Answers test 3 2010

1) a) $\vec{B} = \frac{\mu_0 i_1}{2}\left(\frac{1}{a} - \frac{3}{b}\right)\odot$

b) $\frac{b}{a} = 3$

2) $\vec{B} = \frac{\mu_0 i_2}{2\pi c}\otimes + \frac{\mu_0 i_1}{2\pi c}\frac{c^2 - a^2}{b^2 - a^2}\odot$

3) a) $i = \frac{2\pi B_0 \beta r_0^2 (1+\beta t)}{R}$ cw

b) $d\vec{F} = \frac{2\pi B_0 \beta r_0^2 (1+\beta t)}{R} ds . B_0$ (to the center of the loop)

4. a) $L\frac{d^2Q}{dt^2} + R\frac{dQ}{dt} + \frac{1}{C}Q = 0$

b) $Q(t) = Q_0 \cos \frac{1}{\sqrt{LC}} t$