

ELECTRICITY FORMULAE

Date / /

Page No.

Sr.No	Topic	Formula
1	Voltage (V)	$V = \frac{W}{Q}$ W = work done Q = charge
2	Current (i)	$i = \frac{Q}{t}$ Q = charge t = time
3	Power (P)	$P = Vi$ V = voltage i = current
4	Conductivity (σ)	$\sigma = \frac{1}{\rho}$ $\rho = \text{rho (Resistivity)}$
5	Resistance (R)	$R = \frac{\rho l}{A}$ or $\frac{V}{i}$ $\rho = \text{rho}$ $l = \text{length}$ $A = \text{Area}$
6	Resistance in Series	$R_s = R_1 + R_2 + R_3 \dots$
7	Power in Series	$P_s = Vi = i^2 R$ $P_s = \frac{V^2}{R_1} + \frac{V^2}{R_2} + \frac{V^2}{R_3} \dots$
8	Resistance in Parallel	$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} \dots$
9	Power in Parallel	$P_p = Vi = \frac{V^2}{R}$ $P_p = P_1 + P_2 + P_3 \dots$
10	Electric Energy or Heat Produced	$E = i^2 R t = Vit = \frac{V^2}{R} t$

LIGHT FORMULAE

S.No	TOPIC	Formula
1	Mirror formula	$\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$ v = image distance u = object distance f = focal Length
2	Lens formula	$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$
3	Magnification	$\frac{H_i}{H_o} = \frac{-v}{u}$ H_i = Height of image H_o = Height of object
4	Power of a lens	$P = \frac{1}{f}$ f = Focal length
5	Absolute Refractive index	$n = \frac{\text{Speed of light in Vacuum}}{\text{Speed of light in Medium}}$
6	Absolute Relative Refractive index	$n_{21} = \frac{\text{Speed of light in Medium 1}}{\text{Speed of light in Medium 2}}$
7	Snell's Law	$n_{21} = \frac{\sin i}{\sin r}$ i = incidence angle r = refraction angle
8	Combining power of lenses	$P = P_1 + P_2 + P_3 \dots$
9	Radius of Curvature	$2 * \text{Focal Length} = 2f$