1) From the following equation \( V = V_0 e^{-bt} \cos(wt) \) draw the \( e^{bt} \) term.

2) In the above equation where does \( e^{bt} \) come from?

3) In the section on computer setup, what is sampling rate?

4) One equation for power is \( P = I \times V \) (current times voltage). If the current can be out of phase with the voltage can \( P = I \times V \) ever be zero?

5) What is a LCR circuit good for?

6) What does the L, C, and R stand for in a LCR circuit?

7) If \( L = 10E-5 \) (H) and \( C = 6E-6 \) (F) calculate \( \omega_0 \) (H is the units of Henry and F is Farads).

8) Explain the concept of resonance?

9) Convert 60 Hz to radians per second.

10) An electric motor has an inductance and factories are full of electric motors. When the motors are started up in the morning why is the phase angle between the voltage and current in the power lines changed?