

Prelab 6 Homework

Phys 276

Spring 2015

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1. Suppose you create the circuit shown in Fig. VI-1 with a $0.01\ \mu\text{F}$ capacitor, a $200\ \text{mH}$ inductor, and a $1\ \text{kilo-ohm}$ resistor in series.
 - a. What is the expected resonant frequency f_0 (in Hz) of this circuit?
 - b. What is the expected quality factor of the circuit?

2. Suppose that this circuit is excited with a sinusoidal signal of amplitude $V_0 = 1\ \text{V}$ at a frequency f that is on resonance, $f = f_0$. What is the amplitude of the voltage appearing on the inductor? (Assume that $R_R = R$.)