Experiment Report
The Digital Multimeter

Name : ______________________________
Name : ______________________________
TA : ________________________________
Section : _____________

This write-up follows along with the Hands On section of the lab. It requires you to write down measurements, to do simple calculations and to answer questions. You should complete this report as you do the lab exercises.

VI. Hands On

a. Resistance [15 pts]

1KΩ and 2^{nd} resistor

- Measured resistance of a 1KΩ resistor ____________
- Measured resistance of the 2nd resistor ____________
- Predicted resistance of the series combination ____________
- Measured resistance of the series combination ____________
- Predicted resistance of the parallel combination ____________
- Measured resistance of the parallel combination ____________

Potentiometer

- Measured resistance between the outside legs ____________
- What happened when the knob was turned while measuring the resistance between the two outside legs? ________________________________

  ____
- When you connect one outside leg and the middle leg to the DMM, does the resistance increase or decrease when you turn the knob clockwise?

  ____
- What happens when you connect the DMM to the other outside leg and turn the knob clockwise? ____

b. DC Voltages [5 pts]

Power supply

- Measured voltage across the power supply ____________

c. DC Current [20 pts]

Power supply (V.L. = 5V, C.L. = .2A) and 1kΩ resistor

- Measured resistance ____________
- Predicted current ____________
- Measured current ____________

Power supply (Voltage = 10V, C.L. = .1A) and 51Ω power resistor

Measured resistance	___________
Predicted current	___________
Measured current	___________
Measured voltage across the resistor	___________

Power supply (Voltage = 10V, C.L. = .4A) and 51Ω power resistor

Predicted current	___________
Measured current	___________

What is the minimum resistance you would use with a current limit of 0.1A to have V=10V still? ___________

d. Measuring a Real Circuit [20 pts]

Predicted V_{AB}	___________
Measured V_{AB}	___________
Predicted V_{BC}	___________
Measured V_{BC}	___________
Predicted I	___________
Measured I	___________

e. Circuits with Potentiometers [20 pts]

	pot value 1	pot value 2	pot value 3
Measured V_{AB}	___________	___________	___________
Measured V_{BC}	___________	___________	___________
Measure I	___________	___________	___________

What happens as the resistance of the pot is increased? ___________

____

f. Current-Voltage (I-V) characteristics [20 pts]

Resistor

Plot an I_T vs. V_T graph below

g. Black Boxes (20 pts Extra Credit)

Black box #1:

Plot an I_T vs. V_T graph below

Draw a possible circuit for the black box:

What do you actually find in the box?

Black box #2:

Plot an I_T vs. V_T graph below

Draw a possible circuit for the black box:

What do you actually find in the box?

Measured V_{OC} ____________

Measured I_{SC} ____________