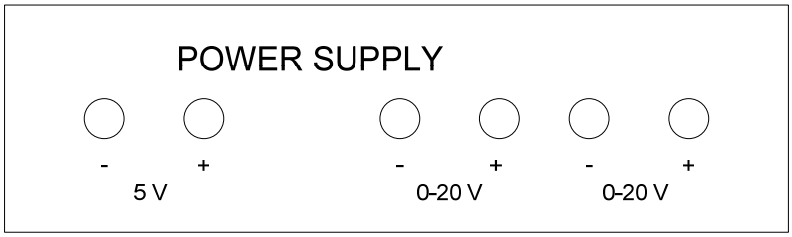
ECET 102/CPET 101 Electrical Circuits
Spring 2012
Lab 2. Basic Electrical Measurement

Students: _____ _____
_____ _____

Due Date:

I. Voltage Measurement:

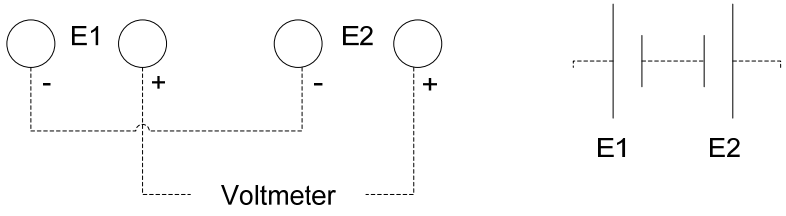
1. **Use the DC V function of the digital multimeter (DMM), set it on 20 volt range to measure and record the Emax (turn knob all the way to the right) and Emin (turn knob all the way to the left) values of each variable supply and the fixed supply voltage E. Model number of the power supply: _____**



5 V Supply	**0-20 V**	**0-20 V**
Voltage = _____	Emax = _____	_____
	Emin = _____	_____

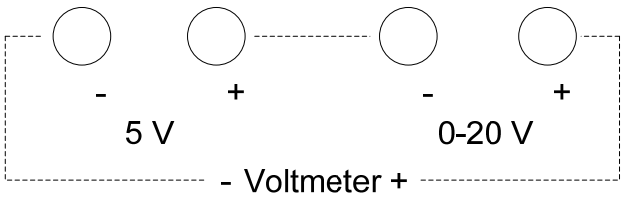
2. **a. Connect two variable power supplies as series opposing. Then measure following voltages E1, E2, and E. Record the model number of the digital multimeter (DMM): _____.**

   E1 = _____, E2 = _____



   b. Measured total voltage E = _____volts.

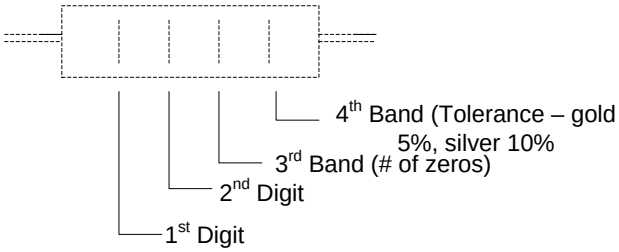
3. **Connect the 5 V fixed supply and 0-20 variable supply in series, as shown below; then adjust the voltage control knob and measure the Emax (turn knob all the way to the right) and Emin (turn the knob all the way to the right) values.**



Emax = _____ **Emin = _____**

II. Resistor Measurement:

Resistor color code, tolerance, and typical values for gold banded (5%) resistors.



Color bands

Black	0	Gold +5%
Brown	1	
Red	2	
Orange	3	Silver +10%
Yellow	4	
Green	5	
Blue	6	No 4th band +20%
Violet	7	
Grey	8	
White	9	

** Gold Color in 3rd band is 0.1**

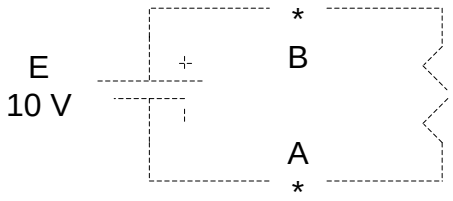
1. **Complete the following table for the four different resistors**.

	Color Coded Value	Measured Value	Within Tolerance (Y/N)
R1			
R2			
R3			
R4			

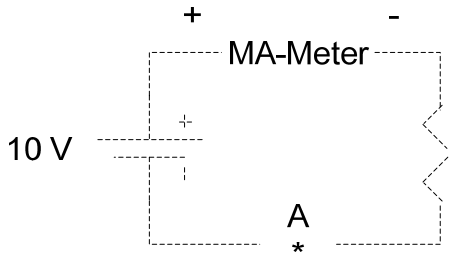
III. Current Measurement:

1. **Use a resistor with red band in third position and set up the following circuit.**
   a. **Use DMM to set power supply voltage to 10 volts.**
   b. **Connect the circuit, as shown below, and measure voltage drop across resistor R,**

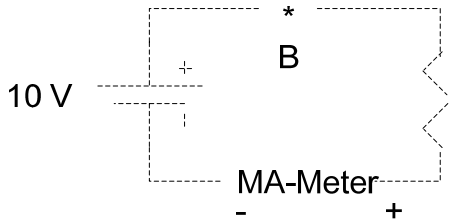
V_R= _____volts, then compute I = _____mA.



2. **Measure current I at location B.**



3. **Measure current I at location A.**



4. **Check if $I_A = I_B = I$ (calculated). If not equal find the reason why?**