

CMPE 226 Electronics Lab Report

Experiment # 1

Resistor Networks

Std. No	Name	Group
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____

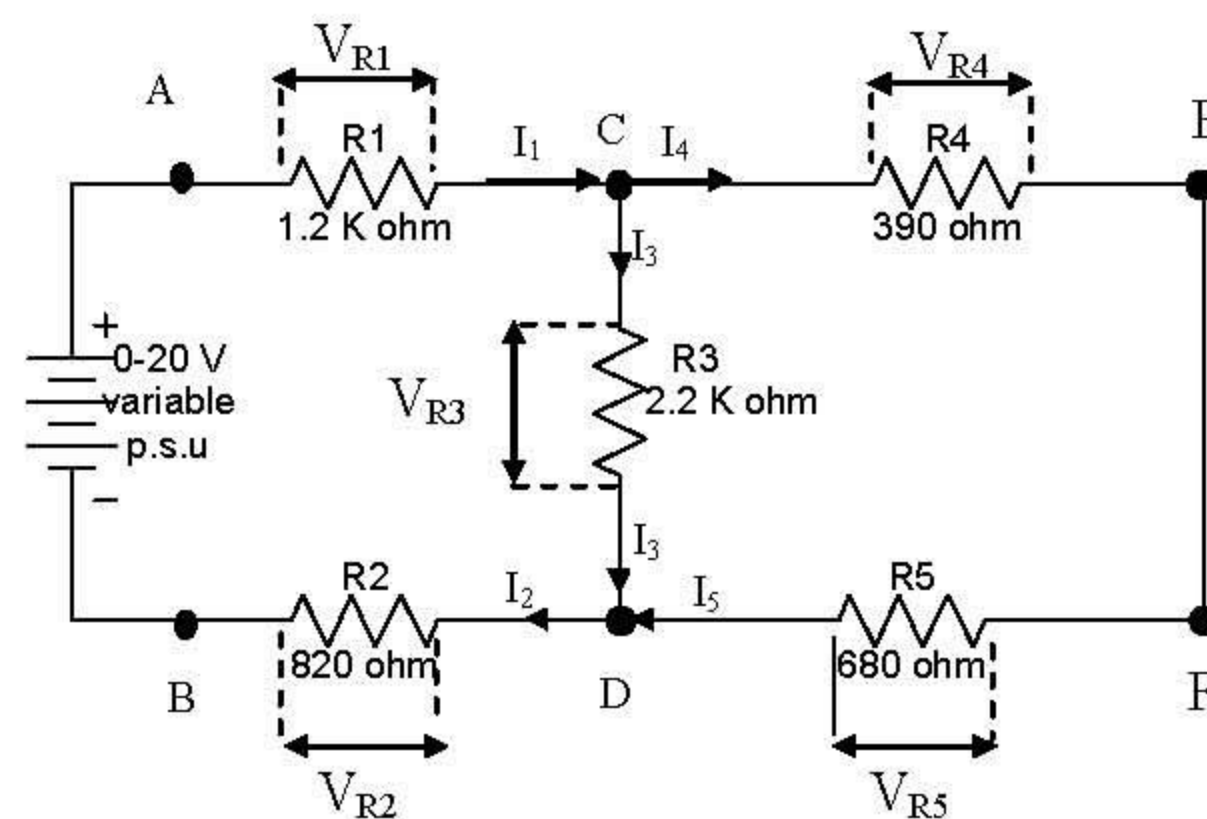
Date _____

Aim of the Experiment: To investigate what happens when resistors are interconnected in a circuit.

- We have found that there are components called resistors, which present an impedance to direct current (d.c) and that the magnitude of the impedance presented is measured in Ohm.
- Let us now investigate the currents and voltages present when several resistors are connected together to provide a network of resistors

Experimental Procedure

Step 1: First connect up the module as shown below



Step2: Set the p.s.u. meter switch to monitor the variable d.c. voltage. (make sure that the variable d.c. control knob is fully counterclockwise, and then switch on the p.s.u.). Adjust the output voltage to be 20V.

- We wish to investigate the currents I , and the voltages across, each branch of the network

Step 3: Using the *voltmeter* measure the voltage across R1. Note the polarity of voltage. Repeat the measurement for each of the other resistors and tabulate your results to following table. Also draw a circuit diagram of the network and mark the voltages on it, with their polarities.

Component Branch	Voltage (V)
R1	
R2	
R3	
R4	
R5	

Q) With the reference to figure, which you draw, can you notice any relationship between the voltages round the loop ACBD

Q) Does the sum of the voltages around loop CEFD give the same relationship?

Q) What about the loop ACEFDB?

- Now let us measure the currents in each component, to see if we can find a relationship for the currents

Step :4 Connect milliammeter serial to R1. Record the current value and polarity, then repeat same procedure to other resistors. And fill the following table

Component Branch	Current (amp)
R1	
R2	
R3	
R4	

Q) What can you say about the currents I_1 I_3 and I_4 at node **C** ?

Q) What can you say about the currents I_2 I_3 and I_5 at node **D** ?

Q) What is the algebraic sum of the voltages around a loop in a circuit?

Q) What is the algebraic sum of the currents around a node in a circuit?

Q) Use Kirchhoff's current Law: ($\sum I=0$)

and Kirchhoff's voltage Law: ($\sum V=0$)

Therefore verify that theoretical and experimental results are satisfied with each other.

Conclusions (write a small paragraph what did you get from this experiment)