INPUT AND OUTPUT AND THE CONTROL UNIT

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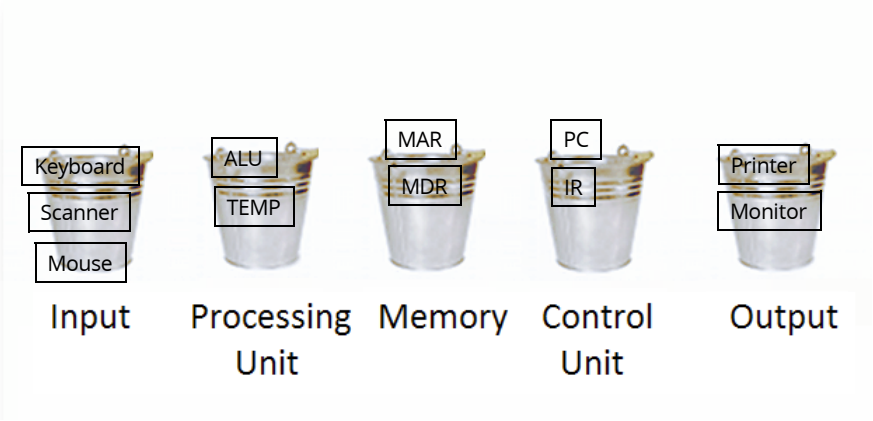
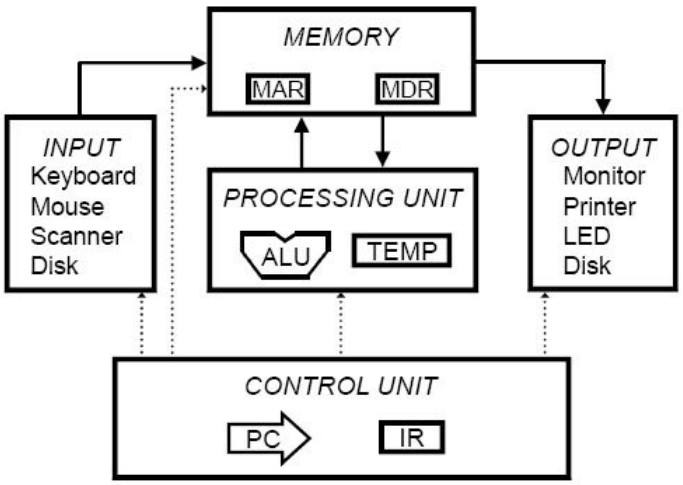
1. CHECK YOUR UNDERSTANDING (1/1 point)

Using your mouse, drag and drop each word to the bucket that indicates the section of the processor in which it belongs. Dragging and dropping is performed by clicking and holding down the left mouse button on the word, and while holding it down, moving the word to the bucket. At the bucket, release the left mouse button and the word will be remain where it was released.



SOLUTION OR EXPLANATION HEADING



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2. CHECK YOUR UNDERSTANDING (1/1 point)

Which of the following operations could be performed by an ALU? [Check all that apply]

- [x] ADD ✔
- [x] AND ✔
- [ ] LOAD
- [x] MULTIPLY ✔
- [x] NOT ✔

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EXPLANATION

All of the above are arithmetic or logical operations except for LOAD, which is a memory operation.

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3. CHECK YOUR UNDERSTANDING (1/1 point)

The word size of a particular smartphone processor is 32 bits. Which of the following is true? [Check all that apply]

- [x] The ALU operates on 32 bit values. ✔
- [x] The integer registers are each 32 bits in width. ✔
- [ ] The processor has 32 registers.
- [ ] The memory has 32 locations.

EXPLANATION

A word size of 32 bits implies that the width of the ALU and the registers is 32 bits. The word size implies nothing about the number of registers or memory locations.

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4. CHECK YOUR UNDERSTANDING (1/1 point)

Which of the following correctly describe the MAR? [You must check all that apply to earn credit.]

- [x] The MAR is part of the Memory in a von Neumann machine. ✔
- [x] The MAR holds the address where data is to be written for a STORE instruction. ✔
- [x] The MAR holds the address where data is to be read for a LOAD instruction. ✔

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EXPLANATION

The MAR register is part of the Memory in a von Neumann machine. It holds the address for both a LOAD and a STORE.

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5. CHECK YOUR UNDERSTANDING (1/1 point)

Which of the following correctly describe the MDR? [You must check all that apply to earn credit.]

- [x] The MDR is part of the Memory in a von Neumann machine. ✔
- [x] The MDR holds the data to be written to memory for a STORE instruction. ✔
- [x] The MDR holds the data that is read from memory for a LOAD instruction. ✔

EXPLANATION

The MDR register is part of the Memory in a von Neumann machine. It holds the data for both a LOAD and a STORE.

Final Check | **Save** | Hide Answer *You have used 1 of 2 submissions*

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6. CHECK YOUR UNDERSTANDING (1/1 point)

The Program Counter (PC) holds the _____ of the _____ executed.

Choose the option that correctly fills the first and second blanks.

- (•) memory address, next instruction to be ✔
- ( ) memory address, current instruction being
- ( ) data, next instruction to be
- ( ) data, current instruction being

EXPLANATION

The PC holds the memory address of the next instruction to be executed.

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