Physics Formula Sheet

Chapter by chapter, topic by topic. Written by the PadhoNa team for quick revision.

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CHAPTER 25

Electromagnetic Waves

Displacement current and properties

DISPLACEMENT CURRENT

$$I_d = \varepsilon_0 \frac{d\phi_E}{dt}$$

SPEED

$$c = \frac{1}{\sqrt{\mu_0 \varepsilon_0}}, \qquad \frac{E_0}{B_0} = c, \qquad v = \frac{c}{n}$$

ENERGY AND INTENSITY

$$u = \tfrac{1}{2}\varepsilon_0 E_0^2 \text{ (average)}, \qquad I = \tfrac{1}{2}\varepsilon_0 c E_0^2$$

MOMENTUM AND PRESSURE

$$p = \frac{U}{c}; \qquad P = \frac{I}{c} \text{ (absorbed)}, \ \frac{2I}{c} \text{ (reflected)}$$

Electromagnetic spectrum

$$\text{radio} > \text{microwave} > \text{infrared} > \text{visible} > \text{UV} > \text{X-ray} > \gamma \ \text{ (wavelength, longest first)}$$

$$\text{visible: } 400\text{–}700 \text{ nm}$$

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