Logic circuit quiz 16

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1. Explain what machine language instructions are.

Machine language instructions are instructions that can be executed directly by computer.

Machine language instructions can be classified as follows:

* Load/Store Operations: These instructions handle reading data from memory and writing data back to memory.
* Arithmetic and Logical Operations: This category includes basic mathematical functions such as addition and subtraction, as well as logical operations like AND, OR, and NOT.
* Jump/Branch Operations: These instructions are used to modify the program counter, effectively changing the flow of execution to a different address
* Other instructions.

2. Explain the relationship between CPU design methods and logic circuits.

Logic circuits are fundamental in CPU design, as CPU is constructed using various logic circuits. The roles of logic circuits in CPU are as followｓ:

* Program Counter: Logic circuits Uses adders and multiplexers to update the address.
* Instruction Register: Logic circuits comprised of registers to hold the current instruction.
* Register File: Logic circuits use multiplexers to read and write data to and from memory based on load/store instructions.
* Arithmetic Logic Unit: Logic circuits combine an adder with a logic operation circuit.
* Control Unit: Logic circuits operates using state transition diagrams and sequential logic.