

PHY 2811 (2009)

Solution of Exp. 7 prelab questions

We will use $L = 4.7$ mH and $C = 39$ nF.

1. Calculate ω_0 .
2. Critical damping occurs when $\gamma = \omega_0$. Calculate the corresponding R .

Ans:

$$1. \omega_0 = \sqrt{\frac{1}{LC}} = 7.4 \times 10^4 \text{ sec}^{-1}$$

$$f_0 = 11.8 \text{ kHz}$$

$$2. \gamma = \frac{\alpha}{2} = \frac{R}{2L} = \omega_0$$

$$\Rightarrow R = 2L\omega_0 = 696 \Omega$$