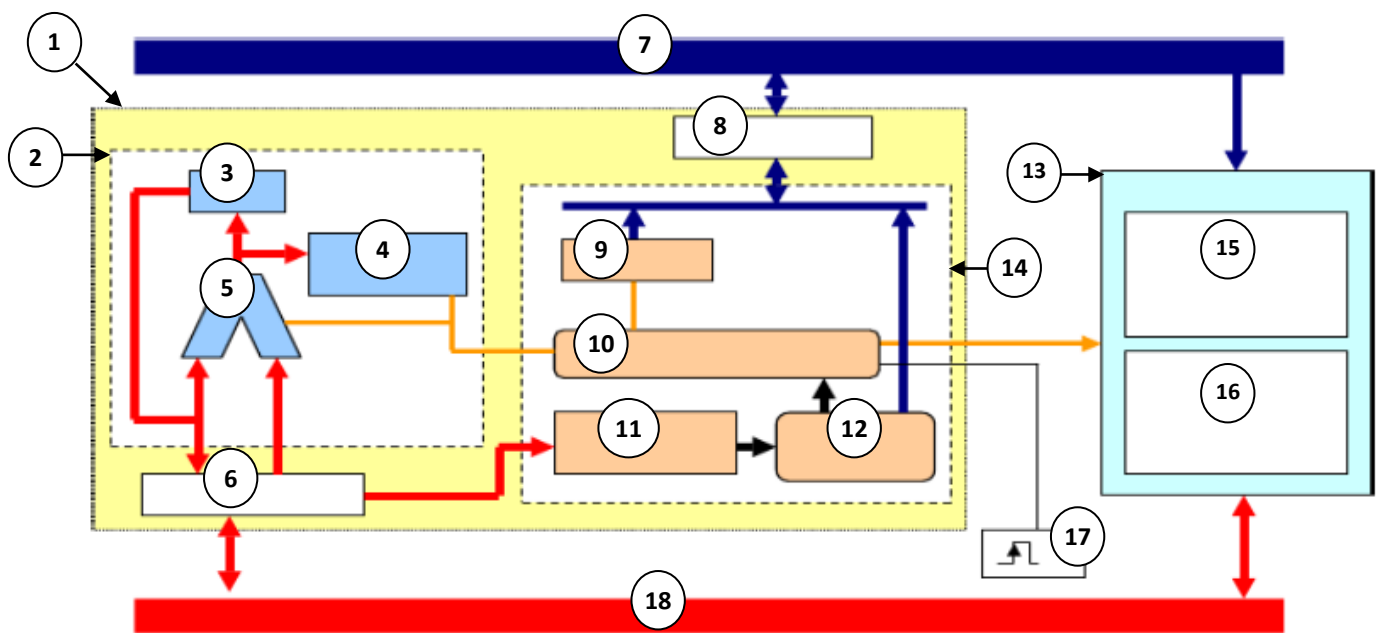
#### Exercise 2:

Perform the following operations and indicate if there is an overflow or a carry.

1. Binary addition: 11010010 + 10111101
2. Hexadecimal addition: A1CF + B2D3
3. Binary subtraction: 11010010 - 10111101
4. Hexadecimal subtraction: 71CF - B2D3

#### Exercise 3:

Complete the following diagram allowing the execution of an instruction:



**Exercise 4:**

Match the following terms to their respective definitions

- |                                 |                        |
|---------------------------------|------------------------|
| 1. Control Unit                 | 8. Assembler           |
| 2. Transistor                   | 9. Cache               |
| 3. Embedded System              | 10. DRAM               |
| 4. Digital Video Disk (DVD)     | 11. Abstraction        |
| 5. Instruction Set Architecture | 12. Datapath           |
| 6. Server                       | 13. Integrated Circuit |
| 7. Cache                        | 14. Chip               |

- a) Approach to hardware or software design. The system consists of layers, with each lower layer hiding details from the upper level.
- b) Computer inside another device used to run a predetermined application or collection of software.
- c) Interface that the hardware provides to low-level software.
- d) Integrated circuit commonly used to build main memory.
- e) Small, fast memory that acts as a buffer for the main memory.
- f) Component of the processor that performs arithmetic operations.
- g) Component of the processor that tells the datapath what to do according to the instructions of the program.
- h) On/Off switch controlled by electricity.
- i) Computer used to run large programs for multiple users simultaneously and typically accessed only via a network.
- j) Optical storage medium with a storage capacity of more than 4.7 GB.
- k) Program that converts symbolic versions of instructions into their binary formats.
- l) Specialized circuit with a small amount of ultra-fast memory to make frequently requested information immediately accessible to the processor.
- m) Integrated circuit commonly used to build central memory.
- n) Set of circuits etched onto a silicon wafer.