

Experiment : LOGIC GATES using IC

Object : To verify the truth table of basic gate (NOT, AND, OR) and universal gates (NAND and NOR) using IC.

Apparatus used: connecting wires, IC 7404N, 7408N, 7432N, 7400N, 7402N.

Formula and circuit diagram:

[1] NOT Gate : $Y = \bar{A}$

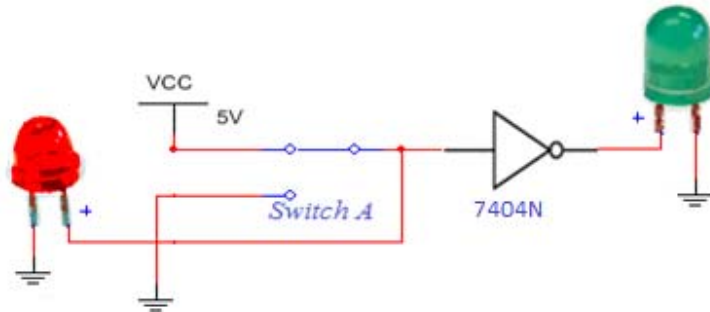


Figure 1: NOT gate using IC 7404N

[2] AND Gate : $Y = A \cdot B$

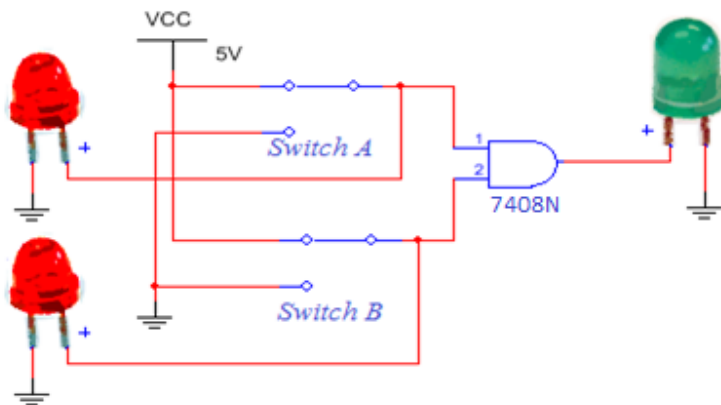


Figure 2: AND gate using IC 7408N

[3] OR Gate : $Y = A + B$

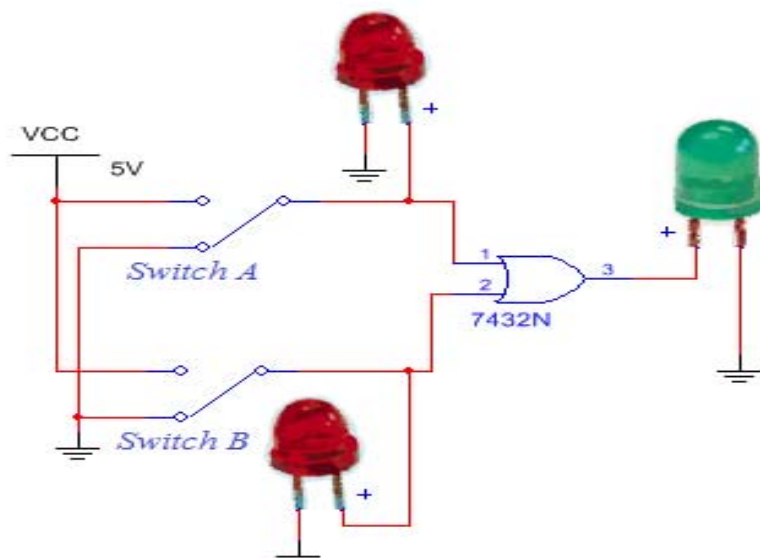


Figure 3: Two input OR gate using IC 7432

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[4] NAND Gate : $Y = \overline{A.B}$

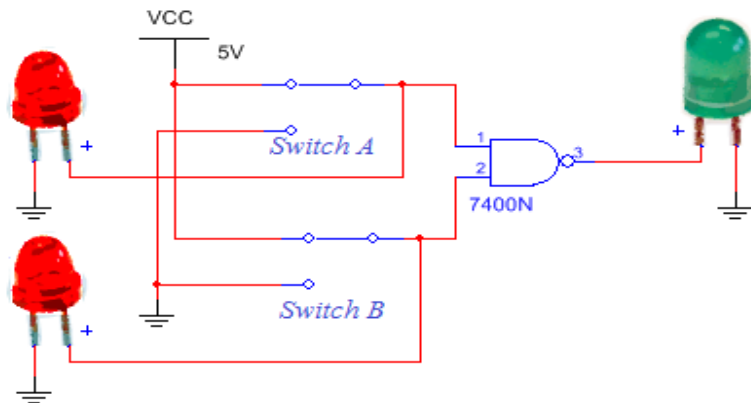


Figure 4: NAND Gate using IC 7400N

[5] NOR Gate: $Y = \overline{A + B}$

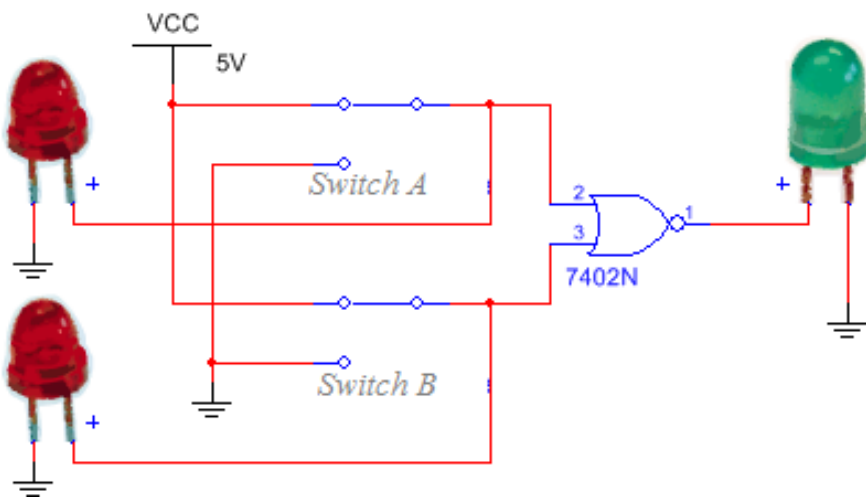


Figure 5: NOR Gate Using IC 7402

Observation :

1. Truth Table for NOT gate

A	\overline{A}
0	1
1	0

2. Truth Table for AND gate

A	B	A.B
0	0	0
0	1	0
1	0	0
1	1	1

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3. Truth Table for OR gate

A	B	A+B
0	0	0
0	1	1
1	0	1
1	1	1

4. Truth Table for NAND gate

A	B	A.B	$Y = \overline{A.B}$
0	0	0	1
0	1	0	1
1	0	0	1
1	1	1	0

5. Truth Table for NOR gate

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

RESULT: The truth table for basic logic gates are verified.

Precaution:

1. Connections should be jointed correctly.
2. Connections must be tight.