

$$x_o = 0.25$$

$$x_N = 0.60$$

$$x_c = 0.15$$

$$v_o = -0.084 \text{ cm/s}$$

$$v_N = +0.120 \text{ cm/s}$$

$$v_c = +0.052 \text{ cm/s}$$

$$\begin{aligned} V &= \sum x_i v_i = (0.25)(-0.084) + (0.60)(+0.120) + (0.15)(+0.052) \\ &= +0.0588 \text{ cm/s} \end{aligned}$$

$$\begin{aligned} C_N &= \frac{x_N P}{RT} = \frac{(0.60)(1 \text{ atm})}{(0.08206)(265 \text{ K})} = 0.02759 \text{ mol/L} \\ &= 2.759 \times 10^{-5} \text{ mol/cm}^3 \end{aligned}$$

$$U_N = v_N - V_N = +0.120 - 0.0588 = \underline{+0.0612 \text{ cm/s}}$$

$$J_N = C_N U_N = (2.759 \times 10^{-5}) / (0.0612) = \underline{1.69 \times 10^{-6} \text{ mol/cm}^2 \text{ s}}$$