Name - Ratika

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RollNo - 2101166 (07)

Student Id - 21712076

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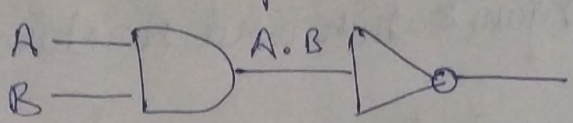
Ans 1- NAND Gate - It is a special type of logic gate in the digital logic circuit. It is the universal gate. It means all the basic gates such as AND, OR and NOT gate can be constructed using NAND gate.
It is the combination of NOT-AND gate.
The output state of NAND gate will be low only when all the inputs are high.

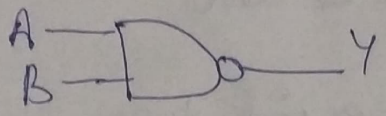
- Logical expression is $(A \cdot B)' = Y$

Types of Digital logic NAND gate :-

① The 2-input NAND gate :- In this NAND gate, there are only two input values and an output value. There are $2^2 = 4$ possible combinations of inputs.

Circuit diagram :-



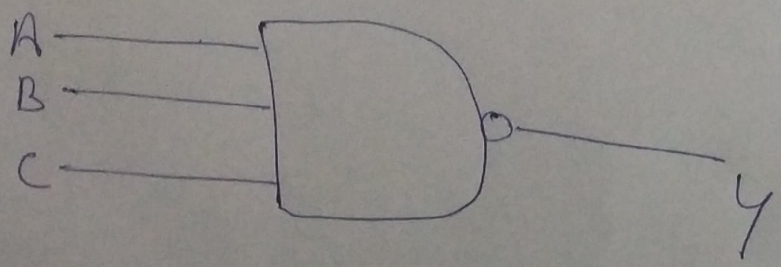


Truth Table :-

Input		output
A	B	Y
0	0	1
1	1	1
1	0	1
1	1	0

② The 3-input NAND gate :- It has 3 inputs. There are $2^3 = 8$ possible combination of inputs.

Circuit diagram :-



Truth Table:-

A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

Conclusion:-

When A, B & C = 1 then only output will be zero(0) otherwise it shows 1.
It means the output state of NAND gate will be low only when all the inputs are high.

Rutika