37. When the drop is in equilibrium, the force of gravity is balanced by the force of the electric field: $mg = qE$, where m is the mass of the drop, q is the charge on the drop, and E is the magnitude of the electric field. The mass of the drop is given by $m = (4\pi/3)r^3\rho$, where r is its radius and ρ is its mass density. Thus,

$$\begin{aligned} q &= \frac{mg}{E} = \frac{4\pi r^3 \rho g}{3E} \\ &= \frac{4\pi(1.64 \times 10^{-6}\,\text{m})^3(851\,\text{kg/m}^3)(9.8\,\text{m/s}^2)}{3(1.92 \times 10^5\,\text{N/C})} = 8.0 \times 10^{-19}\ \text{C} \end{aligned}$$

and $q/e = (8.0 \times 10^{-19}\,\text{C})/(1.60 \times 10^{-19}\,\text{C}) = 5$.