## 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)

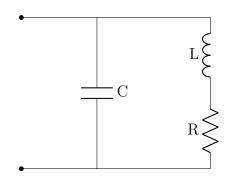


Fig. 1. Circuit 1

## **Solution:**

Parameter	Description	Value
$f_0$	Resonant frequency	$150~\mathrm{kHz}$
В	Bandwidth	600 Hz
Q	Quality factor	?

TABLE I PARAMETERS

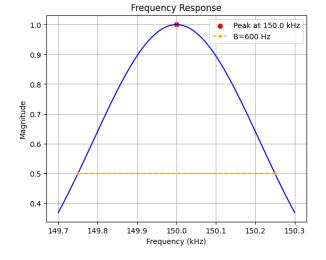


Fig. 2. Plot of Q-factor

$$Q = \frac{f_0}{B}$$
 (1)  
=  $\frac{150 \times 10^3}{600}$  (2)

$$=250$$
 (3)

## $\therefore$ Q-factor is 250