

Q1

=> NAND Gate => The "NAND" gate is a special type of logic gate in the digital electronics. The "NAND" gate is the universal gate. It means all the basic gates such as AND, OR and NOT gate can be constructed using NAND gate.

=> Boolean Expression of NAND Gate =>

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

=> Working of NAND Gate => The output of the NAND gate will be 0 only when all the inputs are high. The value of Y will be true when any one of the input is set to '0'.

=> Logic Diagram =>



⇒ Truth Table of NAND Gate ⇒

Input		Output
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

Q2

\Rightarrow NOR Gate \Rightarrow NOR Gate is also a universal gate similar to the NAND gate.

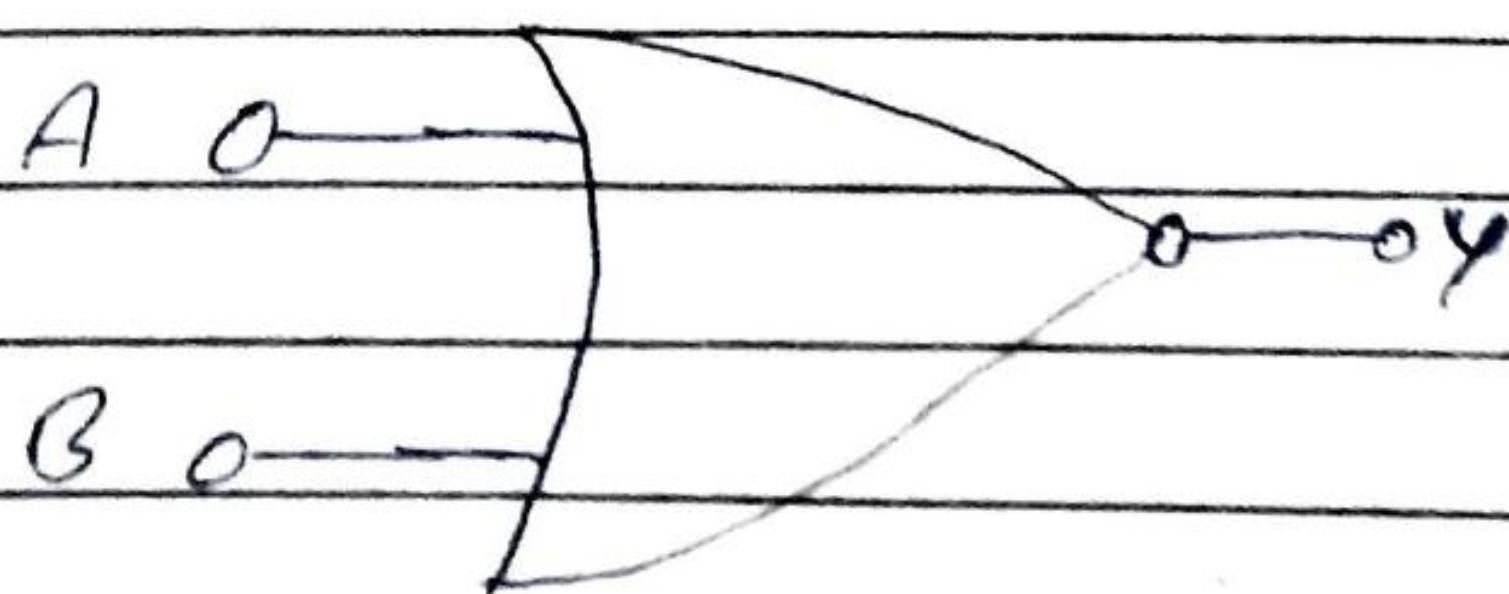
Therefore we can also create all the basic gates employing the NOR gate. The NOR gate is the union of OR & NOT gate.

\Rightarrow Boolean Expression of NOR Gate \Rightarrow

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

\Rightarrow Working of NOR gate \Rightarrow The output state of the NOR gate will be high only when all the inputs are low. It delivers the complement result of the OR gate.

\Rightarrow Logic Diagram \Rightarrow



=> Truth Table NOR Gate =>

Input		Output
A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0