ECE-L301 Laboratory 1
Assignment 1 – DC Bias Point Analysis

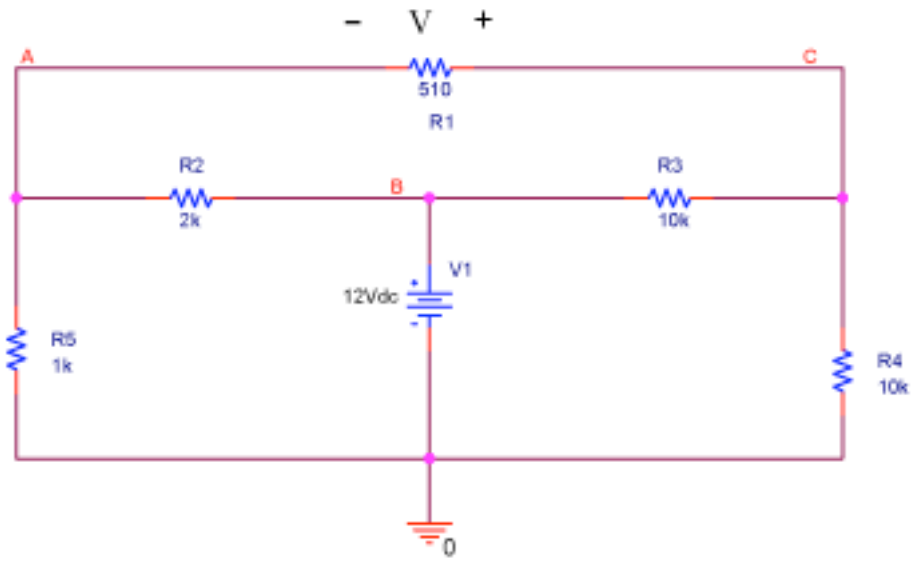

Figure 1: Test circuit for Lab 1

Goal

- Solve for V with the polarity as shown.

Pre-Lab Reading:

- Tutorial 1
- Week 1 lecture notes

Parts Required:

- 510Ω resistor
- 2kΩ resistor
- Two 10kΩ resistor
- 1kΩ resistor

Procedure:

1. Solve for the voltage V by hand calculation using the techniques learned in ECE 201.
2. Verify your calculation by performing a DC Bias Point simulation in PSpice. The techniques needed to solve this problem in PSpice are covered in Tutorial 1.
3. Build the test circuit in Figure 1. Apply 12V using your DC voltage supply.
    a. Measure voltages at nodes A, B, and C using your multimeter.
    b. Measure V directly across R1 making sure to place the positive and negative probes according to the shown polarity. Compare with voltage at node C minus voltage at node A.

4. Compare values of V that you found through calculation, simulation, and actual measurement.

Deliverables:
Follow the instructions on the course webpage for the lab report format. The report must specifically include

1. Clearly written calculation of voltage V.
2. Cadence Design Entry CIS schematic with node voltages indicated on the schematic. You and your partner's names, date, problem number must be displayed on the schematic.
3. Node voltages copied from the PSpice output file as shown in Tutorial 1.
4. Table of measured voltages at nodes A, B, C. Measured voltage V across R1.
5. Quantitative comparison of calculated, simulated, and measured voltages.