

P1320L, Displacement Current

Lab 13, Work Sheet

Submitted by: _____ Experiment's date: _____

Team members:

1.- _____ 2.- _____

3.- _____ 4.- _____

Instructor must initial: _____

Introduction

Write a short paragraph about the purpose of this lab.

Data

Instructions: Collect your data using your lab manual as a guide, unless directed to do otherwise by your lab instructor. Each measurement must have units. If a table is used, then it must have headers (for rows or columns) that include units

Measure the period of the input signal, and the actual values of Resistance, and Capacitance. Record the values in the next table.

Measure the peak-to-peak voltage drop across the resistor and capacitor for each of the input voltages listed. Record the values in the next table.

Analysis

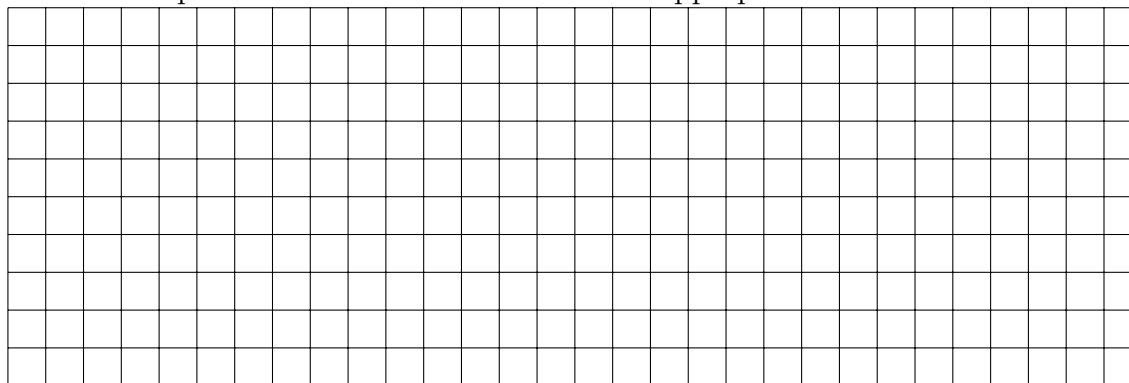
Instructions: Follow the steps on this worksheet, using your lab manual as a guide, unless directed to do otherwise by your lab instructor. Show at least one sample calculation for each result requested. The results must include appropriate SI units. If a table is used, then it must have headers (for rows or columns) that include units.

1. Determine the angular frequency of the input signal.

2. For each voltage drop across the resistor, determine the peak-to-peak value of the conduction current (use Ohm's law). Show here a sample calculation, and record your results in the left column of the next table.

3. For each voltage drop across the capacitor, determine the peak-to-peak value of the displacement current. Show here a sample calculation here; record your results in the previous table, next to the conduction current values.

4. Use the grid below to make a plot of the displacement current against the conduction current. The plot axes must include labels with appropriate SI units.



5. Fit a straight line the data you plot above and determine its slope.

6. What should be the value of the slope of the fitted line? Why?

7. Compare the actual value of your fitted line to the expected value.