



PrepaTec

Departamento de ciencias
PrepaTec Toluca
Tecnológico de Monterrey

Energy & Transformation
PC 6046 Grupo:

Professor: Alejandro Portales

Partial Exam

February 14, 2022

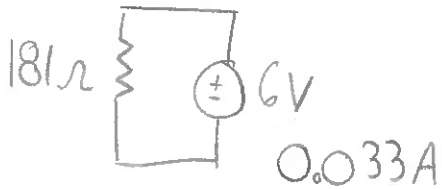
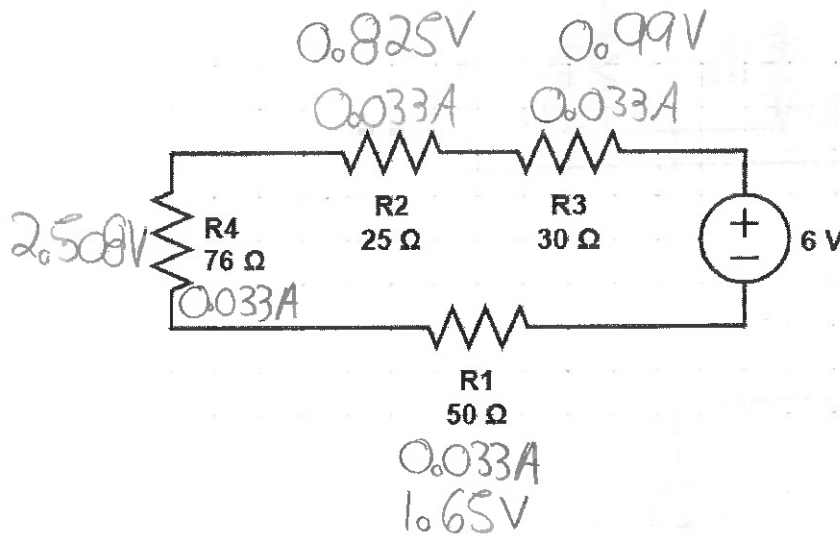
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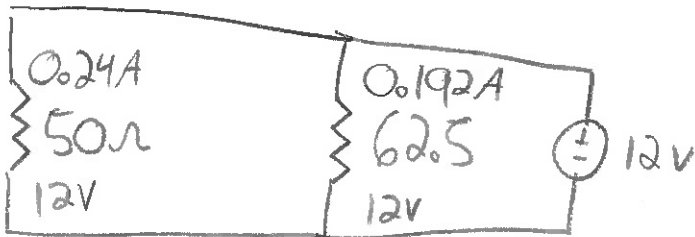
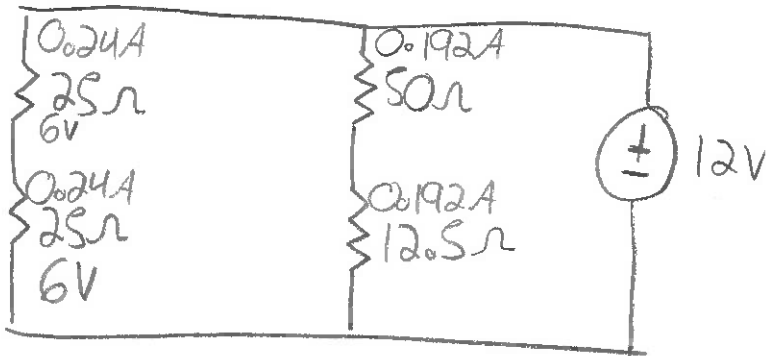
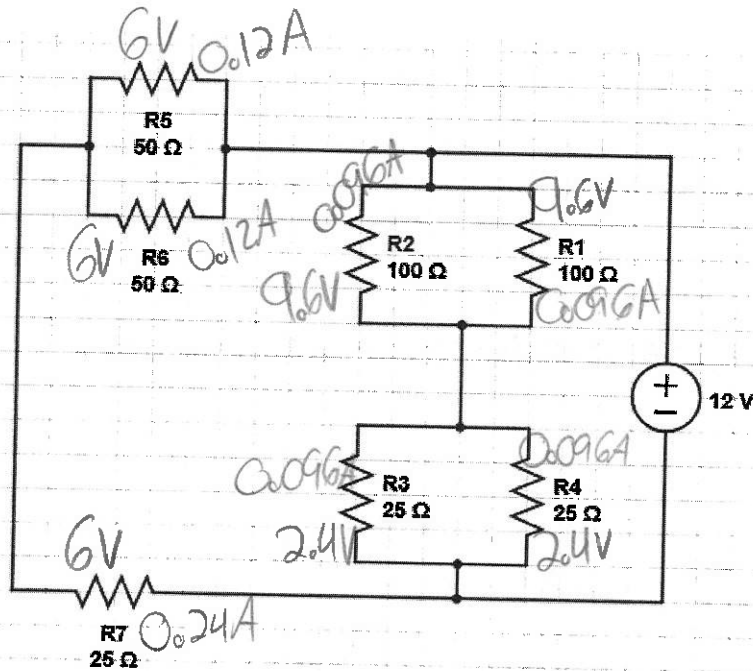
C

Points

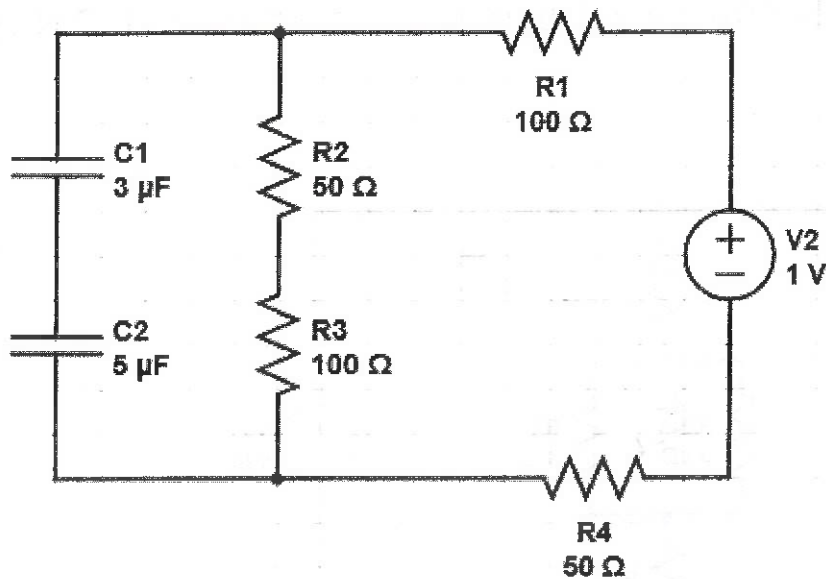
1) Find the Voltage and Inductance acting in each resistor.



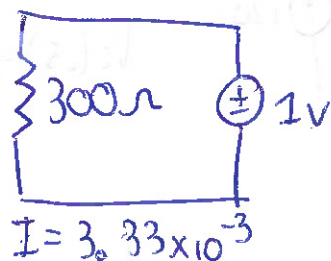
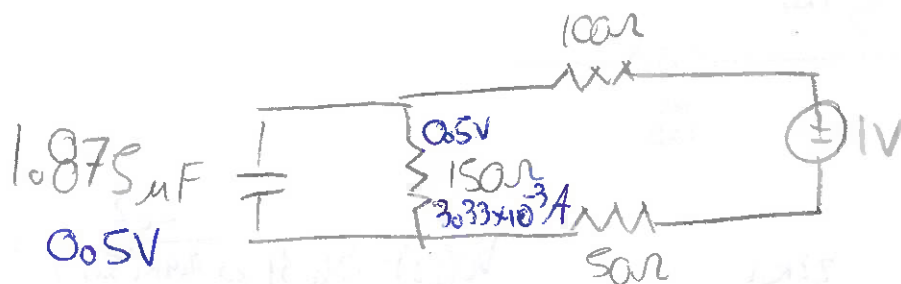
2) Find the Voltage and Inductance acting in each resistor.



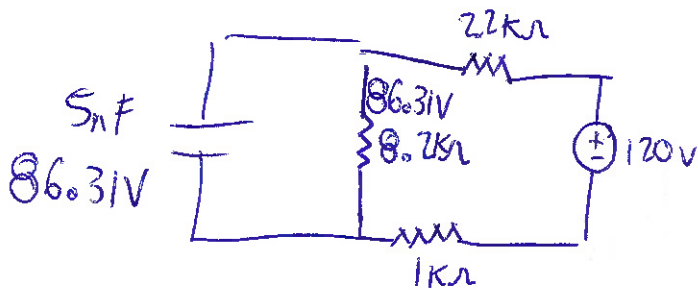
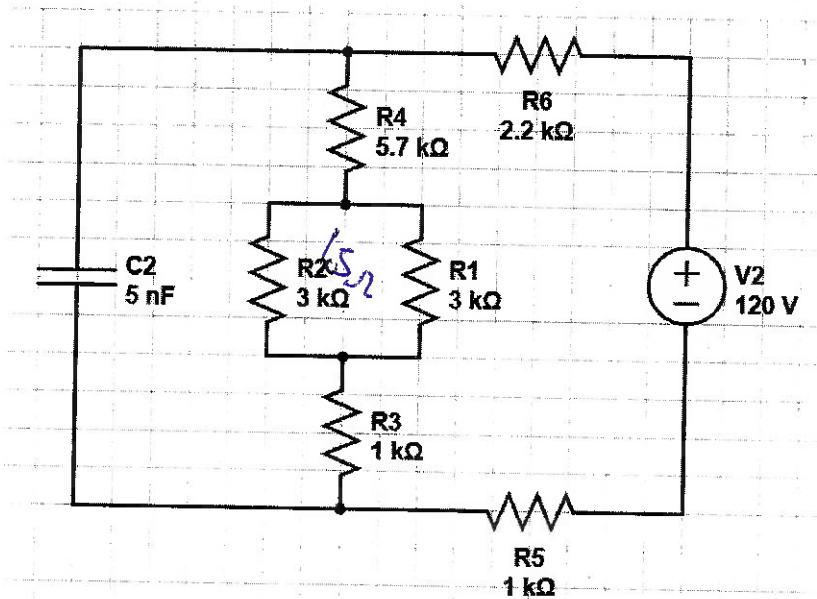
3) Find the voltage stored in each capacitor.



$$\frac{1}{\frac{1}{3} + \frac{1}{5}}$$

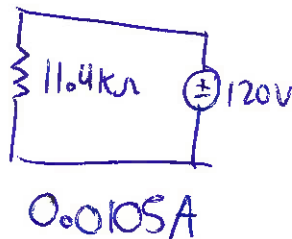


- 4) Find the voltage stored in the capacitor, after that find the discharge voltage in the capacitor at .2 & .5 seconds.

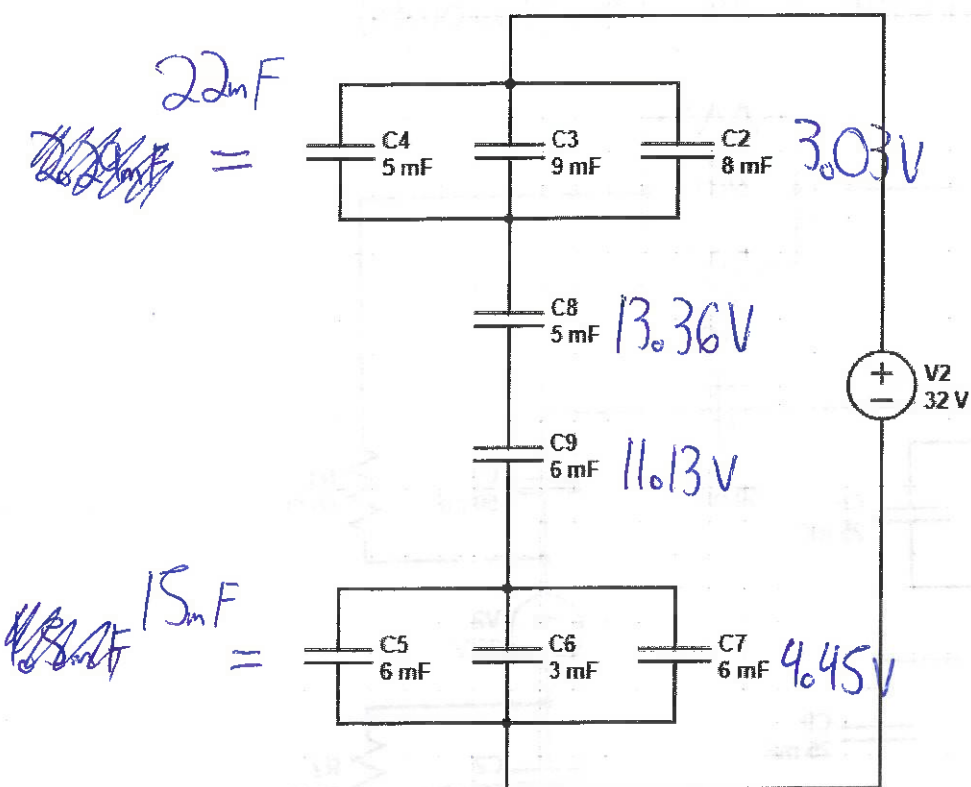


$$V_C(0.2) = 86.31 e^{\frac{-0.2}{11.4k(5nF)}} = \emptyset$$

$$V_C(0.5) = 86.31 e^{\frac{-0.5}{11.4k(5nF)}} = \emptyset$$

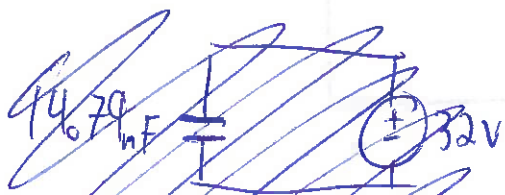


5) Find the voltage stored in every capacitor



$$2.08 \text{ mF} \text{ --- } 32 \text{ V}$$

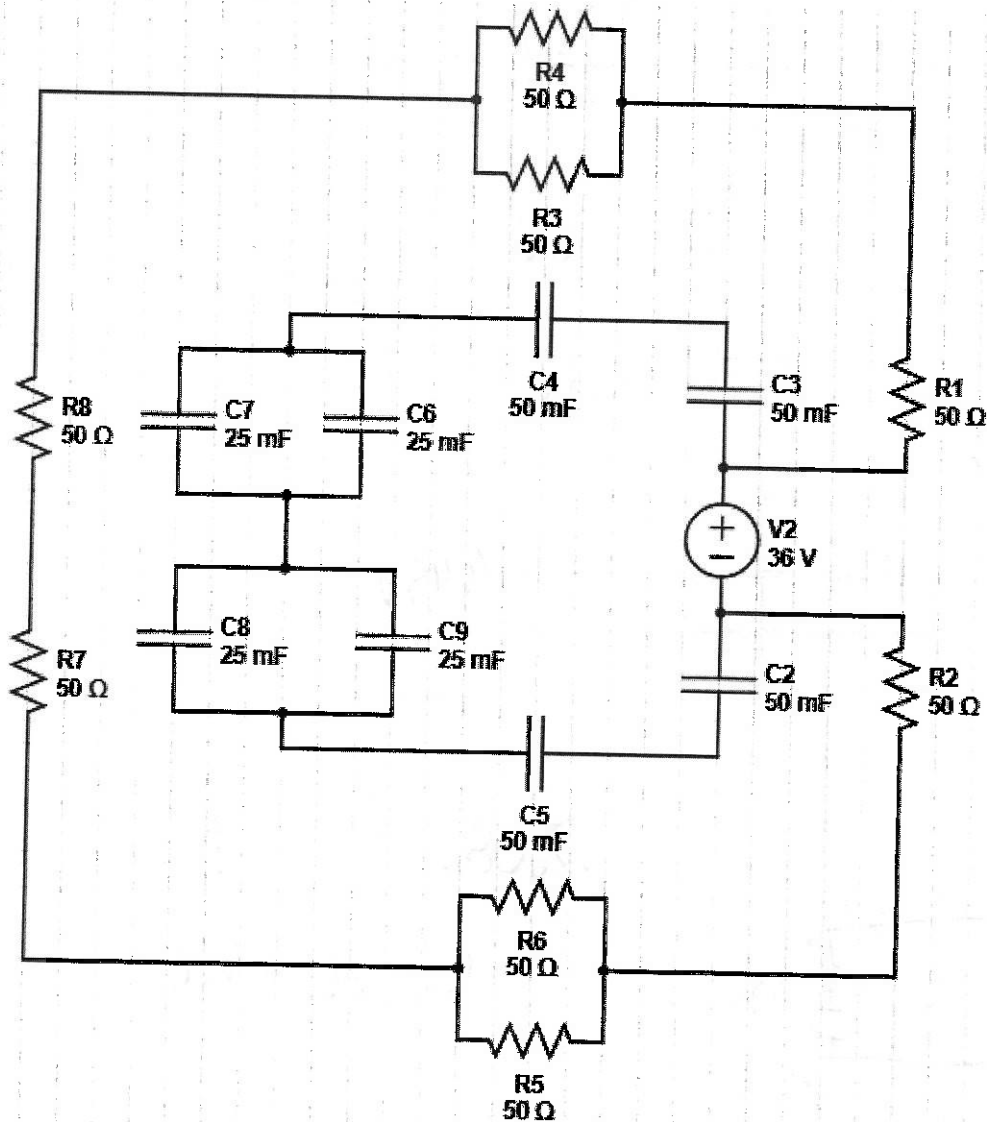
$$Q = 66.83 \text{ mC}$$



$$Q = C \cdot V$$

$$Q = 473.28 \text{ mF}$$

6) EXTRA: Find the voltage stored in each capacitor, the voltage and inductance of each resistor, and the voltage after .3 seconds of discharge (15points)



7) EXTRA #2

Science fiction trivia, Complete the phrase (.5 P/p)

I LOVE YOU, _____

TRAIN YOURSELF TO LET GO OF _____

NEVER TELL ME THE _____

I GUESS YOU GUYS AREN'T READY FOR THAT YET.

ROADS? WHERE WE'RE GOING, _____

GREAT _____!!!!

$$V_c = E e^{-\frac{t}{RC}}$$

$$I_c = \frac{E}{R} e^{-\frac{t}{RC}}$$

$$V = I * R$$

$$Q = V * C$$

Table 1: Multiples and Submultiples of SI units

Prefix	Symbol	Multiplying Factor	
exa	E	10^{18}	1 000 000 000 000 000 000
peta	P	10^{15}	1 000 000 000 000 000
tera	T	10^{12}	1 000 000 000 000
giga	G	10^9	1 000 000 000
mega	M	10^6	1 000 000
kilo	k	10^3	1 000
hecto*	h	10^2	100
deca*	da	10	10
deci*	d	10^{-1}	0.1
centi	c	10^{-2}	0.01
milli	m	10^{-3}	0.001
micro	u	10^{-6}	0.000 001
nano	n	10^{-9}	0.000 000 001
pico	p	10^{-12}	0.000 000 000 001
femto	f	10^{-15}	0.000 000 000 000 001
atto	a	10^{-18}	0.000 000 000 000 000 001

* these prefixes are not normally used