ECE 320 - Quiz #7 - Name _____

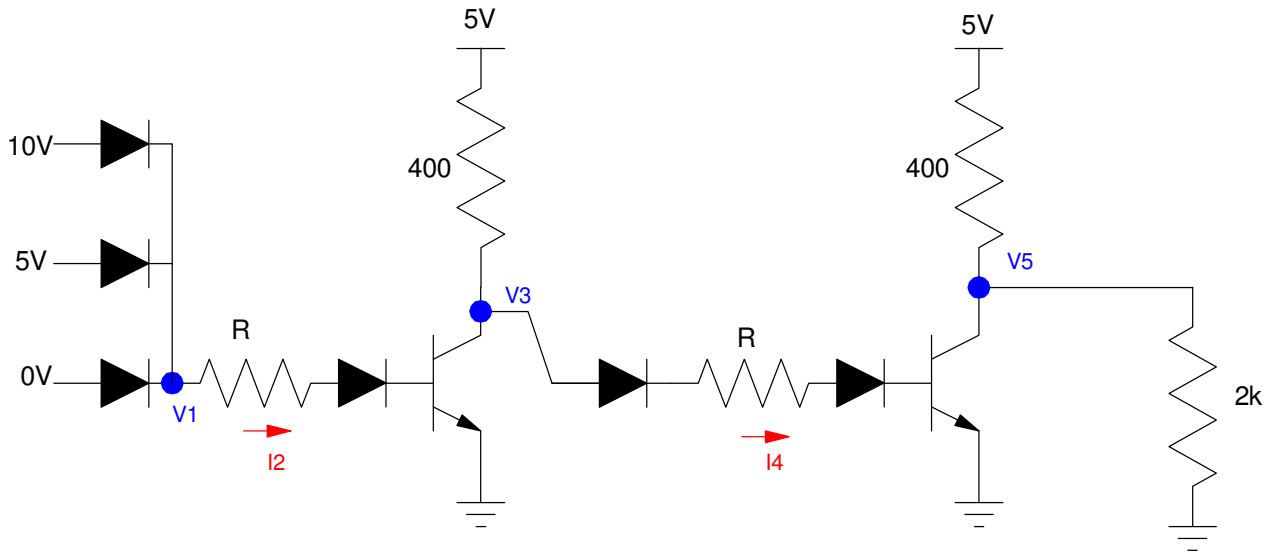
DTL, TTL Logic - Spring 2023

DTL: 10V Logic Logic

1) Determine the voltges and currents for the following DTL gate. Assume

- Ideal transistors (Vbe = 0.7V, Vce(sat) = 0.2V, gain = 100)
- Ideal silicon diodes (Vf = 0.7V)
- R = 800 + 100(Birth Month) + (Birth Day).

R 800 + 100*mo +day	V1	I2	V3	I4	V5

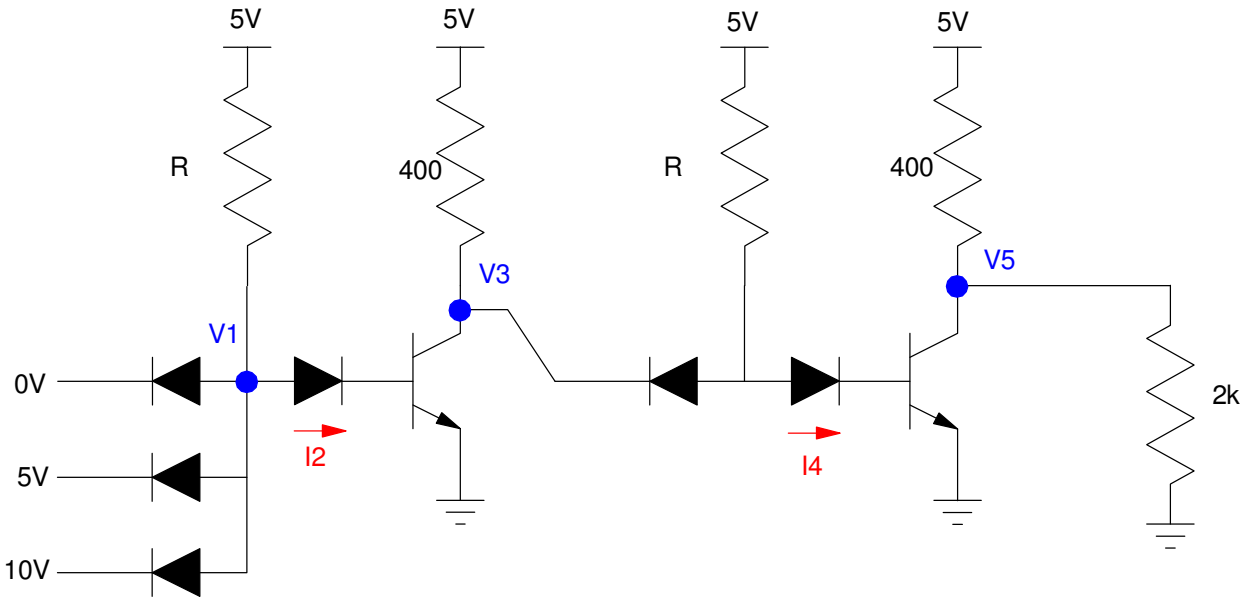


DTL 10V Logic Gate:

2) Determine the voltges and currents for the following DTL gate. Assume

- Ideal transistors (Vbe = 0.7V, Vce(sat) = 0.2V, gain = 100)
- Ideal silicon diodes (Vf = 0.7V)
- R = 800 + 100(Birth Month) + (Birth Day).

R 800 + 100*mo +day	V1	I2	V3	I4	V5

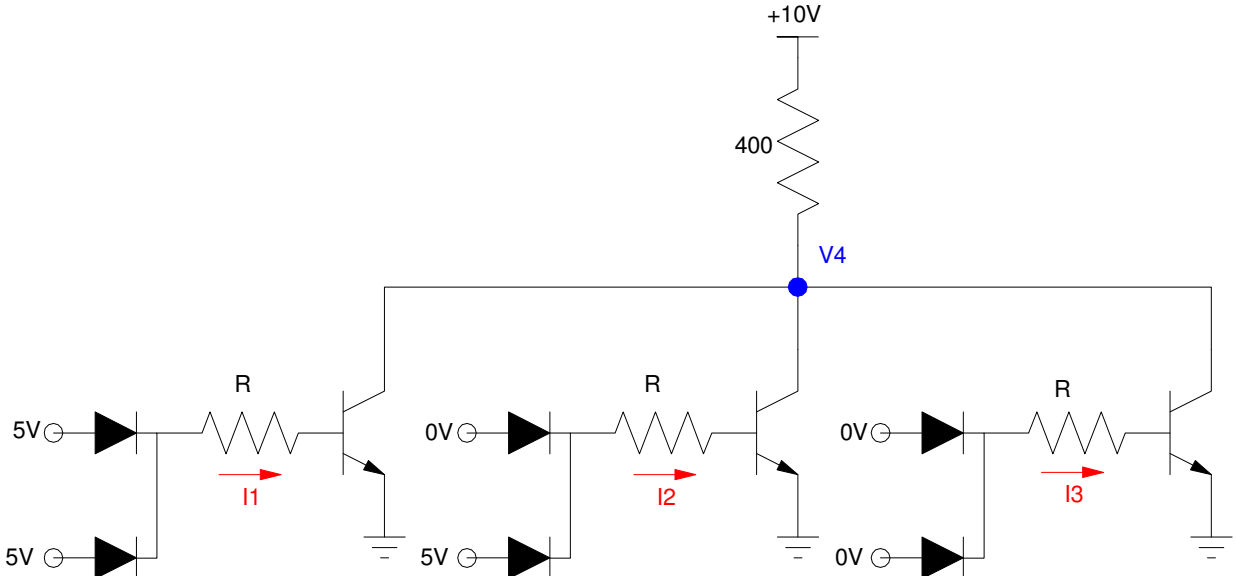


10V Open Collector Logic

3) Determine the voltages and currents for the following circuit. Assume

- Ideal transistors (Vbe = 0.7V, Vce(sat) = 0.2V, gain = 100)
- Ideal silicon diodes (Vf = 0.7V)
- R = 800 + 100(Birth Month) + (Birth Day).

R 800 + 100*mo +day	I1	I2	I3	V4

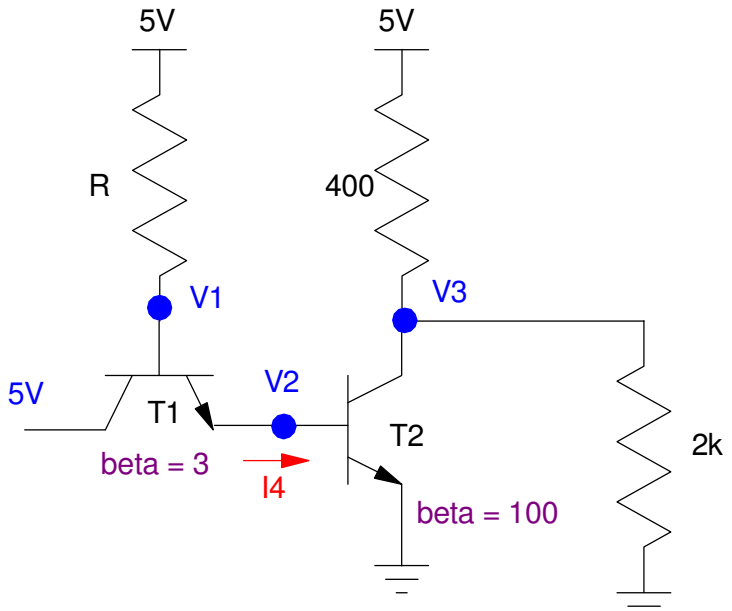


TTL Logic

4) Determine the voltges and currents for the following TTL gate. Assume

- Ideal transistors (Vbe = 0.7V, Vce(sat) = 0.2V)
- Ideal silicon diodes (Vf = 0.7V)
- R = 800 + 100(Birth Month) + (Birth Day).

R 800 + 100*mo +day	V1	V2	V3	I4

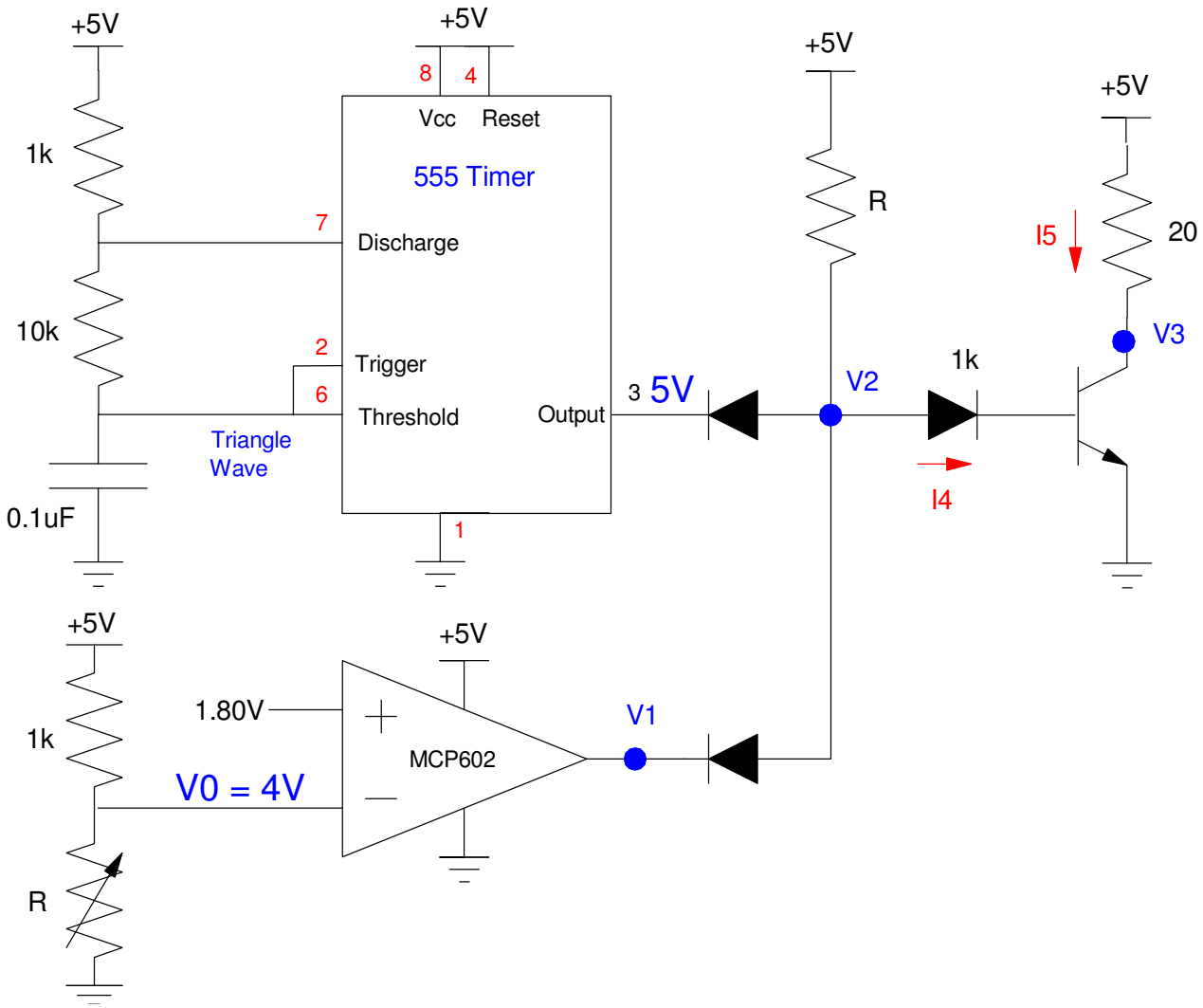


DTL Logic

5) Determine the voltages and currents when V0 = 4V. Assume

- Ideal transistors (Vbe = 0.7V, Vce(sat) = 0.2V, gain = 100)
- Ideal silicon diodes (Vf = 0.7V)
- R = 800 + 100(Birth Month) + (Birth Day).

R 800 + 100*mo +day	V1	V2	V3	I4	I5



DTL Logic

6) Determine the voltages and currents when V0 = 1V. Assume

- Ideal transistors (Vbe = 0.7V, Vce(sat) = 0.2V, gain = 100)
- Ideal silicon diodes (Vf = 0.7V)
- R = 800 + 100(Birth Month) + (Birth Day).

R 800 + 100*mo +day	V1	V2	V3	I4	I5