"USO DEL OHMETRO, VÓLTMETRO Y AMPÉRMETRO EN MEDICIONES DE C. D."

PRACTICE 1

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1CM10

USE OF OHMMETER

With no energy, measure the quantity of ohms of every resistance, as showed on figure 1 and fill the table 1.

Figure 1. Connection of Ohmmeter.
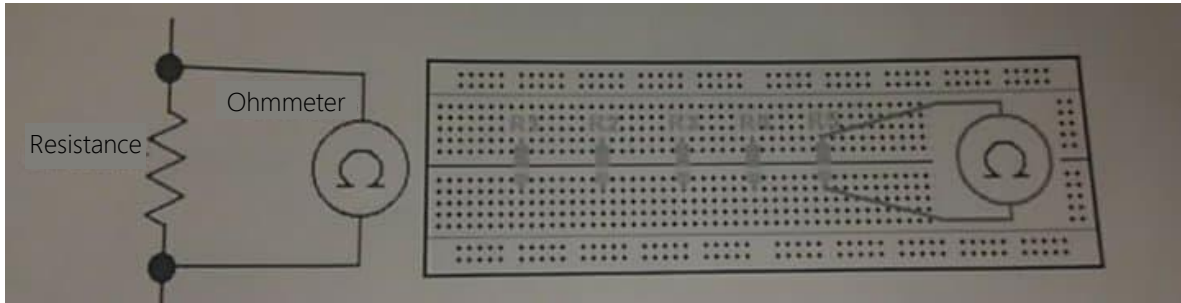
Table 1. Values of Resistances.

Resistance	Value	Value from colors	Colors
R1	993.3 Ω	1000 Ω	Brown – Black – Red
R2	678.9 Ω	680 Ω	Blue – Gray - Brown
R3	330.4 Ω	330 Ω	Orange – Orange - Brown
R4	554 Ω	560 Ω	Green – Blue -

USE OF VOLTMETER

On figure 2 is showed how to measure voltage in one element. With volt source turned off, build the circuit showed on figure 3. As soon as you finished, turn on the volt source and fill the table 2.
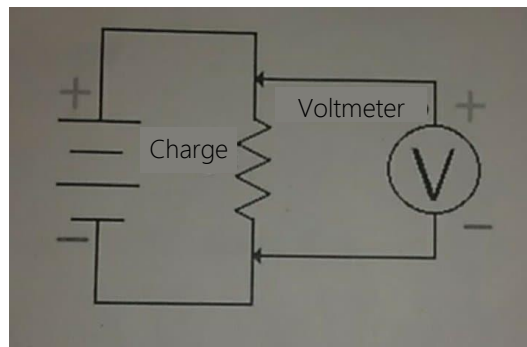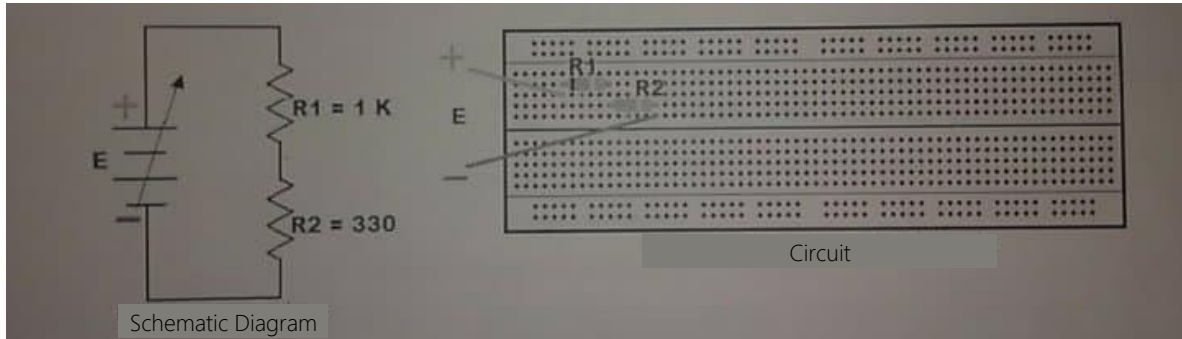

Figure 2. How to measure voltage.

Figure 3. Circuit (Voltmeter).

Table 2. Values of Voltages.

Voltage source	Digital multimeter		
	Voltage (R1 and R2)	Voltage (R1)	Voltage (R2)
E = 1V	1.038 V	0.781 V	0.257 V
E = 2V	1.974 V	1.485 V	0.489 V
E = 3V	2.998 V	2.253 V	0.743 V
E = 4V	4.036 V	3.035 V	1.001 V
E = 5V	4.997 V	3.758 V	1.239 V
E = 6V	6.017 V	4.522 V	1.493 V
E = 7V	7.010 V	5.27 V	1.739 V
E = 8V	8.020 V	6.028 V	1.990 V
E = 9V	9.032 V	6.788 V	2.2424 V
E = 10V	10.011 V	7.525 V	2.4859 V
E = 11V	11.062 V	8.313 V	2.748 V
E = 12V	12 V	9.019 V	2.9829 V

USE OF AMMETER

On the figure 6 is showed how to connect an ammeter for electrical measures in one element.
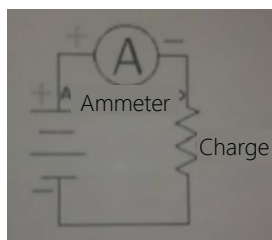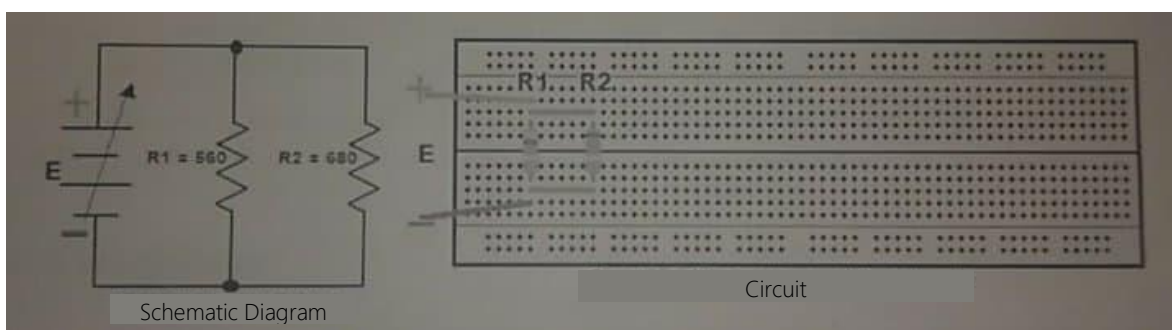

Figure 4. How to use an ammeter.

Figure 5. Circuit (Ammeter).

With the voltage source turned off, build the circuit from the figure 5. Once it is armed, turn on the voltage source and fill the table below.

Table 3. Values of Electrical Current.

Voltage source	Digital multimeter		
	Electrical Current (R1 and R2)	Electrical Current (R1)	Electrical Current (R2)
E = 1V	2.5093 mA	1.5557 mA	1.3 mA
E = 2V	4.9630 mA	3.020 mA	2.5 mA
E = 3V	9.826 mA	4.617 mA	3.8 mA
E = 4V	13.014 mA	7.186 mA	5.83 mA
E = 5V	16.266 mA	9.071 mA	7.44 mA
E = 6V	19.534 mA	10.808 mA	8.83 mA
E = 7V	22.891 mA	12.628 mA	10.36 mA

E = 8V	26.232 mA	14.467 mA	11.80 mA
E = 9V	29.59 mA	16.309 mA	13.36 mA
E = 10V	32.72 mA	18.150 mA	14.86 mA
E = 11V	36.37 mA	19.959 mA	16.34 mA
E = 12V	39.69 mA	21.9 mA	17.83 mA

QUESTIONARY

WHAT IS THE CHARACTERISTIC OF THE SERIAL CIRCUIT?

Elements feel same electric current and them voltage varies.

WHAT IS THE CHARACTERISTIC OF THE SERIAL CIRCUIT?

Conversely, elements feel same voltage, but them experiment miscellaneous electric current,

WHY AN AMMETER CAN NOT BE CONNECTED IN PARALLEL FORM?

Because electric current varies, it is guessed to have no electric resistance.

WHY WE SHOULD TURN OFF THE VOLTAGE SOURCE WHEN WE MEASURE VALUES OF RESISTANCE IN A CIRCUIT?

Because it varies.

CONCLUSIONS

CABAÑAS BAXCAJAY JESÚS FRANCISCO

It´s important to know perfectly the functioning of the materials we are going to work with in the circuits, since this will allow us to exploit their potential when creating circuits and in the same way to do so with the lowest risk of an accident occurring. It is necessary to know the theory of each component and then translate it into practice correctly. I hope to apply these knowledges in the future to innovate and create things that support society and the planet in general.

HERNÁNDEZ VELÁZQUEZ ÁNGEL

Electronics has many uses today and is one of the most important fields of technology. Personally, I had never had any relationship with this, however, it is important to understand from its

foundations to stop after to get a better result. As we saw in this practice, something as simple as Ohm's law and Kirchhoff's laws are the beginning of it, and everything is governed by physical principles.

MARTÍNEZ CORONEL BRAYAN YOSAFAT

I had never done this before, I am afraid of electricity, but with this practice, I am more prepared for the next practices. I had said myself "You just need time to get it" and I feel better now. But talking about the knowledge, it is amazing to learn about new things. Knowing how electricity works, means we could make a lot of new things. The future is programming and mix it with electronic, so this is a great opportunity to start the road. If we learn this, we could make a better future, not just for Mexicans, for the humanity.

CALCULATIONS

For this practice, there were no use of calculations.

SIMULATIONS

This practice has no simulation.

ANÁLISIS FUNDAMENTAL DE CIRCUITOS

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GRUPO: 1CM10

EQUIPO: 10

M. en C. Alberto J. Alcántara Méndez

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REVISADO

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