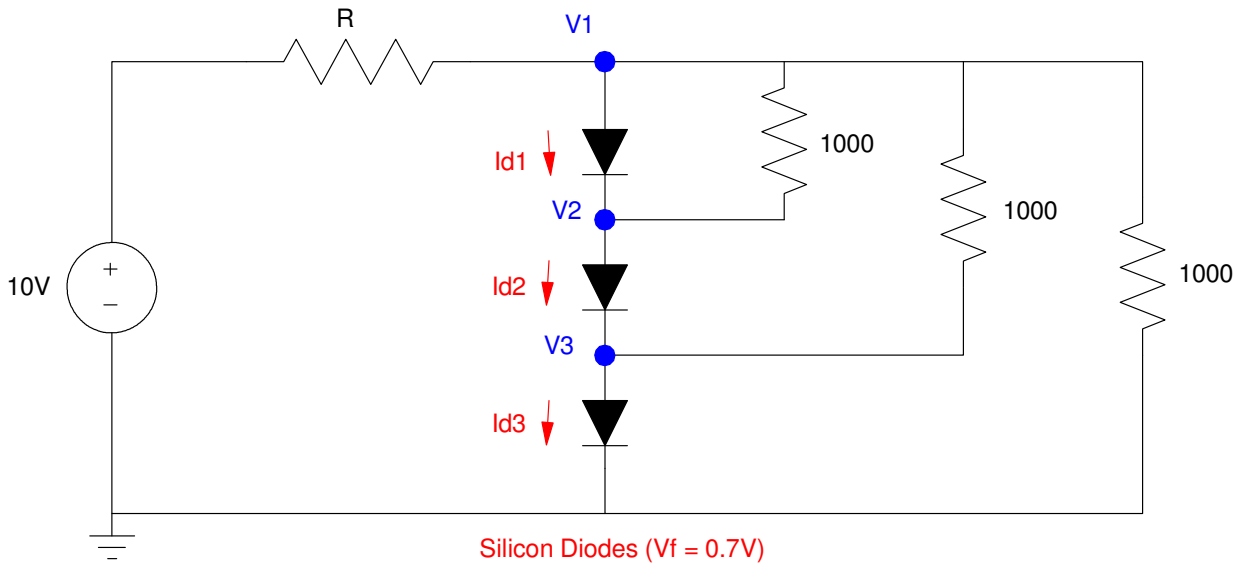
ECE 320 - Quiz #3 - Name _____

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

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

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

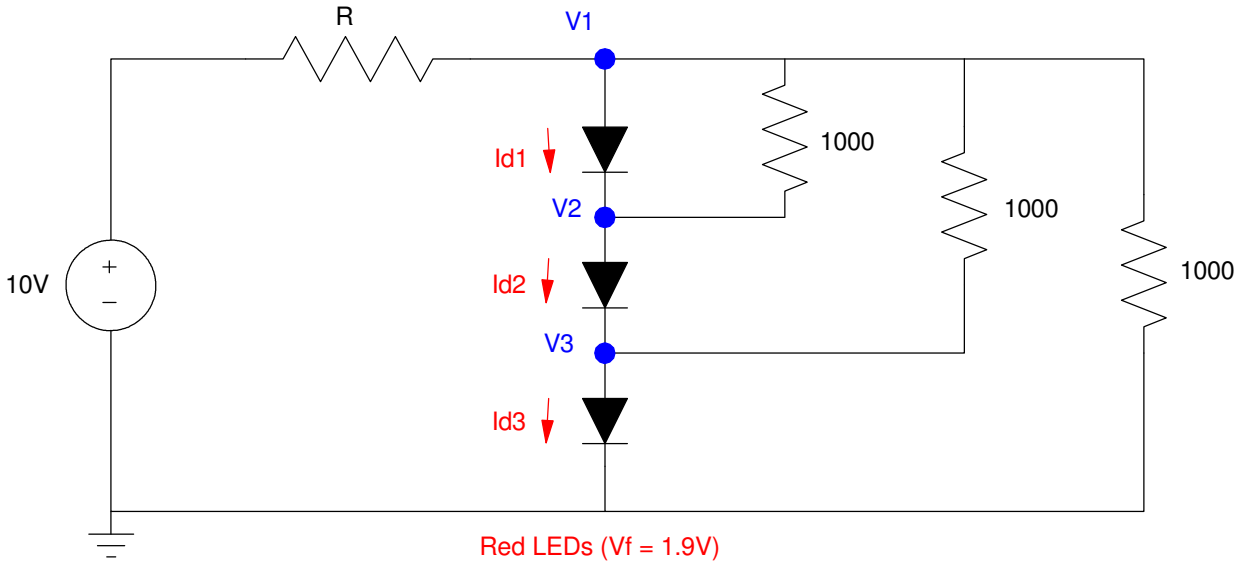
V1	V2	V3	Id1	Id2	Id3



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

- Ideal red diodes (Vf = 1.9V).
- R is 1000 + 100*(your birth month) + (your birthday). For example, May 14 = 1514 Ohms)

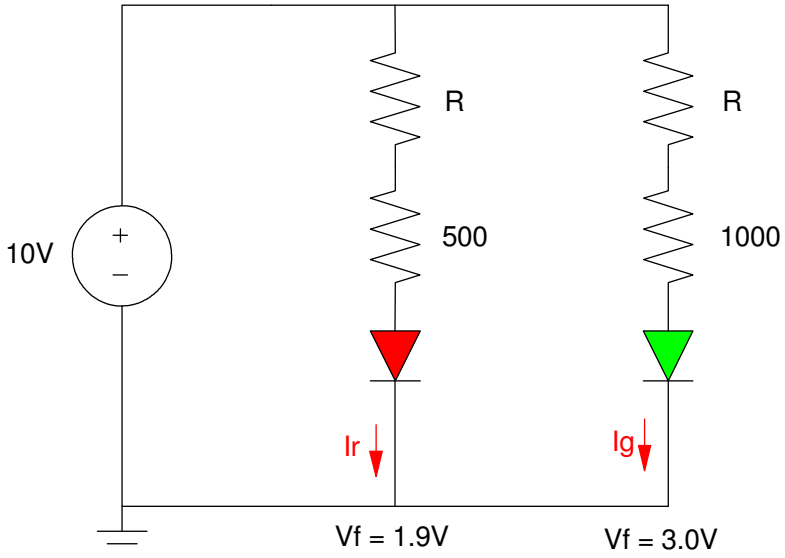
V1	V2	V3	Id1	Id2	Id3



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

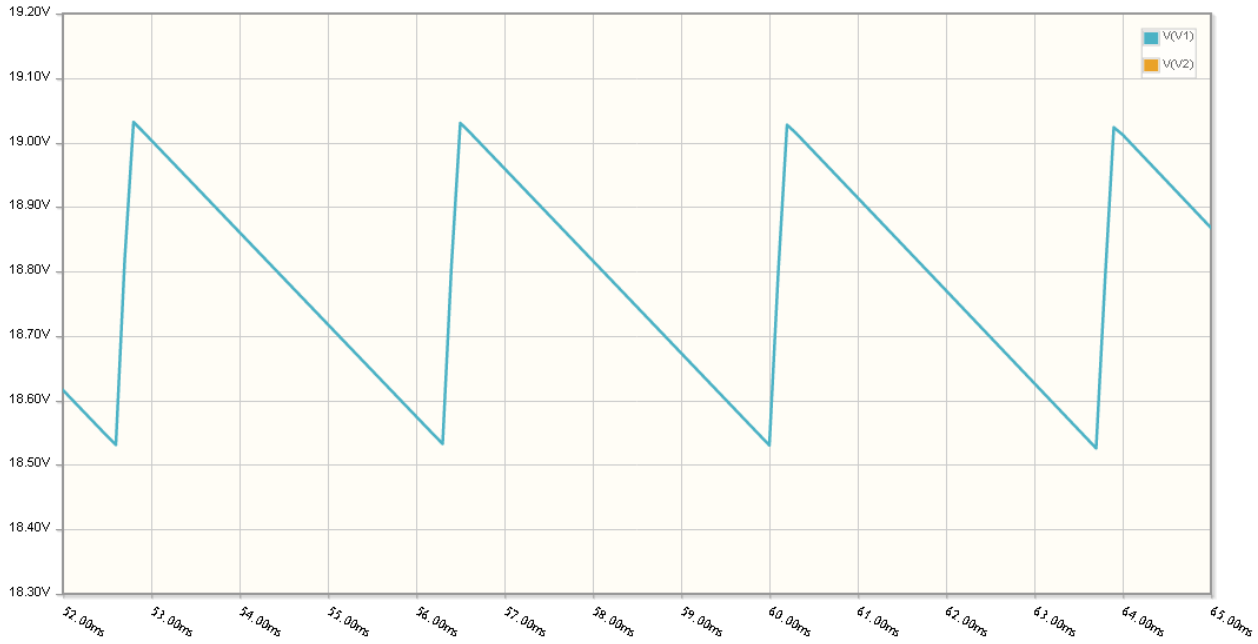
- R is 1000 + 100*(your birth month) + (your birthday). For example, May 14 = 1514 Ohms)
- Red LED: Vf = 1.9V @ 20mA, 3,000mcd @ 20mA
- Green LED: Vf = 3.0V @ 20mA, 3,000mcd @ 20mA

R	Red LED		Green LED	
	Ir	mcd(red)	Ig	mcd(green)



4) The following waveforms are found using CircuitLab for V1 for an AC to DC converter. Determine the following

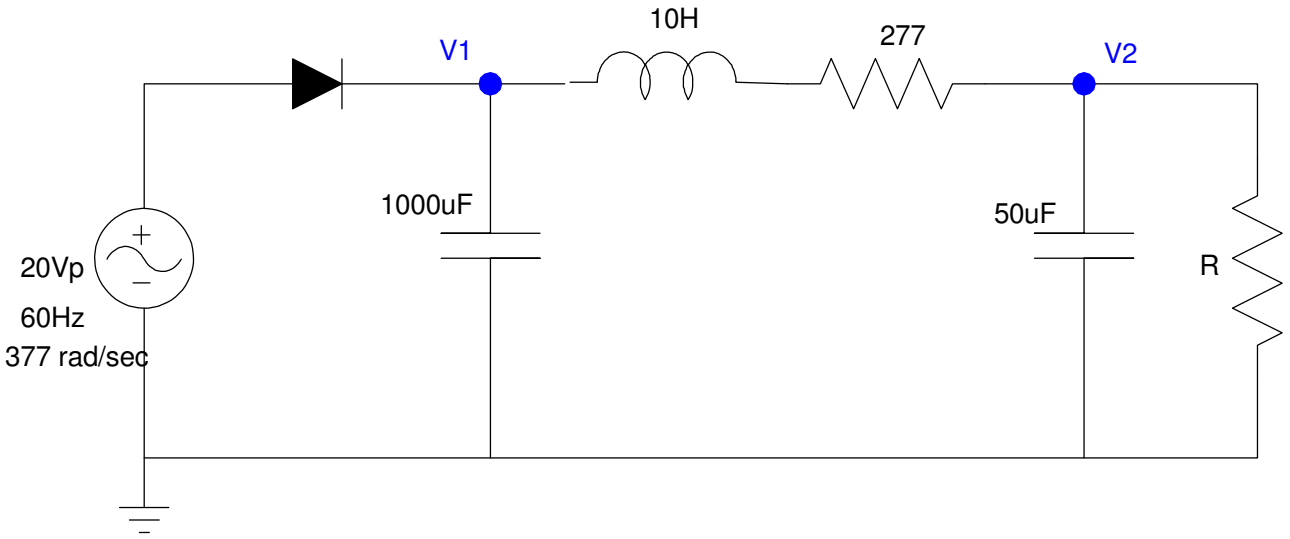
Frequency (Hz)	V1 (blue waveform)	
	DC (average)	AC (Vpp)



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 4Vpp and
- The ripple at V2 = 200mVpp

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

R	C1	C2