

An AC circuit has $R = 100 \Omega$, $C = 2 \mu\text{F}$ and $L = 80 \text{ mH}$, connected in series. The quality factor of the circuit is :
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A 20

B 2

C 0.5

D 400

4. Given,

$$R = 100 \Omega ; C = 2 \mu F = 2 \times 10^{-6} F ; L = 80 \text{ mH} = 80 \times 10^{-3} \text{ H}$$

$$\text{Quality factor i.e. } Q = \frac{1}{R} \sqrt{\frac{L}{C}}$$

$$= \frac{1}{100} \sqrt{\frac{80 \times 10^{-3}}{2 \times 10^{-6}}}$$

$$= \frac{1 \times 2 \times 100}{100}$$

$$100$$

$$\boxed{Q = 2}$$