1. A coil has $3.50 \Omega$ resistance and $490 \text{mH}$ inductance. If the current is 3.29 A and is increasing at a rate of 3.97 A/s, what is the potential difference across the coil at this moment?

2. How much resistance $R$ must be added to a pure LC circuit to change the oscillator’s frequency by 0.25%? Will it be increased or decreased?

3. A 31mH inductor with 3.0Ω resistance is connected in series to 26µF capacitor and a 25Hz, 29V(rms) source. Calculate the rms current.

4. An LRC series circuit with $R = 200 \Omega$, $L = 32 \text{mH}$, and $C = 2.5 \mu \text{F}$ is powered by an ac voltage source of peak voltage $V_0 = 200 \text{V}$ and frequency $f = 770 \text{Hz}$. Determine the peak current that flows in this circuit.

5. An LRC circuit has $L = 4.65 \text{mH}$ and $R = 3.18 \text{k}\Omega$. What value must $C$ have to produce resonance at 25.2kHz? What will be the maximum current at resonance if the peak external voltage is 124V?