Ohm's Law II

AIM: To verify the laws of combination of Resistances.

APPARATUS: Cells, Ammeter, Voltmeter, Rheostat, Key, Resistances, Bread Board, Connecting wires etc

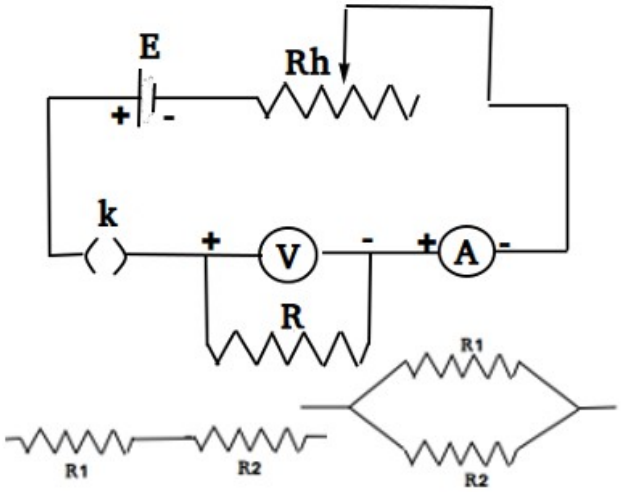
THEORY: At constant temperature, the current passing through the conductor is directly proportional to the potential difference across the conductor.

That is **V α I** or $\frac{V}{I}=R$ the resistance of the conductor.

When two resistances R_1 and R_2 connected in series, the effective resistance $R_s = R_1 + R_2$.

When they are connected in parallel , the effective resistance is given by $\frac{1}{R_s}=\frac{1}{R_1}+\frac{1}{R_2}$

or $R_p=\frac{R_1 R_2}{R_1+R_2}$



OBSERVATIONS:

Least Count of the ammeter = A

Least Count of the voltmeter = V

Resistance	Trial No	Ammeter Reading (I) Ampere	Voltmeter Reading (V) Volts	$R=\frac{V}{I}$ Ω	Mean R Ω
R_1	1 2 3 4				R_1 =
R_2	1 2 3 4				R_2 =
R_1 and R_2 in Series	1 2 3 4				R_s =
R_1 and R_2 in Parallel	1 2 3 4				R_p =

CALCULATIONS:

R_1 = Ω

R_2 = Ω

R_s =

$R_s = R_1 + R_2$ = = Ω

R_p = Ω

$R_p = \frac{R_1 R_2}{R_1 + R_2}$ = = Ω

RESULT:

The laws of combination of Resistances in Series and Parallel are verified.