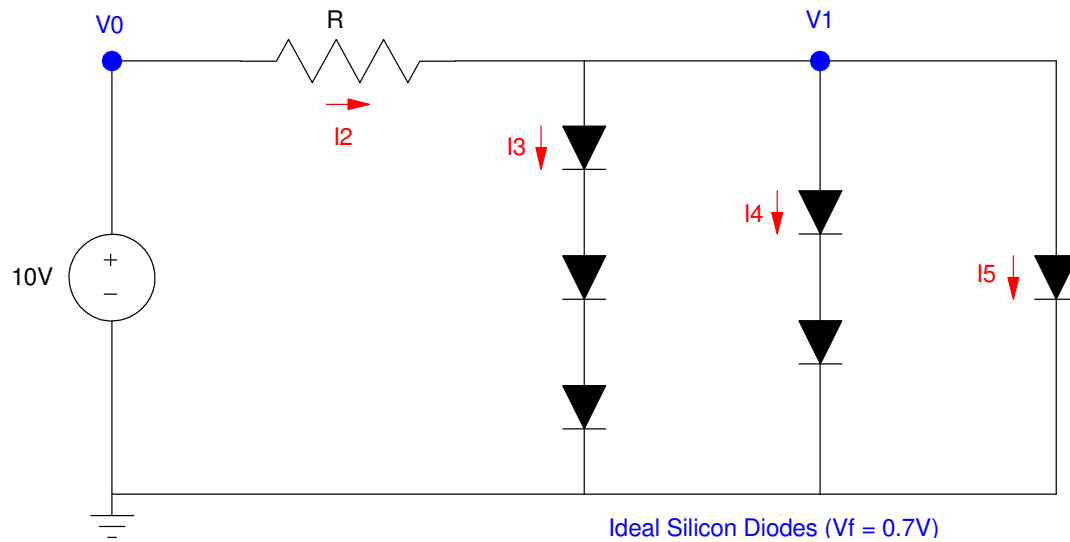# ECE 320 - Quiz #3 - Name _____

Ideal Diodes, LEDs, AC to DC Converters - Spring 2022

1) Determine the voltages and currents for the following circuit. Assume
  - R is 900 + 100*(your birth month) + (your birthday). For example, May 14 = 1414 Ohms)

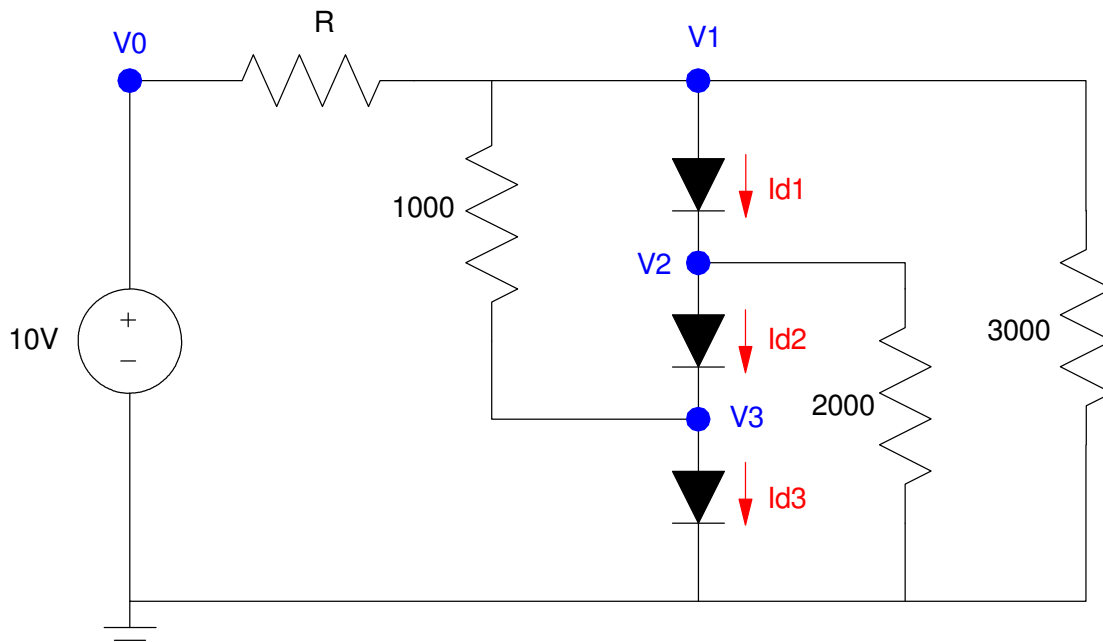| R 900 + 100*mo + day	V1	I2	I3	I4	I5

Ideal Silicon Diodes (Vf = 0.7V)

2) Determine the voltages and currents for the following circuit. Assume
- Ideal green LEDs (Vf = 3.0V).
- R is 900 + 100*(your birth month) + (your birthday).

V1	V2	V3	Id1	Id2	Id3

R

V0

V1

Id1

1000

V2

10V

+

−

Id2

3000

V3

2000

Id3
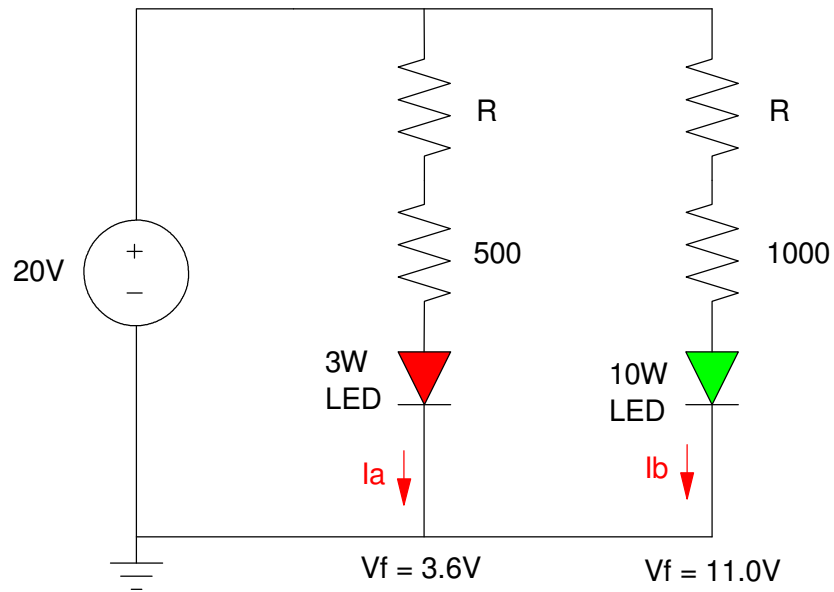
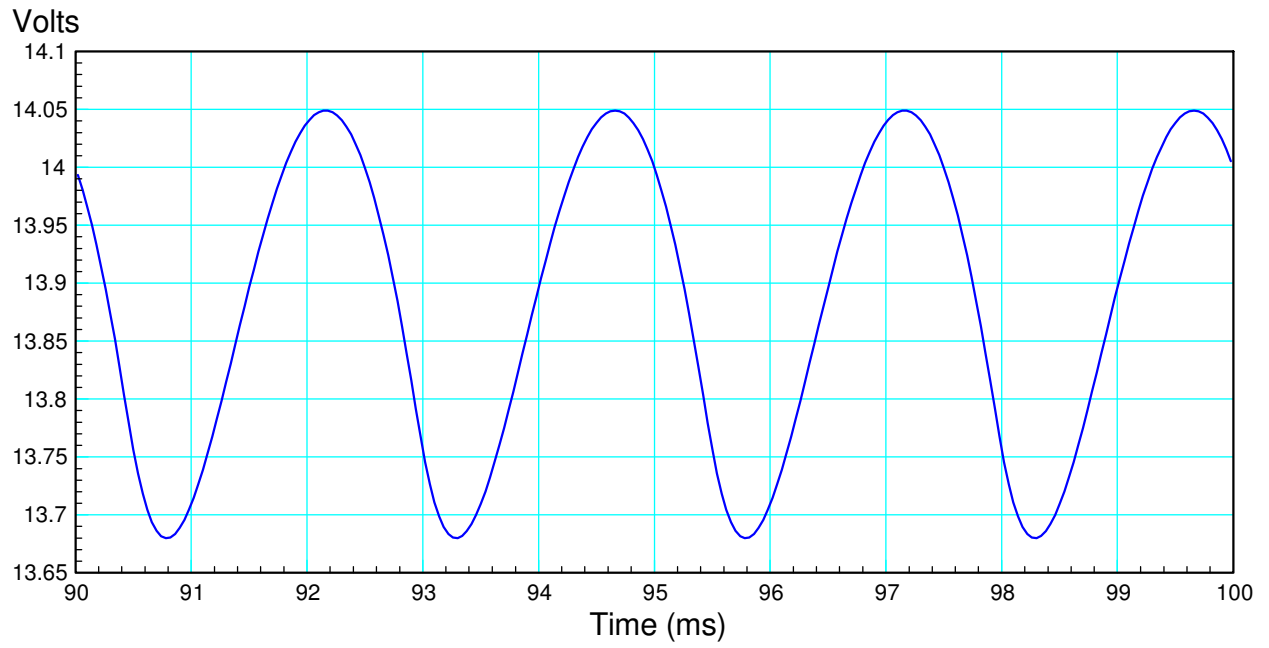3) A green and white LED are connected to a 10V source. Determine the current and brighness of each LED. Assume

- R is 900 + 100*(your birth month) + (your birthday).
- 3W LED: Vf = 3.6V @ 750mA   180 Lumens @ 750mA
- 10W LED   Vf = 11.0V @ 1000mA   650 Lumens @ 1000mA

R	3W LED		10W LED	
900 + 100*mo + day	Ia	Lumens	Ib	Lumens

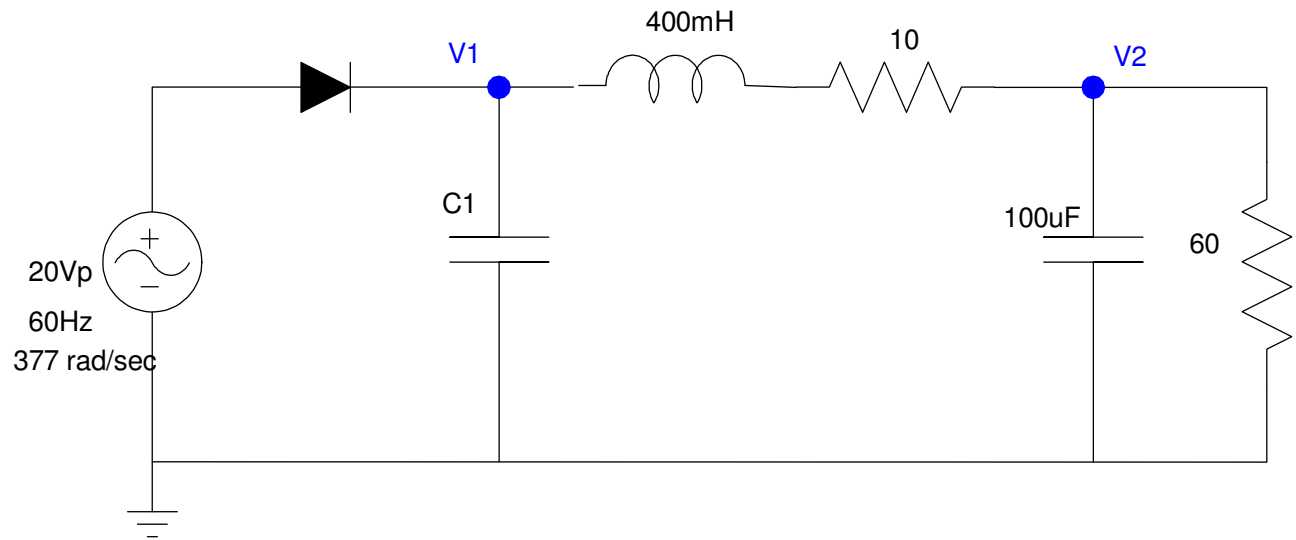4) The following waveforms are found using CircuitLab for V2 for an AC to DC converter. Determine the following

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

Volts vs Time (ms)

5) Determine the voltages V1 and V2 (both DC and AC). Assume
   - Ideal silicon didoes (Vf = 0.7V)
   - C1 = (900 + 100*(your birth month) + (your birthday))uF.

| C1 (uF) | V1 | | V2 | |
900 + 100*mo + day	DC	AC (V1pp)	DC	AC (V2pp)

400mH

V1

10

V2

20Vp

60Hz

377 rad/sec

C1

100uF

60

6) Determine C1, and C2 so that

- The ripple at V1 is 4Vpp and
- The ripple at V2 = 500mVpp

C1	C2