

Technological Institute of the Philippines
Manila
CIT401 – Systems Administration and Maintenance

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|----------------|---------------------------|
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| Section | IT41S3 |

Instructions:

1. This is an individual work.
2. Submit your work with the following filename format:
Week2_Activity1_Lastname_Firstname.pdf
3. Make sure to have **references in APA format**.
4. **Do not change the format.**

Activity

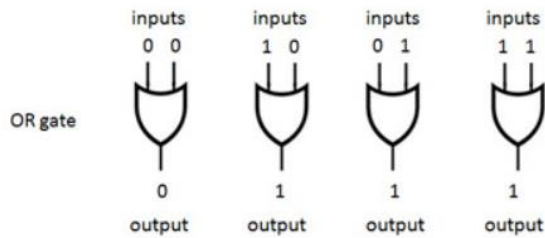
Explain in detail the function of the Arithmetic Logic Unit. You must have at least two paragraphs (4 – 5 sentences per paragraph). Provide an example of computation.

The Arithmetic Logic Unit is intended for logic and computer activities. It is a component of the microprocessor that is responsible for keeping timers running. The integer arithmetic and logical operations are carried out by the ALU. The inputs, outputs, control unit instructions, and output status are only a few of the components that make up the ALU. Fixed-point operations and floating-point operations are the two different types of operations available in the ALU. Integers are used in fixed-point operations, which employ standard arithmetic and logical operations. In scientific notation, the calculating numbers with non-zero fractions and extremely large numbers are known as floating-point operations.

Binary numbers, which are 0 and 1, are used to store and modify all data in computers. Since a switch has just two possible states—open or closed—transistor switches are used to alter binary numbers. The equivalent of a 0 is an open transistor, through which no current flows. The number one is represented by a closed transistor with current flowing through it. Transistors can be linked together to carry out operations. One transistor can be used to control another, allowing the transistor switch to be turned on or off depending on the condition of the second transistor. The device is referred to as a gate because it can be used to start or stop a current.

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Example computation: OR gate



Truth Table:

| Input | | Output |
|-------|---|--------|
| A | B | Y |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

The ALU performs an output depending on the inputs.

2. How the CU works?

The CPU's control unit chooses and interprets program instructions before organizing their execution. The control unit serves as the brains of the other computer components; it doesn't really process any data. It controls and coordinates the input and output of the entire computer system. It reads the instructions from the program stored in main memory, interprets them, and then sends signals to the other system units, instructing them to carry them out. When a control unit receives input data, it transforms it into control signals and sends them to the central processor.

3. How the I/O works?

The input and output devices are accessed through an input and output interface. Some of the various I/O requirements include CPU communication, device communication, data buffering, control and timing, and error detection. The I/O hardware includes the port, bus, and controller. A device can connect to a computer and send signals using the port as a point of communication. Devices communicate using a network of wires called the system bus. The controller, which consists of a number of electronics, can control a port, bus, or other device. The processor sends information and instructions to a controller so that input and output transmission can be completed. The machines receive signals from the external devices as a result of user interaction with those devices, which the computer then processes to produce an output.

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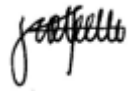
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Honor Pledge:

“I affirm that I have not given or received any unauthorized help on this assignment, and that this work is my own.”



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