5. (a) Table 27-1 gives the resistivity of copper. Thus,

$$R = \rho\frac{L}{A} = (1.68 \times 10^{-8}\,\Omega\cdot\text{m})\left[\frac{\pi(0.10\,\text{m})}{\pi(2.5 \times 10^{-3})^2/4}\right] = 1.1 \times 10^{-3}\,\Omega\ .$$

(b) We use $i = |\mathcal{E}|/R = |d\Phi_B/dt|/R = (\pi r^2/R)|dB/dt|$. Thus

$$\left|\frac{dB}{dt}\right| = \frac{iR}{\pi r^2} = \frac{(10\,\text{A})(1.1 \times 10^{-3}\,\Omega)}{\pi(0.05\,\text{m})^2} = 1.4\ \text{T/s}\ .$$