P1320L, Kirchhoff's Laws
Lab 8, Raw Data 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[1].

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

Build a circuit as shown in Figure 8.1 of your lab manual and set the voltage of the power supply to 5 V.

Kirchoff's Loop Law

Measure and record the potential difference across each resistor in the circuit. Organize your data in a table. Use the following slip of notebook paper to tabulate your data; include headers with units

Kirchoff's Node Law

Measure and record the current flowing in and out of N_1 and N_2. For these measurements, the Digital Multimeter must be connected in series to measure current. Use the following slip of notebook paper to tabulate your data; include headers with units. You should have a total of 6 current measurements.

Voltage Divider

Obtain two resistors with nominal values of 1, and 10 kilo-Ohms. Using the Digital Multimeter (DMM) measure the actual resistance of each resistor and record them.

Arrange the resistors as in Figure 8.2 of the lab manual and set the voltage supply to 10 V. Measure the voltage drop across each resistor and record them.

Analysis

Kirchoff's Loop Law

Examine whether or not your data supports Kirchhoff's Loop Law.

1. Make a sketch of the loop containing containing V_s, N_1, R_1, N_2, and R_3 showing all your measurements.

2. Write the algebraic sum of all the voltages around this loop and discuss the result.

3. Repeat the previous analysis for the loop that contains N_1, R_1, N_2, and R_2.

Kirchoff's Node Law

Examine whether or not your data supports Kirchhoff's Node Law.

4. Make a sketch of all the currents at node N_1. For each current indicate if it is entering or leaving the node.

5. Write down the algebraic sum of all the currents for N_1, and discuss the result.

6. Repeat the previous analysis for node N_2.

Voltage Divider

7. Derive equations one and two of the lab manual.

8. Determine the power dissipated in each resistor.

9. Sketch Figure 8.2 from the lab manual, but showing all your measurements and results.