

E. Laboratory Work

Part 1

1. Construct Circuit 1 on the breadboard. Connect all inputs (A, B) to a switches and output F to LEDs.



Circuit 1

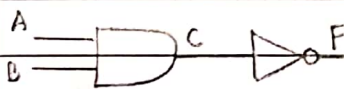
Truth Table 5

Input		Output
A	B	F
0	0	0
0	1	0
1	0	0
1	1	1

2. Test Circuit 1 and fill in Truth Table 5 for the circuit response to all possible input combinations. The Truth Table 5 should match the Truth Table 1 prepared in the Preliminary Work.

Part 2

3. Construct Circuit 2 on the breadboard. Connect all inputs (A, B) to a switches and output C and F to LEDs.



Circuit 2

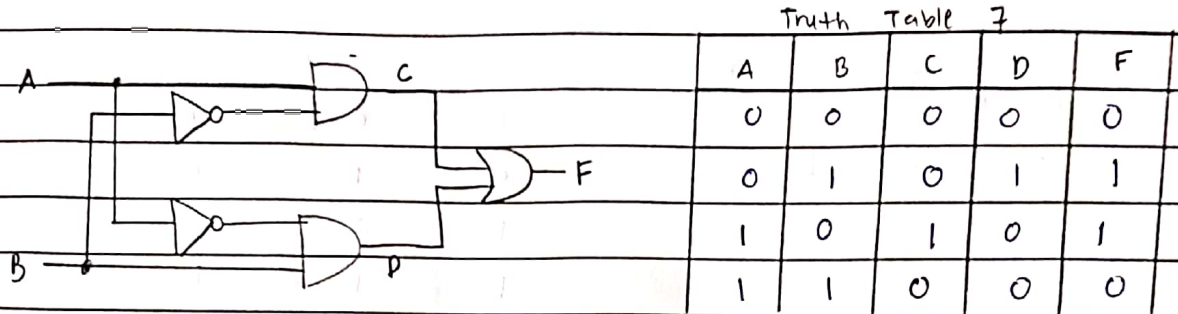
Truth Table 6

A	B	C	F
0	0	0	1
0	1	0	1
1	0	0	1
1	1	1	0

4. Test Circuit 2; fill in Table Truth Table 6, for the circuit response to all possible input combinations.
5. Compare Truth Table 6 to Truth Table 2. What conclusion can you make?
Both outputs are the same. Thus, gate ~~NAND~~ NAND has the same output as gate AND and NOT.

Part 3

6. Construct circuit 3 on the breadboard. Connect all inputs (A, B) to switches and output C, D and F to LEDs.



Circuit 3

7. Test Circuit 3; fill in Truth Table 7 for the circuit outputs (C, D, and F) for all possible input combinations.

8. What single gate does Circuit 3 represent?
XOR gate