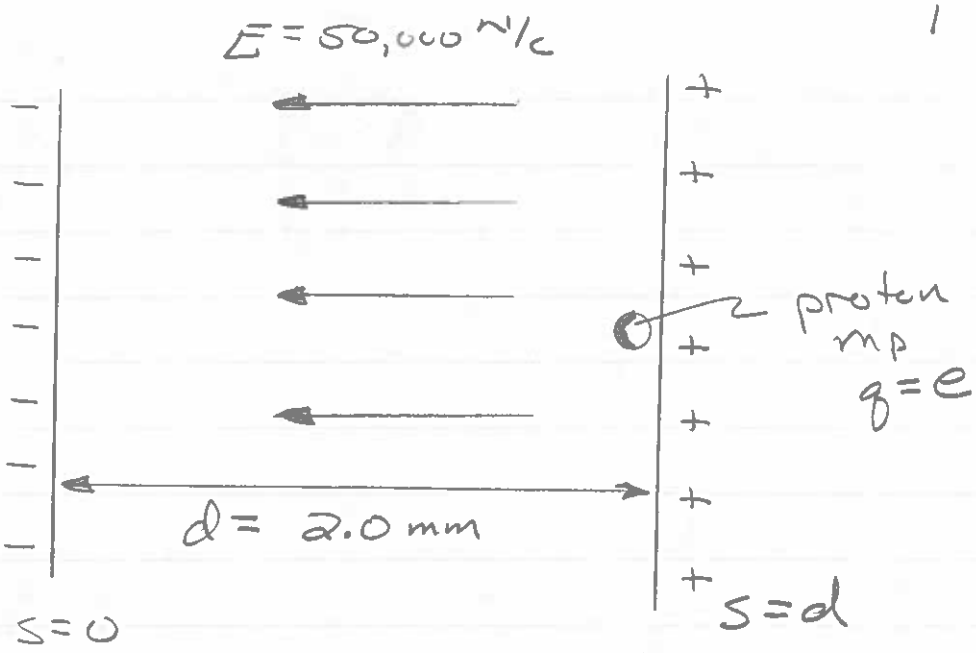

$K_i = 0$

$U_i = qEs = eEd$

$K_f = \frac{1}{2} m_p v_f^2$

$U_f = 0$

$\Delta E_{mech} = \Delta K + \Delta U = 0$

$(K_f - K_i) + (U_f - U_i) = 0$

$\frac{1}{2} m_p v_f^2 - eEd = 0$

$\therefore \quad v_f = \sqrt{\frac{2eEd}{m_p}}$

$= 1.384 \times 10^5 \text{ m/s}$

where $m_p = 1.67 \times 10^{-27}$ kg.