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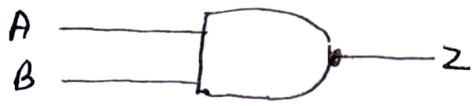
Course - MCA - 1 sem
Section - B

(1) NAND GATE

The NAND gate is a combination of an AND gate and 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 their outputs is high or true. The NAND gate is essential because different types of a boolean function are implemented by using it.

The NAND gate has the property of functional completness. The function completness means any types of gate can be implemented by using the NAND gate. It performs the function of OR, NOR and AND gate.

The logic symbol for the gate :-



The logic circuit of the NAND gate :-

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

The equation is read as "Z equals NOT A AND B". Since the logic circuit involves and AND gate followed by an inverter. The output can only be low when both the inputs are high.

The truth table of the NAND gate:-

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

from the truth table of the gate, it is clear that all the inputs must be high to get a low output and if any of the input is low, the output obtained will be high. If any one of the input is also high the output will be high that is 1.