

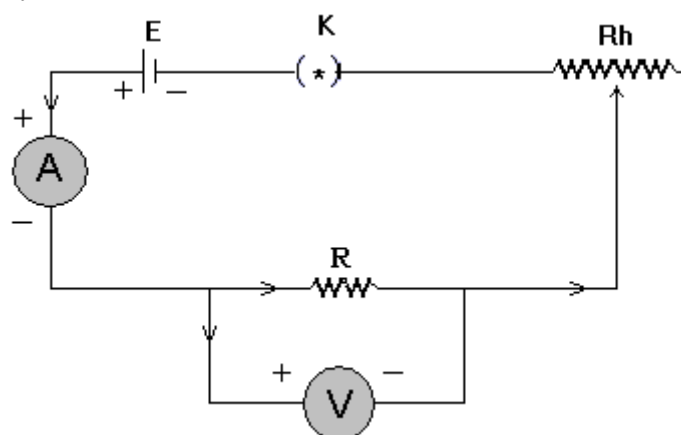
PRACTICAL: 6

Verification of Ohm's Law

AIM: To verify the ohm's law and hence determine the unknown resistance of the given material of the wire.

APPARATUS: A battery, an ammeter, voltmeter, rheostat, plug key, coil of unknown substance, connecting wire, etc...

CIRCUIT DIAGRAM:



PROCEDURE:

1. The circuit is connected as per the circuit diagram.
2. The plug key is inserted and the rheostat is adjusted so that a definite amount of current (I) flows in the circuit. This value of current is recorded.
3. As the current flows through the unknown resistance a potential difference is developed which is read from voltmeter (V).
4. The procedure is again adjusted to a different value of current (I) and the corresponding (V) values are noted down.
5. The procedure is repeated for at least 5-6 current readings and for voltage also.
6. A tabular column is drawn and the readings of I and V are tabulated.
7. Graph of V Vs I is down. A straight line is obtained.
8. The slope of the graph is found out. The slope gives the resistance (R) of the unknown resistance.

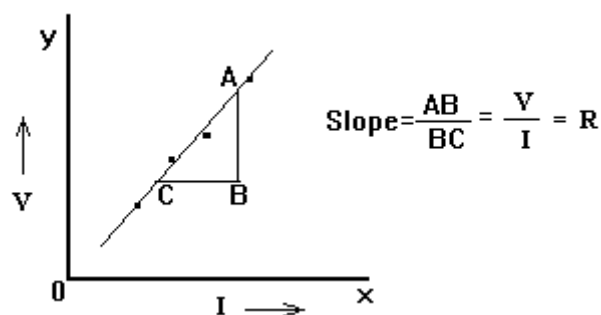
OBSERVATIONS:

1. Range of Voltmeter = _____ V
2. Range of Ammeter = _____ A
3. Least count of voltmeter (1Div)= _____ V
4. Least count of ammeter (1Div)= _____ A
5. E.M.F of the Battery = _____ V

OBSERVATION TABLE:

Ob. No.	Potential Difference V volt	Current I amp.	Resistance $V / I = R \Omega$	Mean Resistance $R \Omega$
1				
2				
3				
4				
5				

GRAPH: Obtain value of 'R' via slope of 'V' vs 'I' = _____ Ω .



RESULT:

➤ Unknown Resistance 'R'

a) By calculation _____ Ω .

b) By Graph _____ Ω .

Viva :

1. What are ohmic resistance? Give two examples.
2. What is S.I. Unit of resistance?
3. Why ammeter connected in series only?
4. Why the internal resistance of voltmeter is very high, where as that of an ammeter is very low?
5. What is the function of rheostate in the circuit?
6. What are the application of Ohm's law.
7. What are the limitations of Ohm's law?
8. What is the difference between emf and terminal voltage of cell?
9. State Ohm's law.
10. What are non-ohmic resistance? Give two examples.

Precautions:

1. All the connections must be very tight.
2. Record the current at the regular interval of voltage.
3. While changing the voltage, rheostate must be move in one direction only.
4. Least count of voltmeter and ammeter must be properly calculated.
5. Do not pass a large current through the resistance.
6. While measuring the voltage and current the needle of meters should not move out of the scale.