— Nisha Bhatt
— ~~GID~~ (class Roll no.)
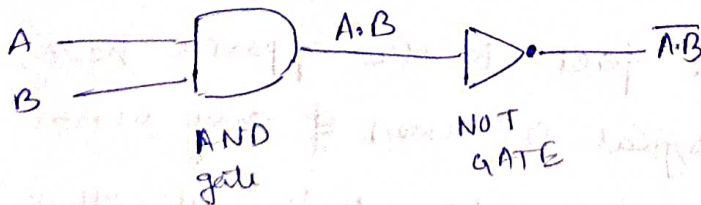— 2101258 (university Roll no.)

1. NAND Gate :

A NAND Gate is a logic gate that produces a low output (0) only if all its input are true, & high output (1) otherwise. Hence the NAND gate is the inverse of an AND gate, & its circuit is produced by connecting an 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.

NAND gate performs the logical NAND operation, NAND gate are known as universal gates.

The circuit diagram of NAND gate :

A ———⊐D— A·B —▷°———— $\overline{A \cdot B}$
B ———⊐
  AND   NOT
  gate   GATE

The symbol of a NAND gate is similar to the AND gate, but a bubble is drawn at the output point of the AND gate.

A ───┐
     ┤ ⫰o─── $\overline{A.B}$
B ───┘

Nand
gate.

Truth Table:

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

NAND gate means "not AND gate", hence the output of this gate is just reverse of that of a similar AND gate.

we know that the output of the AND gate is only high or 1 when all the input are high or 1. In all other cases, the output of the AND gate is 0.

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

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