

73. (a) We solve  $L$  from Eq. 33-4, using the fact that  $\omega = 2\pi f$ :

$$L = \frac{1}{4\pi^2 f^2 C} = \frac{1}{4\pi^2 (10.4 \times 10^3 \text{ Hz})^2 (340 \times 10^{-6} \text{ F})} = 6.89 \times 10^{-7} \text{ H} .$$

- (b) The total energy may be figured from the inductor (when the current is at maximum):

$$U = \frac{1}{2}LI^2 = \frac{1}{2}(6.89 \times 10^{-7} \text{ H})(7.20 \times 10^{-3} \text{ A})^2 = 1.79 \times 10^{-11} \text{ J} .$$

- (c) We solve for  $Q$  from  $U = \frac{1}{2}Q^2/C$ :

$$Q = \sqrt{2CU} = \sqrt{2(340 \times 10^{-6} \text{ F})(1.79 \times 10^{-11} \text{ J})} = 1.10 \times 10^{-7} \text{ C} .$$