

EE23BTECH11054 - Sai Krishna Shanigarapu*

GATE EE 2022

28. The network shown below has a resonant frequency of 150 kHz and bandwidth of 600 Hz. The Q-factor of the network is ____ (rounded off to one decimal place).
(GATE 2022 EC)

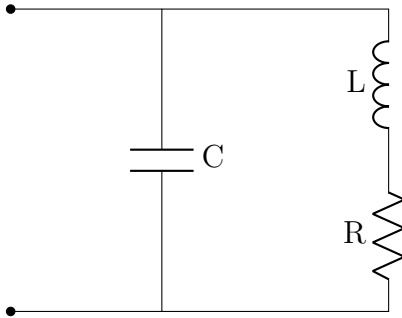


Fig. 1. Circuit 1

Solution:

Parameter	Description	Value
f_0	Resonant frequency	150 kHz
B	Bandwidth	600 Hz
Q	Quality factor	?

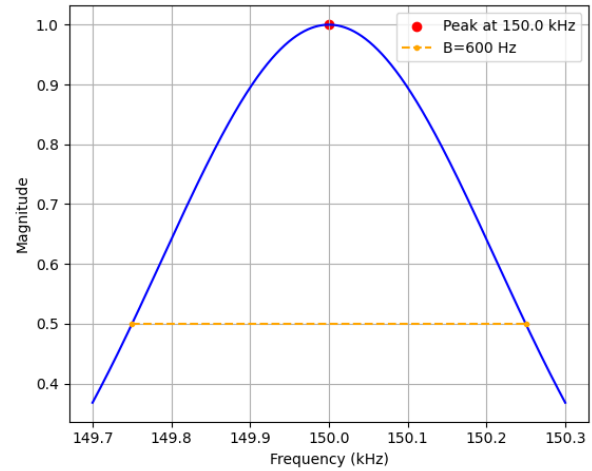
TABLE I
PARAMETERS

Fig. 2. Plot of Q-factor

$$Q = \frac{f_0}{B} \quad (1)$$

$$= \frac{150 \times 10^3}{600} \quad (2)$$

$$= 250 \quad (3)$$

\therefore Q-factor is 250