Name: _____ Lab Section: _____

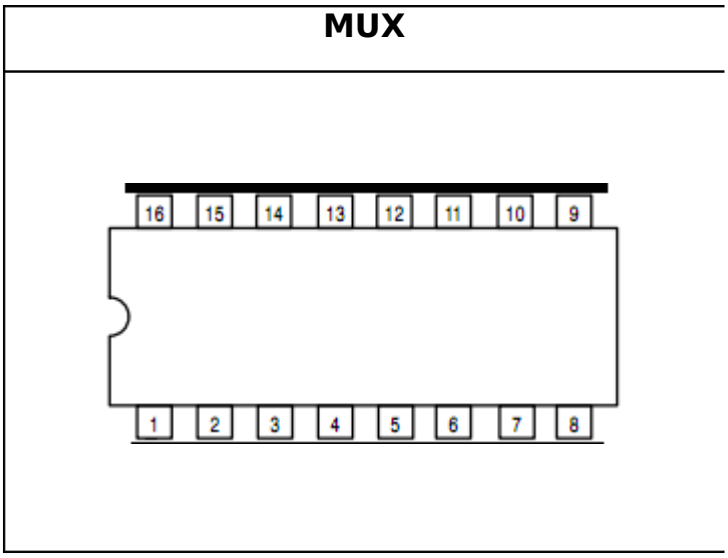
ECE 2140

Experiment 7 Prelab
Multiplexer

1. Read through Experiment 7.

2. Look up the data sheets for the multiplexer gate IC.

   a. Label all pins according to the data sheet:



   b. Find the following specifications for each IC:

Recommended (Nominal) Operating Voltages	
	AND
V_{CC}	
V_{IL}	
V_{IH}	
V_{OL}	
V_{OH}	

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3. Find out how a multiplexer operates from the data sheet, and fill out the following modified truth table:

S0	**S1**	**f**
0	0	
0	1	
1	0	
1	1	

4. A multiplexer can be used for designing a combinational logic circuit. Design a logic circuit defined by the following truth table using a 4-input multiplexer, and draw a logic diagram.

   a. Find the canonical expression for the following truth table:

X	**Y**	**f**
0	0	1
0	1	0
1	0	0
1	1	1

   b. Draw a schematic:

5. **Extra Credit** – Using the truth table from #3, design a combinatorial circuit (using basic logic gates) that functions as a multiplexer: