

- 7.18** In series LCR circuit, the plot of I_{\max} vs ω is shown in Fig 7.3. Find the bandwidth and mark in the figure.

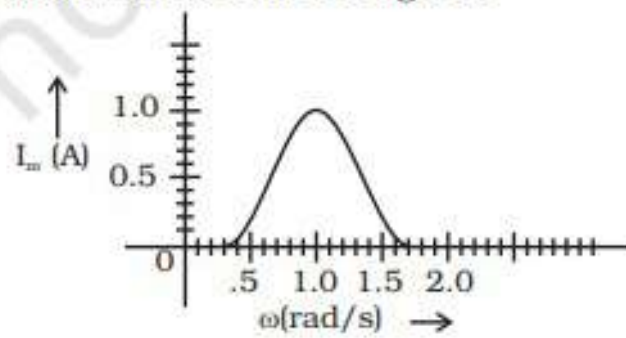
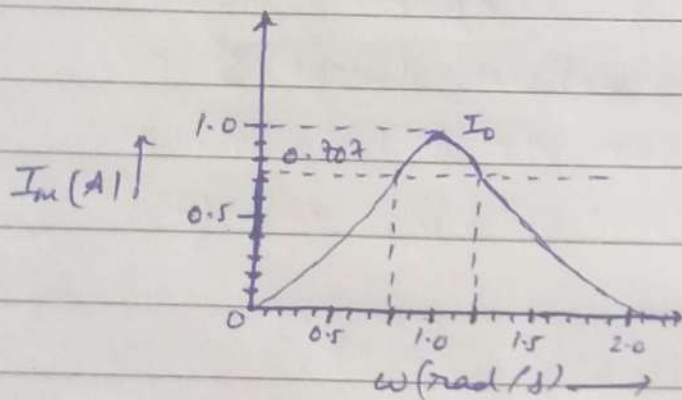


Fig. 7.3

1d. Band width $\Rightarrow (\omega_2 - \omega_1)$

where ω_1 and ω_2 are two frequencies where current becomes $\left(\frac{1}{\sqrt{2}}\right)$ times the current value at resonant frequency.



$$\frac{I}{I_{rms}} = \frac{I_0}{\sqrt{2}} = 1 \text{ A}$$

From graph,

$$\omega_1 = 0.8 \text{ rad/s and } \omega_2 = 1.2 \text{ rad/s}$$

$$\Rightarrow \text{Band width} = 1.2 - 0.8$$

$$= \boxed{0.4 \text{ rad/s}}$$