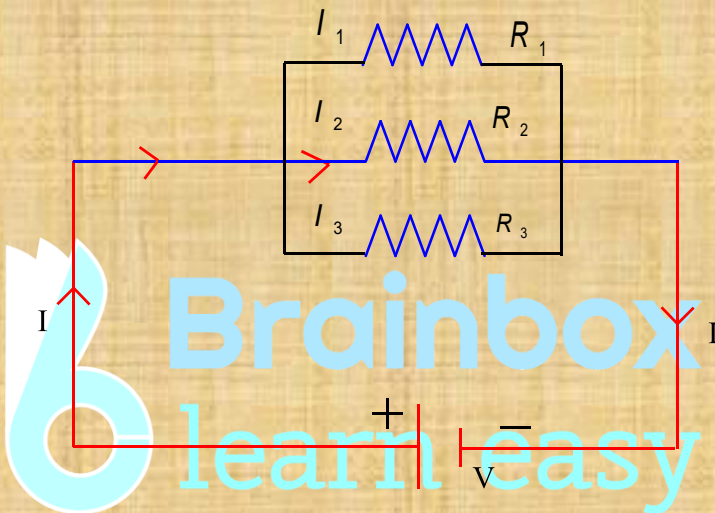


Chapter 12

CURRENT ELECTRICITY

Resistors in Parallel:



(i) Effective Resistance in Parallel Combination:

$$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$R_p = \frac{R_1 R_2 R_3}{R_1 R_2 + R_2 R_3 + R_3 R_1}$$

(ii) Voltage across each resistor is same and equal to the applied voltage.

$$V_1 = V_2 = V_3 = V$$

(iii) $I = I_1 + I_2 + I_3$ and $I_1 : I_2 : I_3 = \frac{1}{R_1} : \frac{1}{R_2} : \frac{1}{R_3}$

(iv) $I_1 = \left(\frac{R_2 R_3}{R_1 R_2 + R_2 R_3 + R_3 R_1} \right) I$

$$I_2 = \left(\frac{R_1 R_3}{R_1 R_2 + R_2 R_3 + R_3 R_1} \right) I$$

$$I_3 = \left(\frac{R_1 R_2}{R_1 R_2 + R_2 R_3 + R_3 R_1} \right) I$$

(v) If 'n' equal resistors of Resistance 'R' in parallel.

$$R_p = \frac{R}{n}$$



Brainbox
learn easy