

1) The control unit, arithmetic logic unit and cache are all parts of the CPU

a) State two functions of the Control Unit

Any two functions

- The control unit executes instructions
- It follows the fetch-decode-execute cycle
- It controls the flow of data within the CPU
- It controls the flow of data between the CPU and other parts of computer system (such as memory, i/o devices)

b) Describe the function of the Arithmetic Logic Unit (ALU)

- The ALU carries out arithmetic operations, e. g. addition, subtraction and multiplication (using repeated addition)
- It performs logic operations on binary data, such as AND, /not and OR

c) Explain how cache is used by the CPU

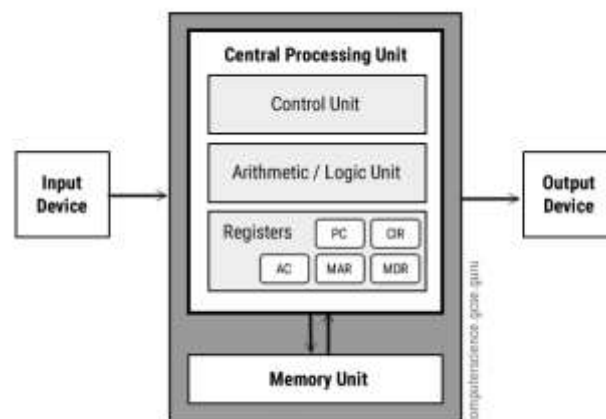
- The cache is extremely fast memory in the CPU
- It stores regularly used data or instructions
- The CPU can access data stored in the cache much faster than retrieving it from RAM

d) State the full name of the processor component that would perform subtraction and comparison operations.

Arithmetic Logic Unit

2) Write the names of the parts of the CPU in the correct places

[4]



3) Describe the work process of von Neumann architecture

[5]

1. The input device (for example keyboard) sends data to the CPU. The control device receives this data.
2. The control unit sends this data to the main memory to be executed later.
3. When the time comes, the data will be transported from the main memory to the cache (memory registers)
4. Data will be sent to the ALU for processing
5. The control device sends the processed data back (for example, to an output device, such as a monitor).

Total [16]