

EXPERIMENT - 1

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DATE: 19-11-22

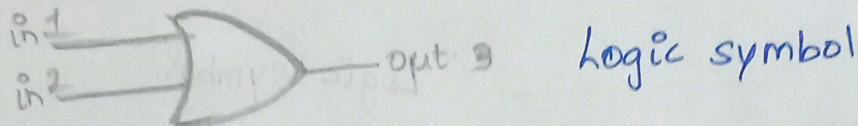
ROLLNO: 620220010085

AIM: To verify the Logic Gate.

SOFTWARE USED:

1. Logisim software

1. OR GATE:

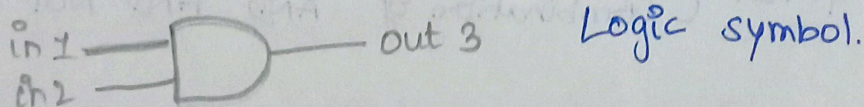


TRUTH TABLE:

INPUT		OUTPUT
1	2	3
0	0	0
0	1	1
1	0	1
1	1	1

$$\text{OR GATE} = A + B \text{ (OR) } 1 + 2$$

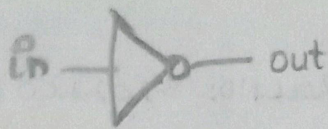
2. AND GATE:



TRUTH TABLE:

INPUT		OUTPUT
1	2	3
0	0	0
0	1	0
1	0	0
1	1	1

3. NOT GATE:

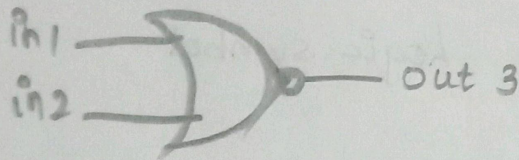


Logic symbol.

TRUTH TABLE:

INPUT	OUTPUT
0	1
1	0

4. NOR GATE: (Combination of OR AND NOT GATE)



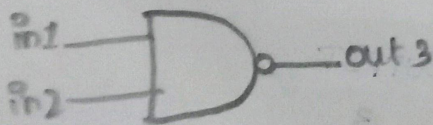
Logic symbol.

TRUTH TABLE:

INPUT		OUTPUT
1	2	3
0	0	1
0	1	0
1	0	0
1	1	0

$$\text{NOR GATE: } \overline{A+B} \\ = \overline{A} \cdot \overline{B}$$

5. NAND GATE: (Combination of AND AND NOT GATE)



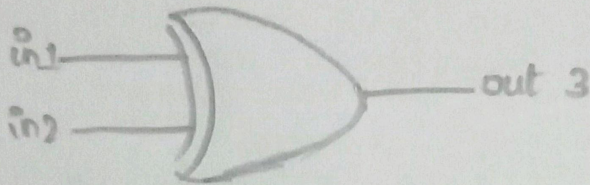
Logic symbol

$$\text{NAND GATE: } \overline{A \cdot B} = \overline{A} + \overline{B}$$

TRUTH TABLE:

INPUT		OUTPUT
1	2	3
0	0	1
0	1	1
1	0	1
1	1	0

6. XOR GATE:



$$\text{XOR GATE} = \overline{A}B + A\overline{B}$$

TRUTH TABLE:

INPUT		OUTPUT
1	2	3
0	0	0
0	1	1
1	0	1
1	1	0

Conclusion:

The Logic Gates are simulated in Logisim and verified with inputs shown in truth table.