

Chem 141 Exam 2 Formula Sheet

$$P_{total} = \sum_i P_i$$

$$X_a = n_a/n_{total}$$

$$E_k = \frac{1}{2} mv^2$$

$$w = F \times d = -P\Delta V$$

$$\Delta E = q + w$$

$$\Delta H = \Delta E + P\Delta V = q_p$$

$$q = C_p \Delta T = C_s m \Delta T$$

$$q_{sys} = -q_{surr}$$

$$q_{rxn} = -q_{cal}$$

$$\Delta H_{rxn} = H_{products} - H_{reactants}$$

$$\Delta H_{rxn}^{\circ} = \sum n \Delta H_f^{\circ} \text{ products} - \sum m \Delta H_f^{\circ} \text{ reactants}$$

$$R = 8.3145 \text{ J mol}^{-1} \text{ K}^{-1} = 0.08206 \text{ L atm mol}^{-1} \text{ K}^{-1}$$

$$1 \text{ atm} = 760 \text{ torr} = 1.01325 \times 10^5 \text{ Pa} = 1.01325 \text{ bar}$$