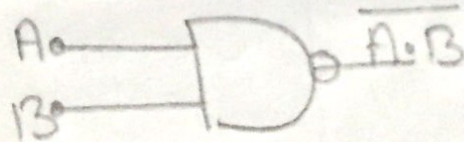Name- Salvi Gusain
Course- MCA I "A"
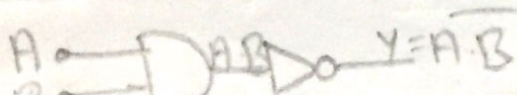Roll no - 63(21712095)
Computer organisation practicle (PBC-102,103).

Ans1. <u>Nand gate</u> - the Nand gate is a special type of logic gate in the logic circuit.

• The Nand gate is universal gate, means all basic gates such as AND, OR and NOT gate can be constructed using NAND gate.

• The Nand gate is combination of NOT-AND gate

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

⇒ <u>Nand gate</u>

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

⇒ 2 Input AND + NOT gate

• <u>Truth Table</u> -
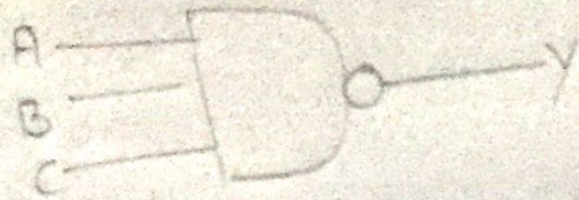
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

- In this, Nand gate, there are two input value and a single output value.
- There are $2^2 = 4$ possible combination of outputs.
- The logic or Boolean expression for Nand gate is the complement of logic multiplication of inputs denoted by a full stop or a single dot, as

$$(A \cdot B)' = Y.$$

- The value of y will be true when any one of the inputs is set to 0.

3-input Nand gate-

⇒ 3 input gate has 3 input.
- the Nand gate can be cascaded together to form any number of individual inputs.
- There are $2^3 = 8$ possible combination of inputs

$\Rightarrow$ **3-Input Nand gate.**

Truth Table

A	B	C	output (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

* ———— * ———— * ——