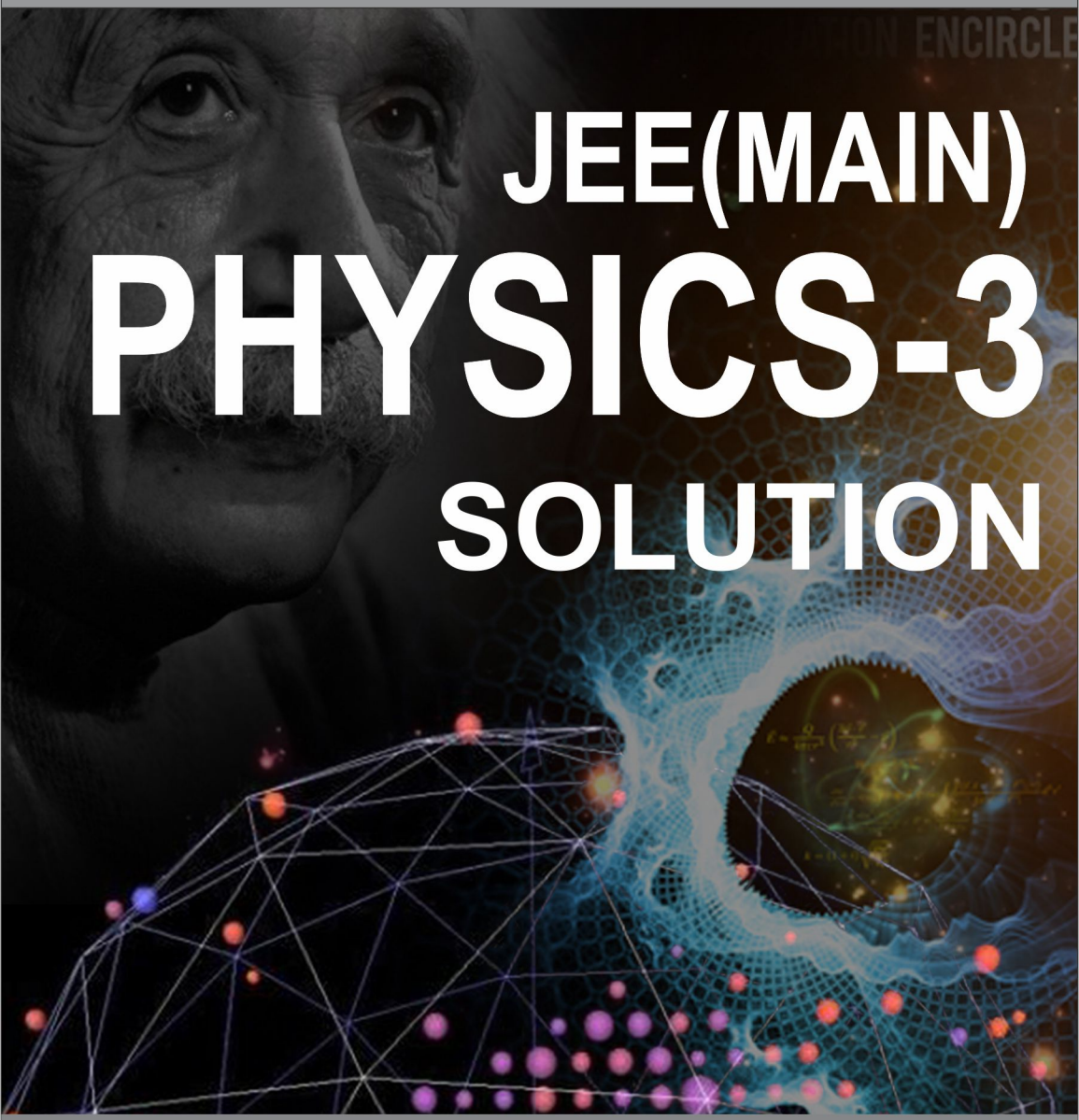


JEE(MAIN)
PHYSICS-3
SOLUTION

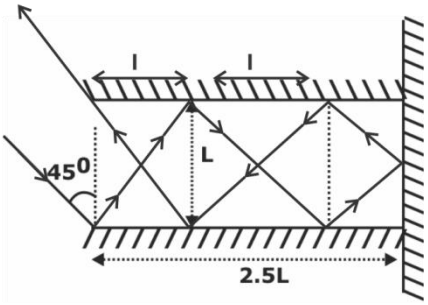
Author- Pie Education

SECTION – I
PHYSICS

1. **(D)** $\frac{1}{f}=\frac{1}{v}-\frac{1}{u}$ **Image of convex lens form on the pole of concave lens**

2. **(A)** $m_l=\frac{image\ size}{object\ size}=\frac{I}{O}=\frac{f/2}{f/3}=\frac{3}{2}$

3. **(C)**



4. **(B)** $\omega_1 f_2+\omega_2 f_1=0$ **condition of achromatism**

$0.02\ f_2+0.04\ f_1=0$

$f_2+2f_1=0$ **…(1)**

$\frac{1}{f}=\frac{1}{f_1}+\frac{1}{f_2}\Rightarrow\frac{1}{40}=\frac{1}{f_1}+\frac{1}{f_2}$ **…(2)**

From equation (1) and (2) f_1 = +20 and f_2 = -40

5. **(D)**

6. **(D)**

$\delta=i+e-A$

For every δ there is two set of values of angle of incidence

1 - i=53, e=37 **2- i=37, e=53**

If value i = 50 then e is not equal to 40

From the graph if i = 50 then e > 37^0 and δ < (53+37-A)

So answer is 38^0

7. **(A), (B), (C)**

8. **(D)**

$f_1 = f_2$

$Y_1\times A_1\times strain_1=Y_2\times A_2\times strain_2$

$Y_1A_1\alpha_1\Delta T=Y_2A_2\alpha_2\Delta T$

9. **(A)**

For any position of observer he can receive reflected ray by single reflection at eyepiece so number of images observable is 1

10. **(B)**

11. **(D)**