

ELEC 2210 PRE-LAB COVER PAGE
Complete and attach this page to the front of your pre-lab.

Meeting # 6 Diodes
Title of Lab Experiment

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Name (Last, First, MI)

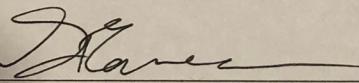
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Name of your GTA

Section you are enrolled in: (Circle One): 1 2 3 4 5 6 7 8

Date pre-lab submitted: (dd / mm / yy): 02/15/21

I hereby certify that this pre-lab work was performed and written by me exclusively.


Student signature

02/15/21
Date signed

Equations with answers

Prelab 6

Half-Wave:

$$V_r = (V_p - V_{on}) \left(1 - e^{-T/RC} \right)$$

$$\Rightarrow (10 - 0.6) \left(1 - e^{-100/20k \cdot 1m} \right)$$

$$\Rightarrow 9.4V$$

$$T = 100\text{Hz}$$

$$V_p = 10V$$

$$R = 20k\Omega$$

$$C = 1\mu F$$

$$V_{on} = 0.6V$$

$$CTI = \frac{T}{2\pi} \cos^{-1} \left(\frac{V_p - V_r}{V_p} \right)$$

$$\Rightarrow \frac{100}{2\pi} \cos^{-1} \left(\frac{10 - 9.4}{10} \right)$$

$$\Rightarrow 1.377$$

$$PIV = 2V_p - V_{on} \Rightarrow 2(10) - 0.6 \Rightarrow 20 - 0.6 = 19.4V$$

Full wave:

$$V_r = (V_p - 2V_{on}) \left(1 - e^{-T/2RC} \right) \Rightarrow (10 - 2(0.6)) \left(1 - e^{-100/2 \cdot 20 \cdot 1m} \right)$$

$$\Rightarrow 8.8V$$

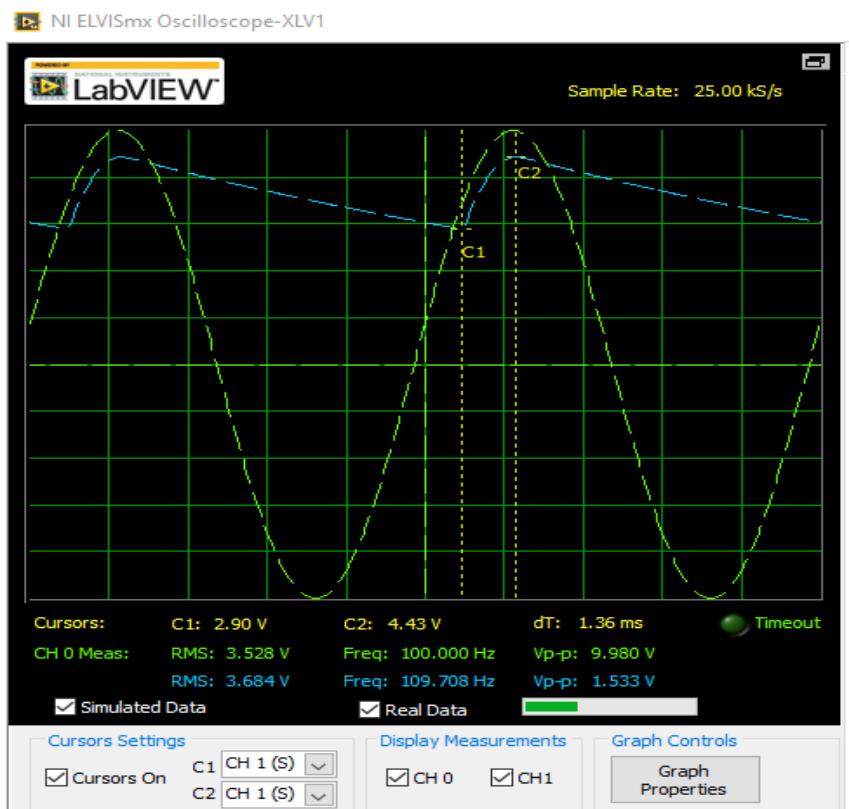
$$CTI = \frac{T}{2\pi} \cos^{-1} \left(\frac{V_p - V_r}{V_p} \right) \Rightarrow \frac{100}{2\pi} \cos^{-1} \left(\frac{10 - 8.8}{10} \right)$$

$$\Rightarrow 1.322$$

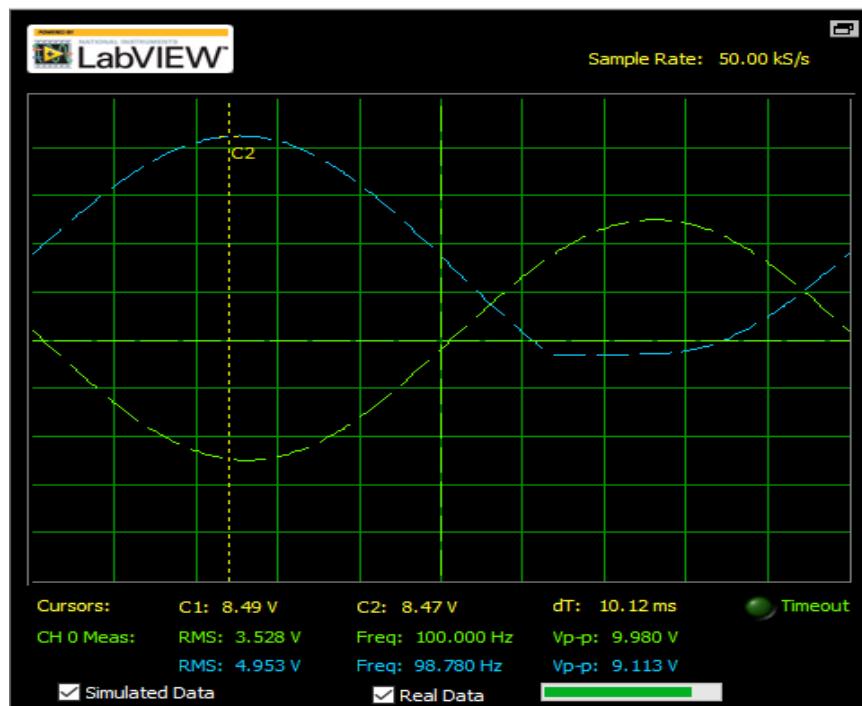
$$PIV = V_p - V_{on} \Rightarrow 10 - 0.6 = 9.4V$$

Half-wave

Ripple Voltage and CTI

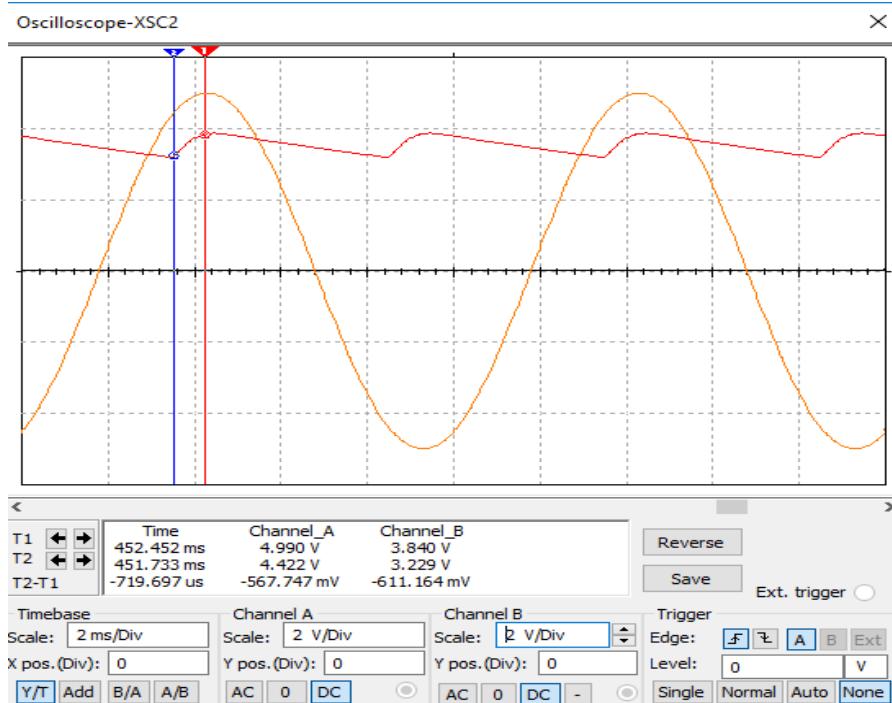


PIV

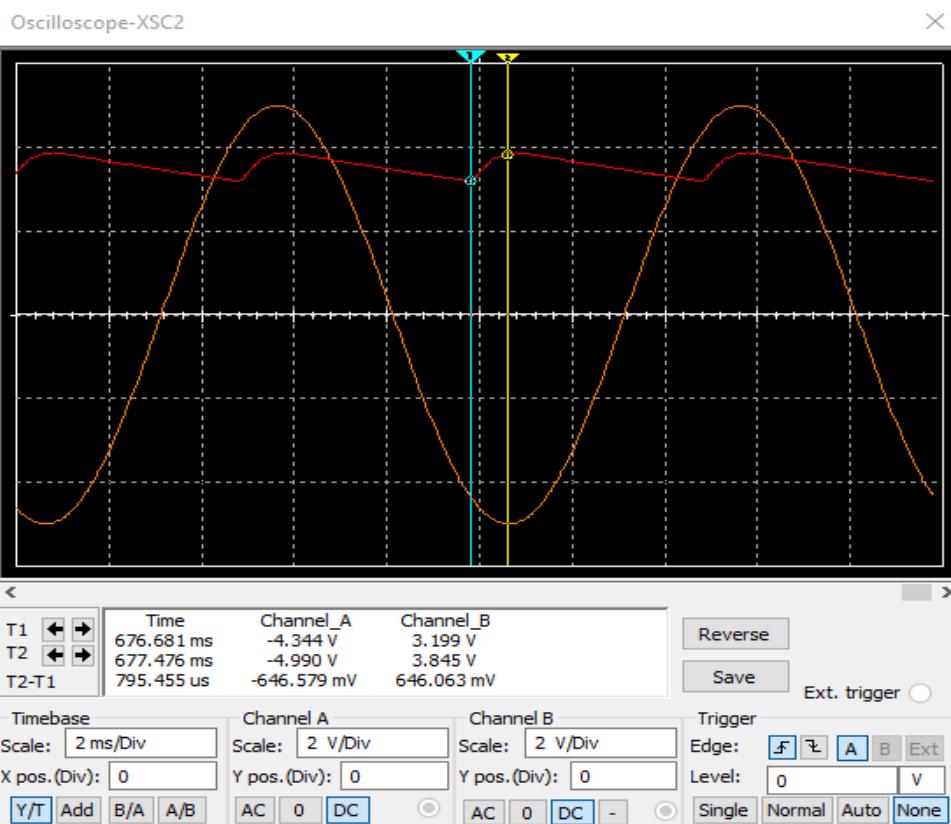


Full-Wave

Ripple Voltage



CTI



PIV

Oscilloscope-XSC1

X

