Exam 3 Equation Sheet

$$\frac{dP}{dT} = \frac{\Delta_{trs}\overline{H}}{T\Delta_{trs}\overline{V}}$$

$$\ln\frac{P_2}{P_1} = -\frac{\Delta_{vap}\overline{H}}{R}\left(\frac{1}{T_2} - \frac{1}{T_1}\right)$$

$$\frac{1}{P}\frac{dP}{dT} = \frac{d\ln P}{dT} = \frac{\Delta_{vap}\overline{H}}{RT^2}$$

$$x_A d\mu_A + x_B d\mu_B = 0 \qquad \mu = \mu^\circ + RT\ln\left(\frac{P}{P^\circ}\right) \qquad \mu_A = \mu_A^* + RT\ln\left(\frac{P_A}{P_A^*}\right)$$

$$a_j = \frac{P_j}{P_j^*} \qquad \gamma_j = \frac{a_j}{x_j} \qquad \Pi = cRT \qquad \Delta T_f = K_f m_2$$

$$\Delta T_b = K_b m_2 \qquad \Delta P = P_1^* - P_1 = x_2 P_1^* \qquad K_b = \frac{R\left(T_{vap}^*\right)^2 M_1}{\Delta_{vap}\overline{H}}$$

$$\ln\gamma_\pm = -1.173\left|z_+ z_-\right| I_c^{1/2} \qquad a_2 = a_\pm^\nu \qquad I_c = \frac{1}{2}\sum_{j=1}^{s} z_j^2 c_j \qquad \ln\gamma_\pm = \frac{-1.173\left|z_+ z_-\right| I_c^{1/2}}{1 + I_c^{1/2}}$$

$$K_P = K_c\left(\frac{c^\circ RT}{P^\circ}\right)^{\nu_Y+\nu_Z-\nu_A-\nu_B} \qquad K_c = \frac{\left(q_Y/V\right)^{\nu_Y}\left(q_Z/V\right)^{\nu_Z}}{\left(q_A/V\right)^{\nu_A}\left(q_B/V\right)^{\nu_B}}$$

$$\frac{d\ln K_P(T)}{dT} = \frac{\Delta_r H^\circ}{RT^2} \qquad \ln a = \frac{\overline{V}}{RT}(P-1)$$

$$a = a_\pm^\nu = (m_+^{\nu_+} m_-^{\nu_-})(\gamma_+^{\nu_+}\gamma_-^{\nu_-})$$

$$a = a_\pm^\nu = (c_+^{\nu_+} c_-^{\nu_-})(\gamma_+^{\nu_+}\gamma_-^{\nu_-})$$