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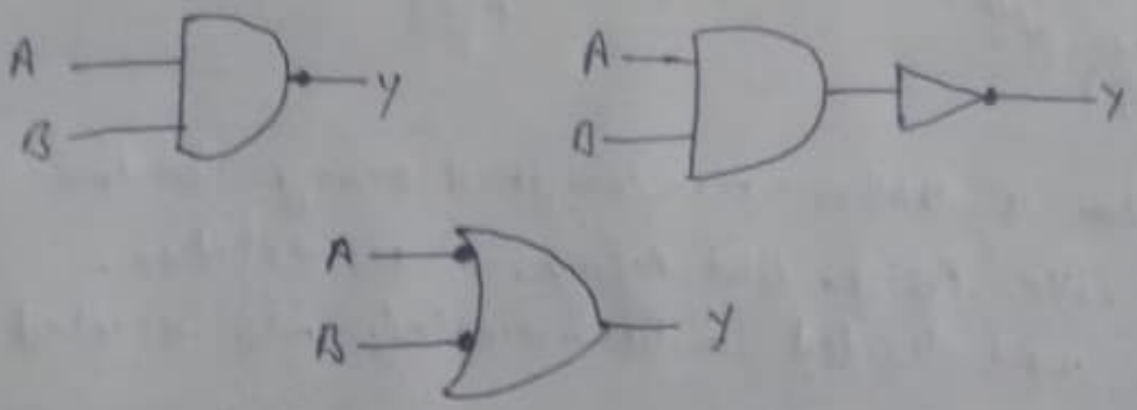
Course - MCA - Section - D

Qu1 Ans The NAND gate has an output that is normally at logic high and only goes to logic low when all of its input are at logic high. The Logic NAND Gate is the reverse or complementary design of the AND gate. Through this article on NAND gates, you will learn about the symbol, truth table of two and three input gates, along with the boolean expression, circuit diagram and representation of various other gates using NAND gates.

The NAND gate is AND gate succeeded by NOT gate.

Thus one can understand the NAND gate as Not - AND gate also. A NAND gate constitutes one of more inputs with a single output. The NAND gate is represented by a symbol whose shape matches the AND gate with a circle followed, often identified, as an inversion circle. Below is the symbolic representation of NAND gate.



NAND gate = Bubbled OR gate

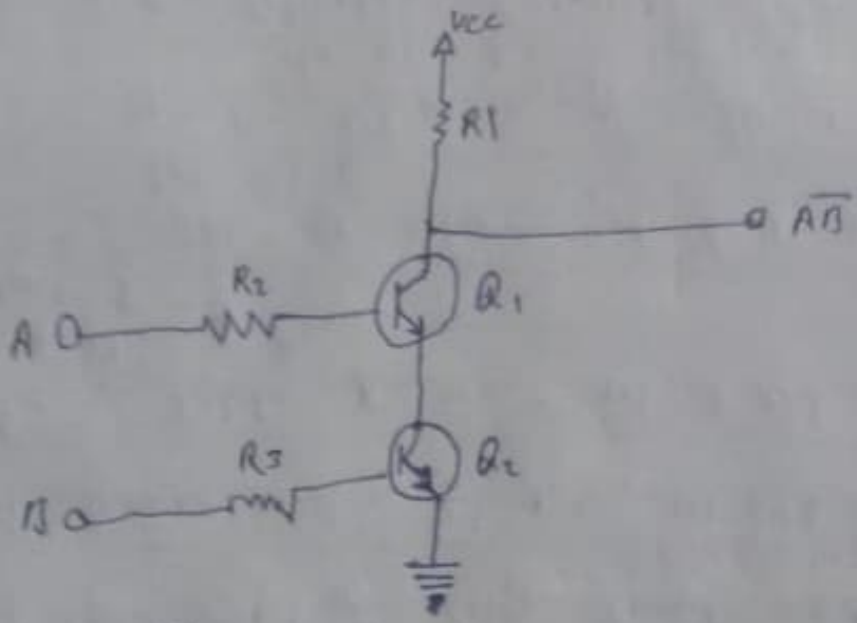
NAND Gate Truth table

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

Input		Output
0	0	1
0	1	1
1	0	1
1	1	0

NAND Gate Circuit Diagram

A simple two-input logic NAND gate can be constructed using transistors connected together as shown below with the inputs connected directly to the transistors bases. Either of the transistors must be cut-off "OFF" for output to be logic high. This means that if both the inputs are at logic high making both the transistors "ON" the resultant output is low/"0".



truth table

A	B	Q_1	Q_2	Output
0	0	OFF	OFF	1
0	1	OFF	ON	1
1	0	ON	OFF	1
1	1	ON	ON	0