Lab Report

On

Verification of Ohm's Law

COURSE CODE: CSE 0713-1103

Course Title: Electrical Circuit Lab

Submitted by -

Name: Md. Sojib Ahmed

ID Number: 06224205101006

Batch No: 18th

Semester: 1st Year 2nd Semester

Khwaja Yunus Ali University

Submitted to –

Name: Md. Sakil Ahammed

Lecturer

Department of EEE

Khwaja Yunus Ali University

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Khwaja Yunus Ali University

DATE OF SUBMISSION: 26.01.2025

No. of Experiment: 01

Name of Experiment: Verification of Ohm's law.

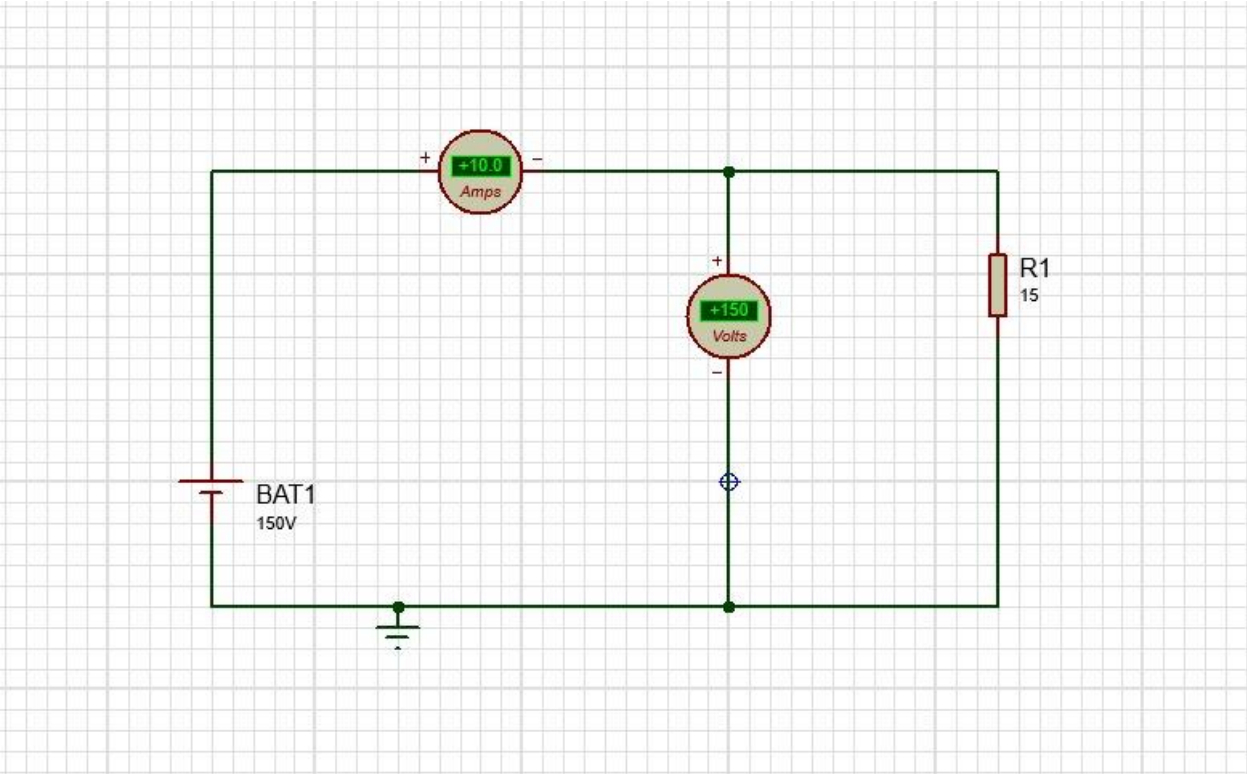
Object: To verify Ohm's law using digital simulation.

Theory: Ohm's law is a fundamental principle in electrical circuits that states the cuppent flowing through a conductor between two points is directly proportional to the voltage across the two Points.

The mathematical expression for Ohm's law is:

V=IR

Circuit Diagram:



Apparatus:

Software used: Proteus 8 Professional.

(1) Ammeter.

(2) Voltmeter

(3) Resistors

(4) Connecting wipes

(5)Power supply.

Working Procedure:

1. Connect the pesistor R to the De power supply in Sepjes.

2. Connect an ammeter in series with the resiston to measure the cuppent I flowing through the circuit.

3. Connect a voltmeter in parallel across the pesistor to measure the voltage V across the resistor.

4. Start by setting the power supply to a bow Voltage value.

5. Measure and record the voltage across the besistor using the voltmeter and the corresponding cuppent using the ammeter**.**

Calculation:

$V = 150V$

$I = V / R = 150 / 15 = 10A$ $R = 15\Omega$

We know,

$V = I \cdot R$

$= (10 \times 15) = 150V.$

Similarly,
V = 40V
R = 5Ω
∴ I = V / R = 40 / 5 = 8A

And ,

V = I·R
= (8 × 5) = 40V.

Table :

SL no.	**Load Res. (R) (Ω)**	Load C. Observed I (A)	Load C. Calc. I (A)	Voltage Observed (V)	Voltage Measured (V)
1	15	10	10	150	150
2	5	8	8	40	40
3	40	10	10	400	400
4	50	12	12	600	600

Result and Discussion:
The observed values and calculated values are nearly same. The values of observed load current and measured current is 10A and observed voltage and measured voltage is 150V. So, the ohm's law is verified successfully.

Conclusion:
Ohm's Law is verified if the voltage (V) and current (I) exhibit a linear relationship confirming that V = IR holds true under the experimental conditions. Here theoretical value of V is found to be nearly same as observed V.

Hence, Ohm's law is verified.