

30. Vertical equilibrium of forces leads to the equality

$$q \left| \vec{E} \right| = mg \implies \left| \vec{E} \right| = \frac{mg}{2e} .$$

Using the mass given in the problem, we obtain  $\left| \vec{E} \right| = 2.03 \times 10^{-7}$  N/C. Since the force of gravity is downward, then  $q\vec{E}$  must point upward. Since  $q > 0$  in this situation, this implies  $\vec{E}$  must itself point upward.