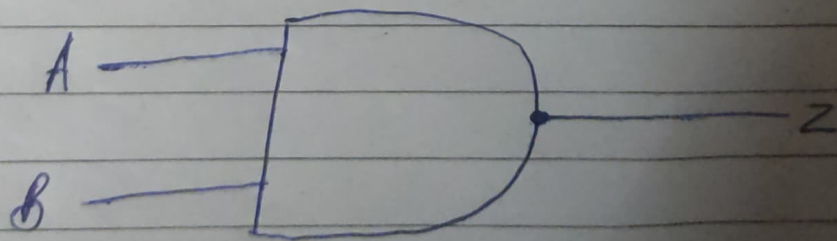


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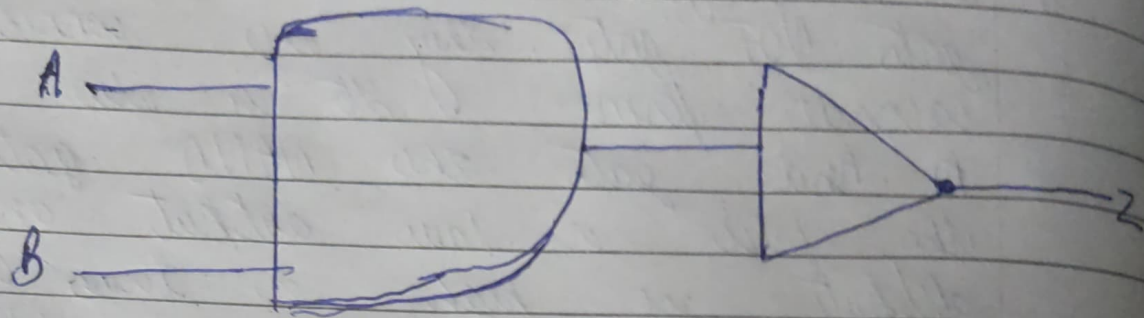
Q1. The NAND gate is a combination of an AND gate NOT gate. They are connected in cascade form. It is also called negated AND gate. The NAND gate provides the false or low output only when there output is high or true. The NAND gate is essential because different types of boolean functions are implemented by using it.

The NAND gate has the property of function completeness. The function completeness means any type of gate can be implemented by using the NAND gate. It performs the functions of OR, XOR and AND gate.

The logic symbol for the gate is shown below.



the logic circuit of the NAND gate is shown below:



from the logic circuit, the output can be expressed as:

$$Z = \overline{A \cdot B}$$

The truth table of the NAND gate:

A	B	Z
0	0	1
0	1	1
1	0	1
1	1	0