COMPUTER ENGINEERING TECHNOLOGY DEPARTMENT

Electronic Circuits 1 Laboratory Activity

Name :		**Instructor** :	
Section :	**Date:**	**Score** :	
Title :	**Measuring Voltage, Current, and Resistance**	**Lab No.** :	**1**

A. Materials and Equipment

- Breadboard
- Carbon Resistors, ½ W
- DC Power Supply
- Multimeter
- Connecting Wires

Resistor Color Code	
0-Black	7-Violet
1-Brown	8-Gray
2-Red	9-White
3-Orange	5%-Gold
4-Yellow	10%-Silver
5-Green	20%-No Color
6-Blue	

B. Measuring Resistance

1. Set the multimeter to the resistance (Ω) mode.
2. Measure the resistance of each resistor and record the readings in Table 1.

Table 1. Resistance Values

Color-Coded Value	Measured Value
Brown-Black-Red-Gold	
Brown-Red-Red-Gold	
Red-Brown-Red-Gold	

C. Series Circuit

1. Set up the given circuit (Fig. 1.) on the breadboard.

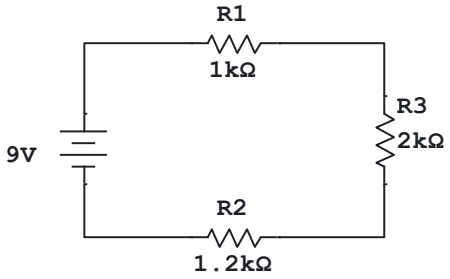

Fig.1. Series Circuit

2. Set the multimeter to the voltage (V) mode.
3. Measure the voltage across each resistor and record the readings in Table 2.

   note: Multimeter must be **parallel** to the resistor to measure the voltage, as shown in Fig.1a.

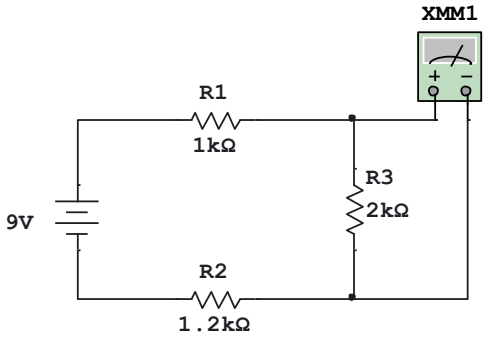

Fig. 1a. Measuring Voltage

4. Set the multimeter to the current (A) mode.
5. Measure the current flowing through the circuit and record the readings in Table 2.

   note: Multimeter must be in **series** to the resistor to measure the current, as shown in Fig.1b.

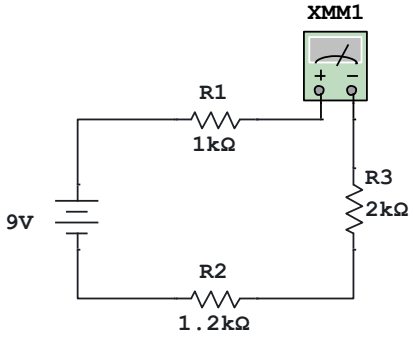

Fig.1b. Measuring Current

6. Disconnect the 9V voltage source.
7. Set the multimeter to the resistance (Ω) mode.
8. Measure the total resistance of the circuit, as shown in Fig.1c, and record the readings in Table 2.

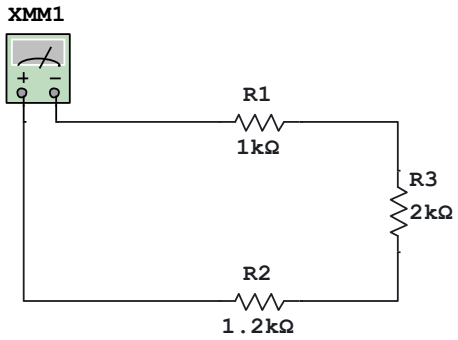

Fig.1c. Measuring Total Resistance

Table 2. Series Circuit Parameters

Resistor	Measured Voltage	Measured Current
R1-1K		
R2-1.2K		
R3-2K		
Total Resistance:		

D. Parallel-Circuit

1. Set up the given circuit (Fig. 2.) on the breadboard.

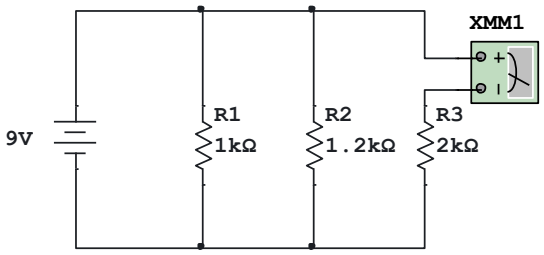

Fig.2. Parallel Circuit

2. Measure current, voltage, resistance, and record the readings in Table 3.

Table 3. Parallel Circuit Parameters

Resistor	Measured Voltage	Measured Current
R1-1K		
R2-1.2K		
R3-2K		
Total Resistance:		

E. Questions

1. What is the significance of Ohm's Law in analyzing electronic circuits?
2. How does the resistance of a circuit affect the current flowing through it?