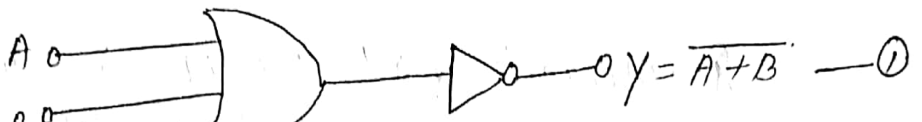
⇒ Circuit Representation of De-Morgan's first theorem :-

(a) NOR Gate   (b) NAND Gate $(\overline{A} \cdot \overline{B})$

De-Morgan's first theorem $\overline{A+B} = \overline{A} \cdot \overline{B}$; suggests that a logic system in which a NOT ckt. follows an OR gate and is called NOT-OR or NOR gate. (shown fig 4(a), (b)).



4(a). NOT - OR Gate

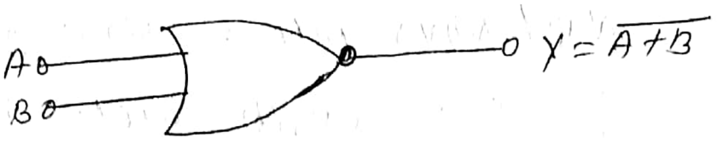


Fig 4(b) NOR - Gate

The truth table of two input NOR gate is given below :-

Input		Output
A	B	$Y = \overline{A+B}$
0	0	1
0	1	0
1	0	0
1	1	0

(b) This NOR-gate is also equivalent to a logic system in which the inputs to an AND gat are the outputs of two NOT-ckt shown in fig 4(c).

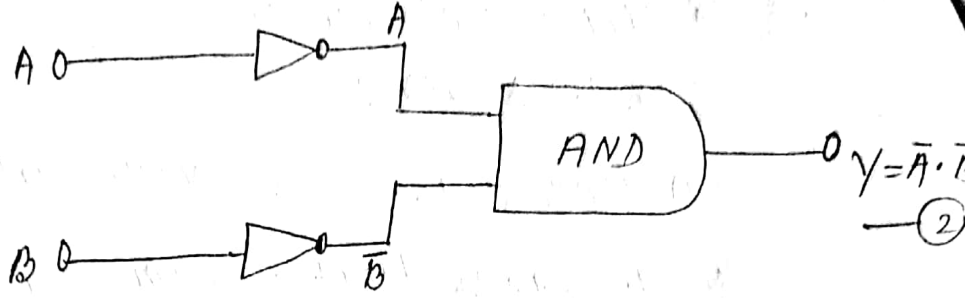


Fig- 4(c).

Here Fig. 4(a) & Fig 4(c) are the representation of D.M. 1st theorem.

⇒ Circuit Representation of D.M. 2nd theorem

D-Morgan's 2nd theorem is $\overline{A\cdot B}=\bar{A}+\bar{B}$ indicates that a logic system in which NOT ckt. follows an AND gate is called ~~Nand~~ NAND gate or NOT- AND gate. shown in fig. 5(a),(b) which is equivalent to a logic.

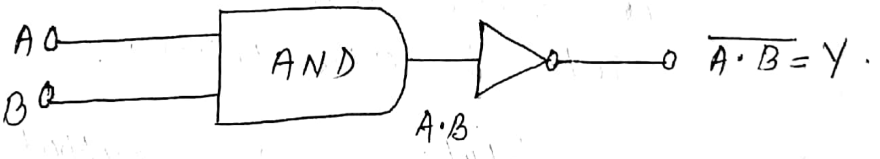


fig- 5(a).

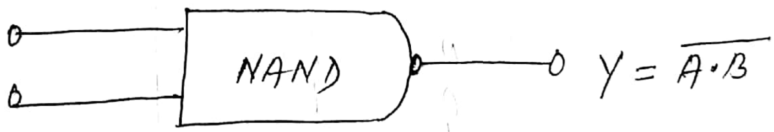


fig- 5(b).

System in which the inputs of an OR gates are the outputs from two NOT ckts [shown in fig- 5(c)]

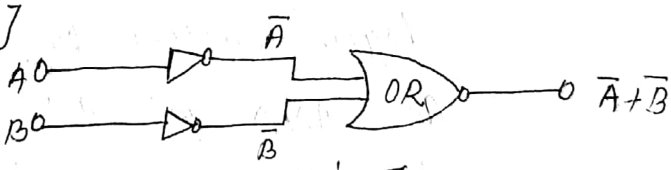


Fig. 5(c).

The truth table of NAND gate is shown below:-

Inputs A	Inputs B	Outputs $Y=\overline{A\cdot B}$
0	0	
0	1	1

Input		output
1	0	1
1	1	0