

ECEN 248 Lab 1: Digital Logic Gates

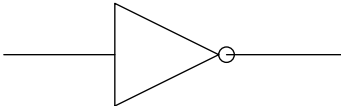
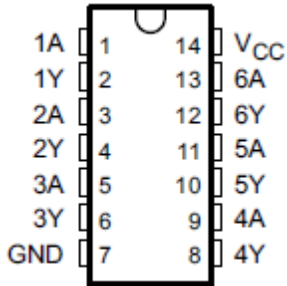
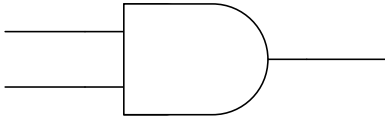
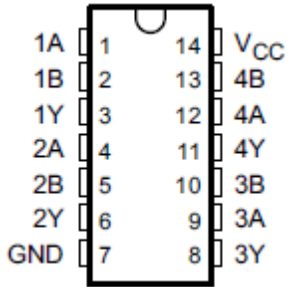
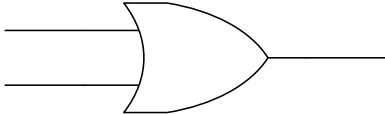
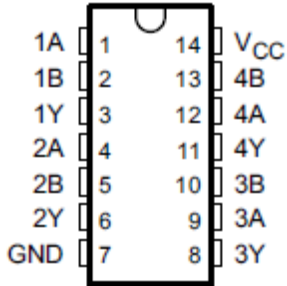
1. Know how to use the breadboard: Figure 4 in the lab manual 1.

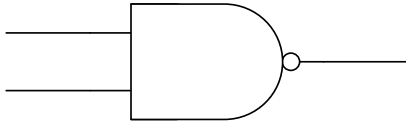
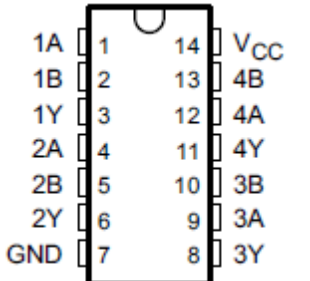
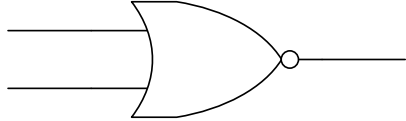
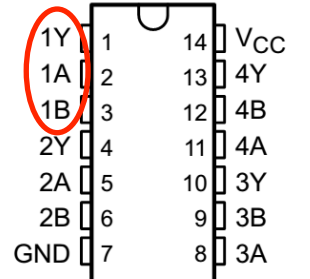
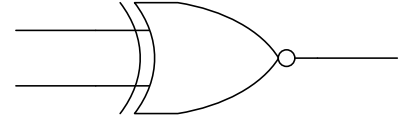
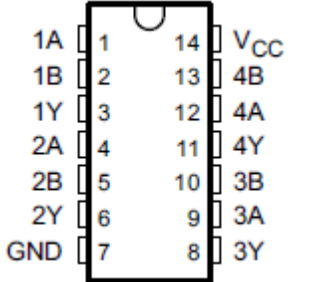
- Place ICs across the partition divisions.
- Always place ICs with the notch on the top.
- Always connect VCC and GND pins for ICs.

2. Digital logic signal “1” corresponds to voltage 3.9 ~ 4.2 V.

Digital logic signal “0” corresponds to voltage 90 mV.

3. Reference:

 NOT	<table><tr><th>A</th><th>Y</th></tr><tr><td>0</td><td>1</td></tr><tr><td>1</td><td>0</td></tr></table>	A	Y	0	1	1	0	74ALS04										
A	Y																	
0	1																	
1	0																	
 AND	<table><tr><th>A</th><th>B</th><th>Y</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table>	A	B	Y	0	0	0	0	1	0	1	0	0	1	1	1	74ALS08	
A	B	Y																
0	0	0																
0	1	0																
1	0	0																
1	1	1																
 OR	<table><tr><th>A</th><th>B</th><th>Y</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table>	A	B	Y	0	0	0	0	1	1	1	0	1	1	1	1	74ALS32	
A	B	Y																
0	0	0																
0	1	1																
1	0	1																
1	1	1																

 <p>NAND</p>	<table><tr><th>A</th><th>B</th><th>Y</th></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table>	A	B	Y	0	0	1	0	1	1	1	0	1	1	1	0	<p>74ALS00A</p> 
A	B	Y															
0	0	1															
0	1	1															
1	0	1															
1	1	0															
 <p>NOR</p>	<table><tr><th>A</th><th>B</th><th>Y</th></tr><tr><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table>	A	B	Y	0	0	1	0	1	0	1	0	0	1	1	0	<p>74AHCT02</p> 
A	B	Y															
0	0	1															
0	1	0															
1	0	0															
1	1	0															
 <p>XOR</p>	<table><tr><th>A</th><th>B</th><th>Y</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>0</td></tr></table>	A	B	Y	0	0	0	0	1	1	1	0	1	1	1	0	<p>74ALS86</p> 
A	B	Y															
0	0	0															
0	1	1															
1	0	1															
1	1	0															