

ECE 320 - Homework #7

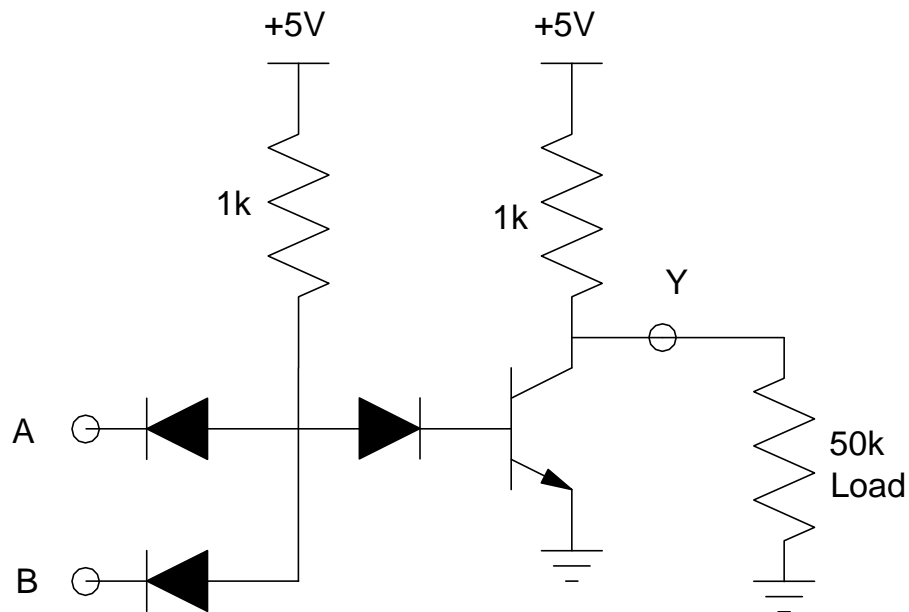
Boolean Logic, DTL Logic, TTL Logic. Due Monday, February 29th

- 1) Determine a circuit to implement $Y(A,B,C,D)$ using NAND gates (circle the ones)
- 2) Determine a circuit to implement $Y(A,B,C,D)$ using NOR gates (circle the zeros)

	Y	CD			
		00	01	11	10
AB	00	X	0	0	0
	01	1	1	0	0
	11	1	1	1	0
	10	1	1	1	x

Problem 1 & 2

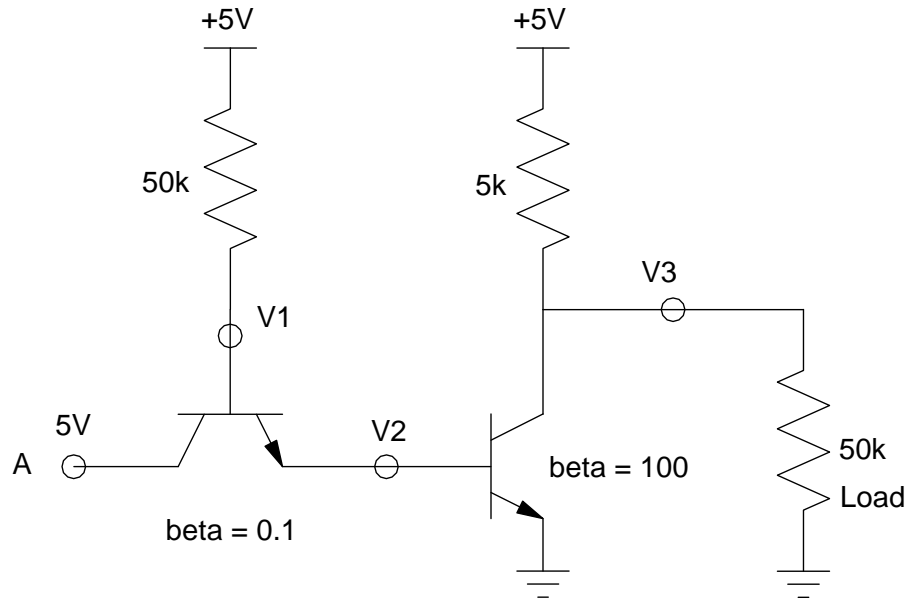
- 3) Determine the voltages and the currents through each diode for the following DTL circuit when
 - 3a) $A = B = 5V$.
 - 3b) $A = 5V$, $B = 0V$



4) Determine the voltages and the currents through each diode for the following DTL circuit when

4a) $A = 5V$.

4b) $A = 0V$



Lab:

For one of these circuits (DTL, TTL)

5) Simulate in PartSim to test your analysis

6) Build in lab to validate your design

Term Project:

For your term project, design a system which has two distinct sections and uses at least

- One diode,
- One transistor, and
- One op-amp

7) Specify the overall requirements for your system

- Inputs / outputs / how they relate

8) Split your design into two sections (one will be done next week in lab, the second the following week).

Specify the requirements for each section

- Section 1: Inputs / Outputs / Relationship
- Section 2: Inputs / Outputs / Relationship