

$$\frac{-2\omega l}{12\epsilon l} = \frac{-\omega l}{6\epsilon l} \quad (2)$$

$$A\rho\epsilon\bar{\epsilon} = \omega l^2$$

$$\rho = \frac{\omega l^2}{4\epsilon\bar{\epsilon}}$$

$$y \left[\frac{\omega l^2}{4\epsilon\bar{\epsilon}} \right] x^2 - \left[\frac{\omega l}{6\epsilon\bar{\epsilon}} \right] x^3 + \left[\frac{\omega}{24\epsilon\bar{\epsilon}} \right] x^4$$

$$\left[\frac{\omega l^2 x^2}{4\epsilon\bar{\epsilon}} - \frac{\omega l x^3}{6\epsilon\bar{\epsilon}} + \frac{\omega x^4}{24\epsilon\bar{\epsilon}} \right]$$

$$= \frac{6\omega l^2 x^2 - 4\omega l x^3 + \omega x^4}{24\epsilon\bar{\epsilon}}$$

$$\frac{\omega}{24\epsilon\bar{\epsilon}} [6l^2 x^2 - 4l x^3 + x^4]$$

$$\text{G.S } y = A + Bx = \frac{\omega}{24\epsilon\bar{\epsilon}} [6l^2 x^2 - 4l x^3 + x^4]$$

$$A = 0$$

$$\frac{dy}{dx} = B + \frac{\omega}{24\epsilon\bar{\epsilon}} [12l^2 x - 12l x^2 + 4x^3]$$

$$B = 0$$

particular Soln

$$y = \frac{\omega}{24\epsilon\bar{\epsilon}} [6l^2 x^2 - 4l x^3 + x^4]$$

$$y = \frac{\omega x^2}{24\epsilon\bar{\epsilon}} [6l^2 - 4l x + x^2]$$

$$y = \frac{\omega x^2}{24\epsilon\bar{\epsilon}} [x^2 - 4l x + 6l^2]$$

When $x = l$

$$y = \frac{\omega l^2}{24\epsilon\bar{\epsilon}} [l^2 - 4l^2 + 6l^2] = \frac{\omega l^2}{24\epsilon\bar{\epsilon}}$$

$$y = \frac{\omega l^4}{8\epsilon\bar{\epsilon}}$$