JADAVPUR UNIVERSITY

Faculty of Engineering & Technology

...Electronics..... Engg. Laboratory

Name....TATHAGATA SUR.....

Class ...CSE-VG1... Sec....A1..... Roll No.002310501030

Date of Experiment....18/12/2023.... Date of Submission....08/01/2024....

Marks Obtained..... Signature of Examiner.....

NAME	CO-WORKER	ROLL
Samim Sekh		002310501026
Pratyay Kar		002310501027
Joyesmit Pal		002310501028
Abir Chakraborty		002310501029
Aniruddh Modi		002310501031
Ankit Shaw		002310501032

Experiment No....01-B.....

Commence at....11:00 AM.... Completed at....2:00 PM....

Name of Teacher concerned

TITLE: Verification of Ohm's Law using multimeter.

OBJECT :

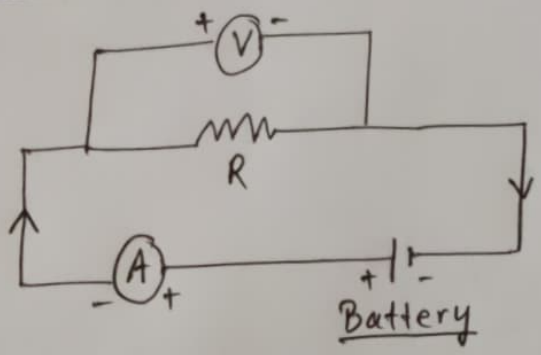
TITLE:- Verification of Ohm's law using multimeter

THEORY:- Ohm's Law states that the potential difference applied across the ends of a resistor is directly proportional to the current flowing through it, provided all physical conditions and temperature remains constant.

APPARATUS USED:-

1) Regulated D.C. Power supply (1)
2) Multimeter (1)
3) Milli Ampere Ammeter (1)
4) Bread Board (1)
5) Resistors (2)
6) Connecting wire

CIRCUIT DIAGRAM:-



At constant temperature,

$V \propto I$ (v → Applied voltage, I → Ammeter reading)

$\Rightarrow V = IR$ (R is constant of proportionality, called resistance)

Observation - Table:

V(in V)	I(in mA)	R(in kΩ)
0.1	1.1	0.09
0.3	2.8	0.107
0.5	4.6	0.108
0.8	7.2	0.11
1.1	9.6	0.11

In Parallel,

V(in V)	I (in mA)	R (in kΩ)
0.1	2	0.05
0.3	4.8	0.0625
0.5	7.6	0.0657
0.6	8.8	0.0681
0.4	6.1	0.0655

In series,

v(in V)	I(in mA)	R(in kΩ)
0.2	1	0.2
0.4	1.8	0.22
0.6	2.8	0.214
0.8	3.8	0.210
1.0	4.6	0.217

Conclusion:-

From the graph, we can say that voltage varies linearly when current when temperature and other physical quantities remain constant and the graph gives a striaght line passing through the origin.

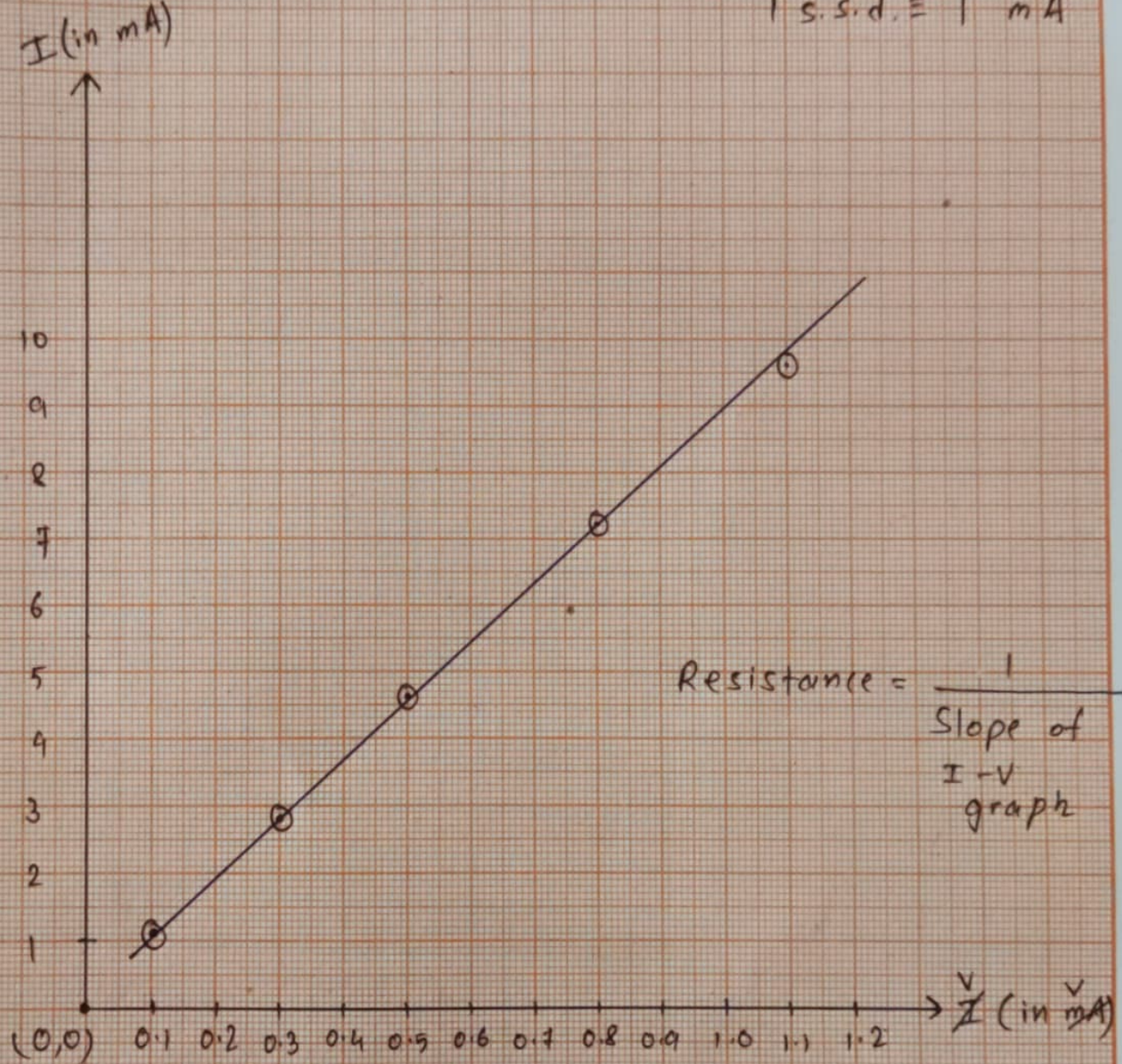
Slope:-

Along X-axis,

1 s.s.d ≡ 0.1 ~~mA~~ V

Along Y-axis,

1 s.s.d. ≡ 1 mA



Resistance = $\frac{1}{\text{Slope of } I\text{-}V \text{ graph}}$

I vs V graph

Jadavpur University
Graph Paper - M.M. Division

Tathagata Sur, CSE-UG1, 00231050 1030, Electronics Lab,
Expt.-01 B