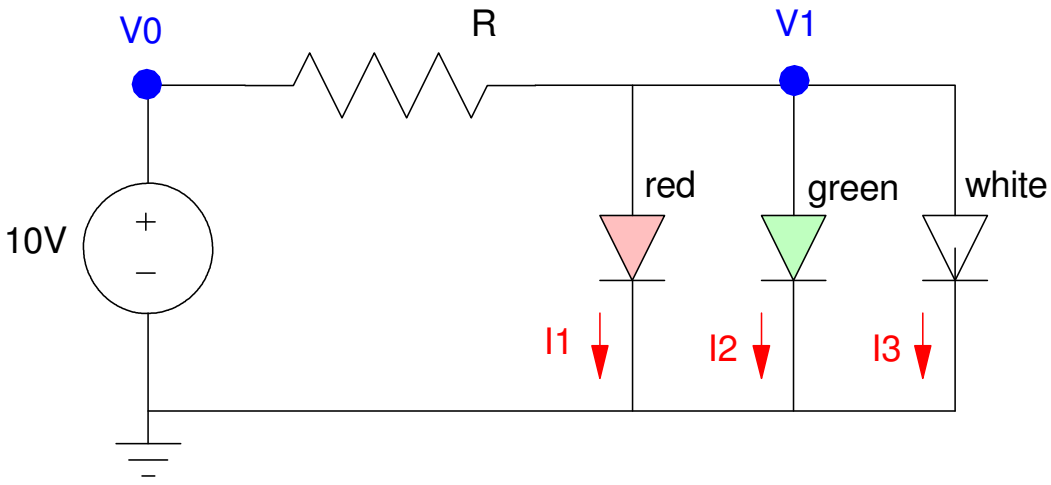
ECE 320 - Quiz #3 - Name _____

Ideal Diodes, LEDs, AC to DC Converters - Fall 2021

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

- R is 1000 + 100*(your birth month) + (your birthday). For example, May 14 = 1514 Ohms)
- Red LED: Vf = 1.9V @ 20mA 8000 mcd @ 20mA
- Green LED: Vf = 3.0V @ 20mA 8000 mcd @ 20mA
- White LED: Vf = 5.2V @ 20mA 8000 mcd @ 20mA

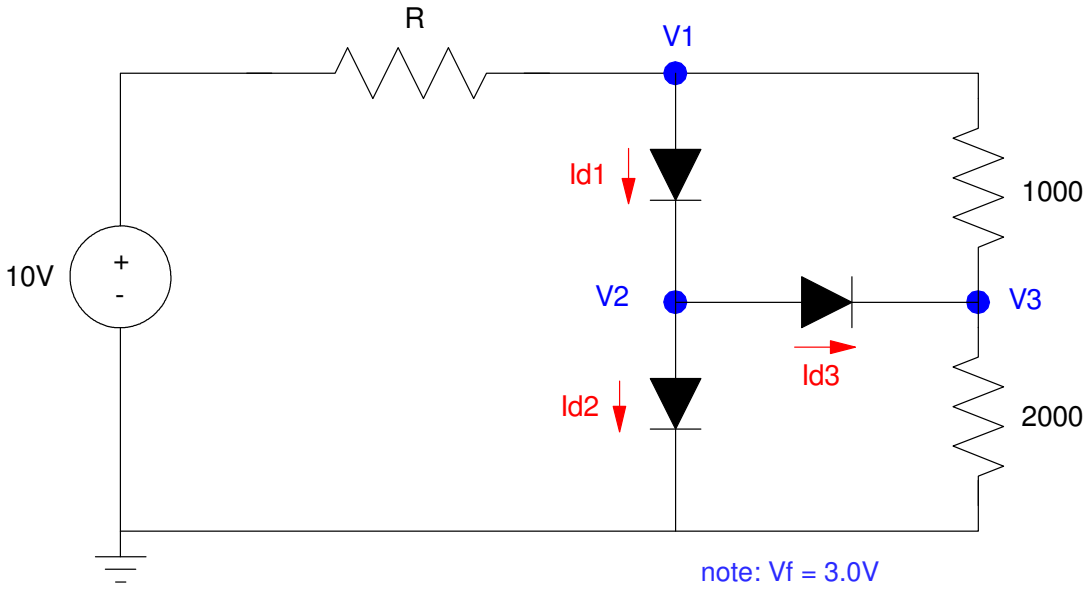
R 1000 + 100*mo + day	V1	I1 (red LED)	I2 (green LED)	I3 (white LED)



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

- Ideal green LEDs (Vf = 3.0V).
- R is 1000 + 100*(your birth month) + (your birthday). For example, May 14 = 1514 Ohms)

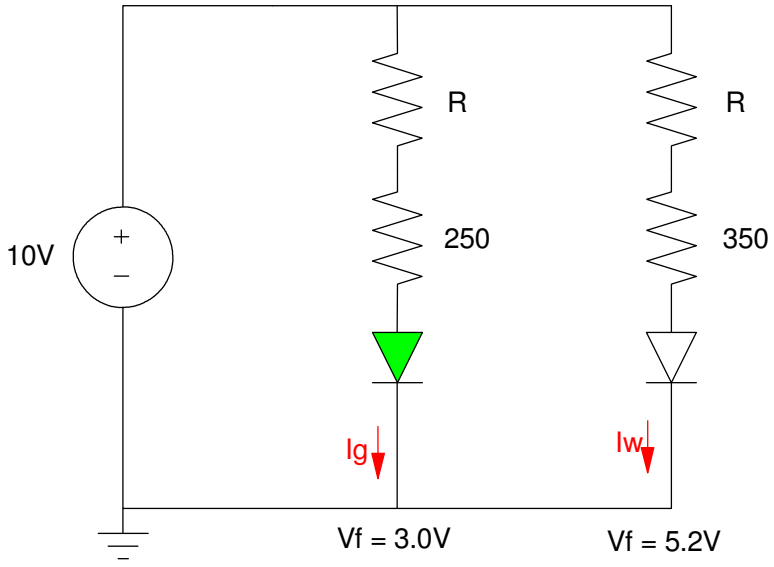
V1	V2	V3	Id1	Id2	Id3



3) A red and green LED are connected to a 10V source. Determine the current and brighness of each LED. Assume

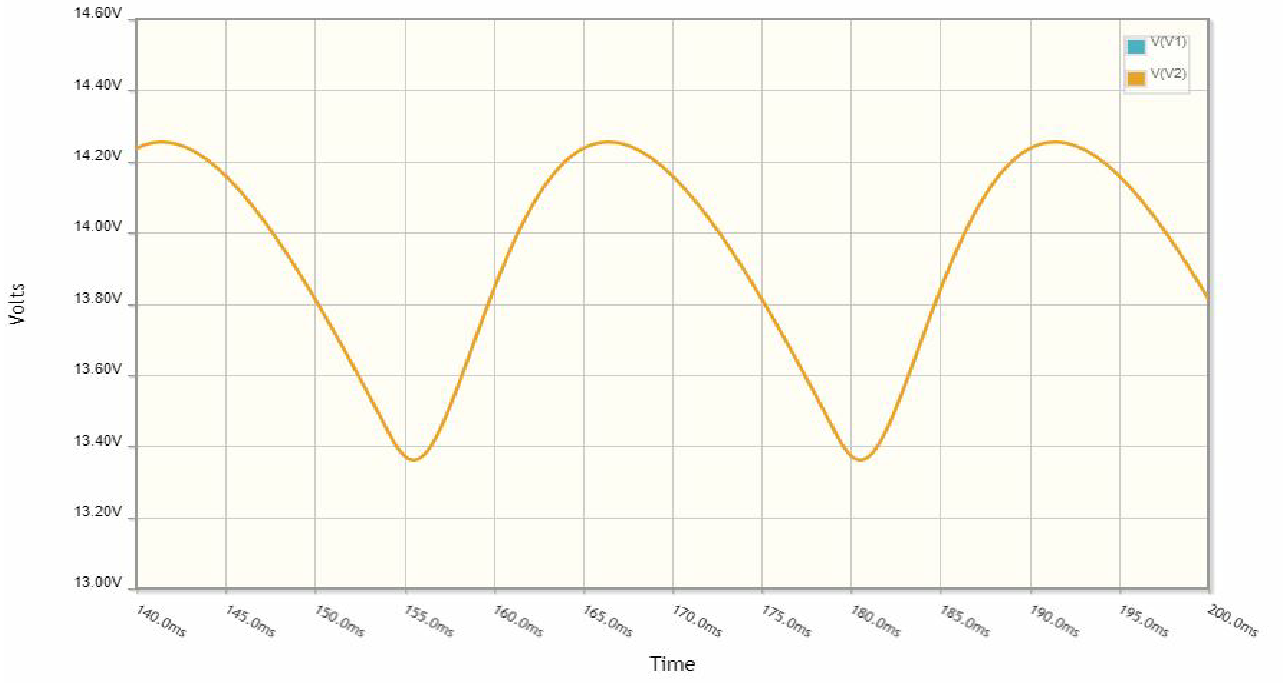
- R is 1000 + 100*(your birth month) + (your birthday). For example, May 14 = 1514 Ohms)
- Green LED: Vf = 3.0V @ 20mA, 8000mcd @ 20mA
- White LED: Vf = 5.2V @ 20mA, 8000mcd @ 20mA

R	Green LED		White LED	
	Ig	mcd(green)	Iw	mcd(white)



4) The following waveforms are found using CircuitLab for V2 for an AC to DC converter. Determine the following

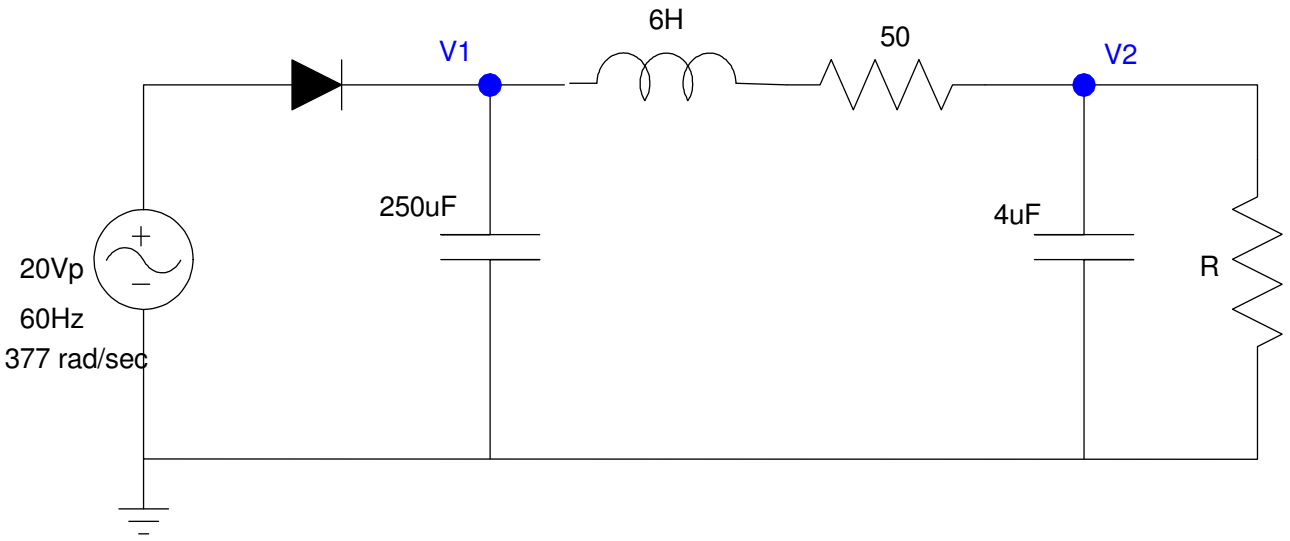
Frequency (Hz)	V2 (blue waveform)	
	DC (average)	AC (Vpp)



5) Determine the voltages V1 and V2 (both DC and AC). Assume

- Ideal silicon didoes (Vf = 0.7V)
- R is 1000 + 100*(your birth month) + (your birthday). For example, May 14 = 1514 Ohms)

V1		V2	
DC (mean(V1))	AC (V1pp)	DC (mean(V2))	AC (V2pp)



6) Determine C1, and C2 so that

- The ripple at V1 is 3Vpp and
- The ripple at V2 = 500mVpp

Let R be 1000 + 100*(your birth month) + (your birthday). For example, May 14 = 1514 Ohms)

R	C1	C2