EE 43/100
Introduction

1. Introduction

Welcome to the EE 43/100 lab! The purpose of this laboratory course is to teach you how to use electronic test equipment, to familiarize you with the characteristics of basic circuit elements (resistors, capacitors, diodes and transistors) and to give you experience in building and debugging circuits. You must successfully complete all of the experiments (the Prelab and the lab report) and the project in order to pass.

Since this is the first lab, this Prelab will have this introduction. The actual questions for the Prelab are on page 3. You need to turn in only the Prelab, keep this intro for your own reference. Other labs will just involve answering some questions pertaining to the experiment. The format of the writeup is:

1. **Objectives:** This outlines the stuff that you should learn by doing this experiment.
2. **Theory:** Background material to the stuff in the experiment.
3. **Hands on:** The actual experiment itself.

2. Getting to the lab

The lab is located on the first floor of Cory Hall, room number 140. The lab is open whenever there is a TA present in the lab. You are more than welcome to use the lab whenever a TA is present to learn more about the experiments and the course. However, please note that if the lab is full, the TA may not be able to accommodate you. There is no weekend or after hours access. The experiments will not be too difficult and you should easily be able to finish them in the allotted time. Only the TAs, instructors and support personnel have card key access to the lab.

3. Lab Grading

1. Attendance (5pts): Attendance in lab is mandatory. If you have to miss a lab due to unforeseen circumstances, you must inform your TA as soon as possible. You can then make up the lab in another TA's section as long as you request and receive the permission of the TA.
2. Pre-labs (5 pts): Prelabs are **due at the beginning of lab period** and must be submitted individually. The Prelab questions are simple and can be easily answered if you understand the guide to the experiment. Therefore, it is absolutely necessary that you read the guide before you answer the questions on the Prelab.
3. Lab report (10 pts): One lab report per team of two students **due at the end of the lab**. You don't have to type up anything, just take some measurements and maybe answer a few questions. Please answer all questions to the best of your ability and with reasonable guidance from the TA.

4. Conclusion

Please do not forget the concepts of any lab after you complete it. The experiments build on your knowledge from the previous lab. In addition, we cannot describe every possible setup of your instruments. It is up to you to play with the instruments (short of breaking them) to find out more. The BEST way you are going to learn is to ask questions and find answers – use the Internet, ask your TA, your peers etc. Be an engineer!

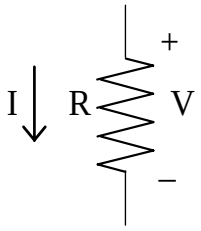
Now that all the preliminaries are out of the way, let us get to the questions related to the experiment. **BEFORE ATTEMPTING TO ANSWER THE QUESTIONS IN THE PRELAB, IT WILL HELP IF YOU READ THE WRITEUP.**

EE 43/100
Introduction: Pre-Lab

Name: _____
TA: _____
Section: _____

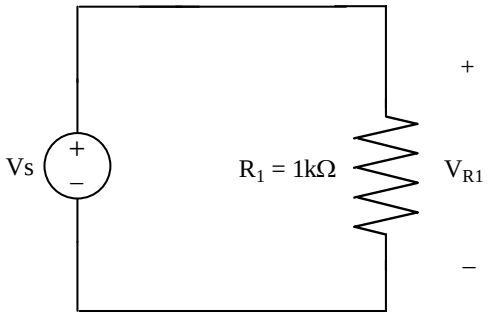
1. If V=10V and R = 10kΩ, find I.

I = _____



2. Should the DMM, set up to measure current, ever be placed in parallel with the DC power supply? Explain.

3. Given the circuit below, what would you expect V_{R1} to be with each of the following DC power supply settings?



a) V_s = 5V, current limit = 10mA V_{R1} = _____
b) V_s = 5V, current limit = 2mA V_{R1} = _____

4. Find V_X.

V_X = _____