Pre-lab Report 2 Alan Biju Palayil

ECE 218- L01 Lab Date: 02/08/2021

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Preliminary Assignment

1. Write the truth tables for the NOT and OR gates.

NOT Gate	
Input	Output
0	1
1	0

OR Gate		
Input 1	Input 2	Output
0	0	0
0	1	1
1	0	1
1	1	1

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2. What is the maximum low level input voltage for the NOT gate in the chip SN74LS04?
   - 0.8 V
3. What is the minimum high level input voltage for the OR gate in the chip SN74LS32?
   - 2 V
4. What is the allowed range of the supply voltage for the AND, OR and NOT gates from Texas Instrument (SN74LS08, SN74LS32, SN74LS04)?
   - AND: 4.75 V ~ 5.25 V
   - OR: 4.75 V ~ 5.25 V
   - NOT: 4.75 V ~ 5.25 V
5. What is the minimum and nominal output high voltage for all the three gates mentioned in preceding question (V_{OH} for V_{cc}=Min, I_{OH}=-0.8 mA and V_{IH}=2V; Refer the datasheet of all three gates)?

Chip	Min. V	Max. V
SN74LS08 (AND)	2.4V	3.4V
SN74LS32 (OR)	2.4V	3.4V
SN74LS04 (NOT)	2.4V	3.4V

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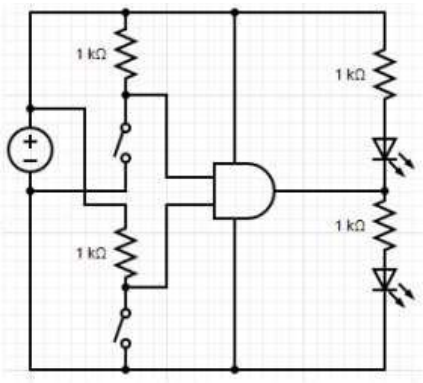
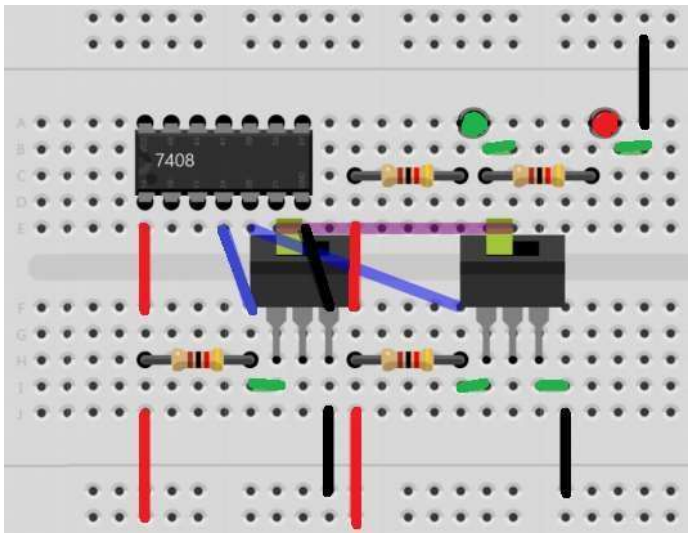
6. What is the maximum frequency of a square wave that can be provided to the NOT gate (see T_{plh} and T_{phl} values given in datasheet)?
   - 15 ns

Schematics



Breadboard Layout



Data Tables

Voltages (V)					
Input	LED 1	LED 2	Resistor 1	Resistor 2	LED lit
00					
01					
10					
11					