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DATE : 22/03/2022

Course : MCA

Sem : Ist

Section : B

A NAND gate is a logic gate that produce a low output (O) only if all its inputs are true, & hight output (L) otherwise. Hence the NAND gate is the inverse of an AND gate, and its circuit is produced by connecting and AND gate to a NOT gate. Just like an AND gate, a NAND gate may have any number of input probes but only one output probe.

- The NAND gate performs the logical NAND operation. NAND gates are known as universal gates (along with NOR gates), which means they are a type of logic gate which can implement any Boolean function without the need to use any other gate type.

The basic logical construction of the NAND gate is shown below (you can see it is an AND gate followed by a NOT gate):
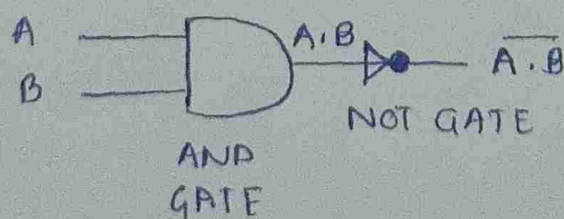
The symbol of a NAND gate is similar to the AND gate

TRUTH TABLE OF NAND GATE

We know that the output of the AND gate is only high or 1 when all the inputs are high or 1. In all other cases, the output of the NAND gate is low or 0.

In the NAND, the fact is the opposite, here, the output is only logical 0 when & only when all ~~outputs~~ input of the gate are 1s, & in all other cases, the output of the NAND gate is high or 1.

Hence, the truth table of a 2 input NAND gate can be represented as:

Input		Output
A	B	$X = \overline{A.B}$
0	0	1
0	1	1
1	0	1
1	1	0

We can see that this is just the reverse of the T.T of a AND gate. The TT of an AND gate is given below for reference:

Input		Output
A	B	$X = A.B$
0	0	0
0	1	0
1	0	0
1	1	1

Like AND gate a NAND gate can also be more than two inputs, like 3,4 input NAND gate. A NAND gate is also referred to as a universal gate.