

ECED2200 – Lab #1 Observations

STUDENT NAME: _____ B00 _____

Part 1. Analysis of Basic Logic Gates

AND Gate Truth Table:

A	B	Y
0	0	
0	1	
1	0	
1	1	

NAND Gate Truth Table:

A	B	Y
0	0	
0	1	
1	0	
1	1	

OR Gate Truth Table:

A	B	Y
0	0	
0	1	
1	0	
1	1	

NOR Gate Truth Table:

A	B	Y
0	0	
0	1	
1	0	
1	1	

INV Gate Truth Table:

A	Y
0	
1	

XOR Gate Truth Table:

A	B	Y
0	0	
0	1	
1	0	
1	1	

XNOR Gate Truth Table:

A	B	Y
0	0	
0	1	
1	0	
1	1	

Part 2. Verifying DeMorgan's Theorem

DeMorgan's Theorem 1: $\overline{A+B} = \overline{A} \cdot \overline{B}$

Circuit diagram:

Truth Table:

A	B	$\overline{A+B}$	$\overline{A} \cdot \overline{B}$

DeMorgan's Theorem 2: $\overline{A \cdot B} = \overline{A} + \overline{B}$

Circuit diagram:

Truth Table:

A	B	$\overline{A \cdot B}$	$\overline{A} + \overline{B}$

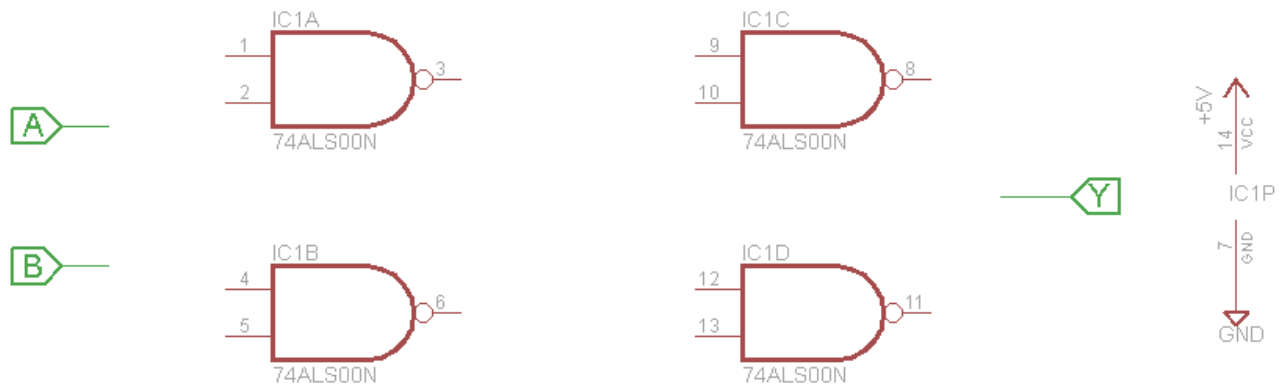
Part 3. Implementing an INVERTER using NAND or NOR gates

Circuit diagram:

Conclusion:

Part 4. Implementing a NOR gate using NAND gates

Schematic:



Truth Table:

A	B	Y
0	0	
0	1	
1	0	
1	1	