Problema 1

1)

$0 < r < R_1$ $\mathbf{E}(\mathbf{r}) = Q_1 (\mathbf{r}/r)/(4\pi\varepsilon_0 r^2)$

$R1 < r < R2$ $\mathbf{E}(\mathbf{r})=0$

$r > R2$ $\mathbf{E}(\mathbf{r}) = (Q_2-Q_1) (\mathbf{r}/r)/(4\pi\varepsilon_0 r^2)$

2)

$r > R2$ $V(r) = (Q_2-Q_1)/(4\pi\varepsilon_0 r)$

3)

$\sigma_1 = -Q_1/(4\pi R_1^2) = 2\text{x}10^{-8}$ C/m^2

$\sigma_1 = (Q_2+Q_1)/(4\pi R_2^2) = 2.6\text{x}10^{-8}$ C/m^2

Problema 2

1) $(0, -i2RB\cos(\theta), i2RB\text{sen}(\theta))$

2) $(0, i2RB\cos(\theta), -i2RB\text{sen}(\theta))$

3) $(-i\pi R^2 B\text{sen}(\theta)/2, 0, 0)$

Problema 3

1) $C=1/L\omega_0^2 = 3.9\text{x}10^{-7}$ F $R = V/I_0 = 5\ \Omega$

2) $V_C = V_L = I_0/\omega_0 C = I_0\omega_0 L = 320$ V

3) Energia in un periodo $= I_0^2 R2\pi/2\omega_0 = 3.9\text{x}10^{-3}$ J