Possibly Useful Information for Exam 3

Electron rest mass $= 9.1 \times 10^{-31}\ kg$
Proton rest mass $= 1.67 \times 10^{-27}\ kg$
Speed of light in a vacuum $= 3.0 \times 10^{8}\ m/s$
Permeability constant $\mu_0 = 1.26 \times 10^{-6}\ T\ m/A$
Permittivity of free space $\epsilon_0 = 8.9 \times 10^{-12}\ C^2/N\ m^2$
Acceleration due to gravity $g = 9.8\ m/s^2$

Possibly Useful Formulae

You should be able to interpret the meanings of various symbols below. Ask me if anything is not clear.

$$\mathbf{a} \cdot \mathbf{b} = |\ \mathbf{a}\ |\ |\ \mathbf{b}\ |\ cos\ (\theta) \tag{1}$$

$$\mathbf{a} \times \mathbf{b} = |\ \mathbf{a}\ |\ |\ \mathbf{b}\ |\ sin\ (\theta) \tag{2}$$

$$P = V_{rms} I_{rms}\ cos\ (\phi) \tag{3}$$

$$\mathbf{S} = \mathbf{E} \times \mathbf{B}/\mu_0 \tag{4}$$

$$I = E_0 B_0/(2\mu_0) \tag{5}$$

$$Z = \sqrt{R^2 + (\omega L - 1/(\omega C))^2} \tag{6}$$

<u>Kinematic Equations</u>

$$v_f = v_i + a\ t \tag{7}$$

$$d = v_i\ t + \frac{a\ t^2}{2} \tag{8}$$

$$v_f^2 = v_i^2 + 2\ a\ d \tag{9}$$