

14. We note that $1 \text{ gauss} = 10^{-4} \text{ T}$. Adapting the result of the problem 11,

$$\begin{aligned} q(t) &= \frac{N}{R} [BA \cos 20^\circ - (-BA \cos 20^\circ)] = \frac{2NBA \cos 20^\circ}{R} \\ &= \frac{2(1000)(0.590 \times 10^{-4} \text{ T})\pi(0.100 \text{ m})^2(\cos 20^\circ)}{85.0 \, \Omega + 140 \, \Omega} = 1.55 \times 10^{-5} \text{ C} . \end{aligned}$$

Note that the axis of the coil is at 20° , not 70° , from the magnetic field of the Earth.