1.6 Laboratory Procedure / Summary Sheet

Group: ____ Names: _____ _____

_____ _____

(1) For a 1kΩ resistor, what are the color band colors and associated band values?

band	color	value
a		
b		
c		
tol		

What is the expected nominal resistance and tolerance (in Ohms)?

R = _____Ω ± _____Ω (not %)

R_{min} = _____ R_{max} = _____

(2) Select three 1kΩ resistors, and measure the resistance of each using the digital multimeter and compare the values with the specified value.

Resistor	Measured Value (Ω)	% Error
R_1		
R_2		
R_3		

(3) Build the circuit shown in Figure 1.7 with the three given resistors on the breadboard. Note that R_1 is in series with the parallel combination of R_2 and R_3.

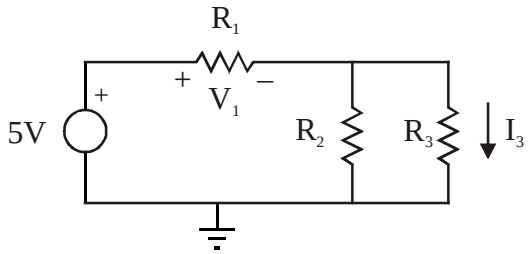

Figure 1.7 Resistor circuit schematic

(4) Calculate the values for the voltage drop across R_1 and the current through R_3 assuming that all three resistors have equal value 1kΩ. Refer to the text book and Section 2.2 in the next laboratory exercise for background theory. Use the digital multimeter to measure the actual voltage and current values. As shown in Figure 1.5, to measure current with the multimeter, you must put the meter in series with the element of interest. So to measure I_3, you must pull out the top end of R_3 and attach the meter probes between the exposed end of R_3 and either of the connected ends of R_1 and R_2 (as shown in Figure 1.5). **Be very careful when using the ammeter feature of the multimeter. If you don't place the meter in series with an element, and you put the leads across an element instead, you can burn out the meter's fuse and/or damage the device.**

	calculated	**measured**
V_1		
I_3		

If your measured values differ from your calculated values, provide possible explanations for the differences.