

CM1014 FORMULA SHEET

$$N_A = 6.022 \times 10^{23} \quad 0^\circ\text{C} = 273.15 \text{ K} \quad R = 0.08206 \text{ L atm/mol K} = 8.314 \text{ J/mol K}$$

$$d = m/V \quad 1 \text{ amu} = 1.661 \times 10^{-24} \text{ g} \quad 1 \text{ g} = 6.022 \times 10^{23} \text{ amu} \quad s_{\text{water}} = 4.18 \text{ J/g } ^\circ\text{C}$$

$$c = 3.00 \times 10^8 \text{ m/s} \quad h = 6.63 \times 10^{-34} \text{ J s} \quad 1 \text{ atm} = 760 \text{ Torr} \quad 1 \text{ L atm} = 101.3 \text{ J}$$

$$?^\circ\text{C} = (^\circ\text{F} - 32^\circ\text{F}) \times (5^\circ\text{C} / 9^\circ\text{F}) \quad 1 \text{ atm} = 760 \text{ Torr} \quad ?^\circ\text{F} = (9^\circ\text{F} / 5^\circ\text{C}) \times (^\circ\text{C}) + 32^\circ\text{F}?$$

$$K = (^\circ\text{C} + 273.15^\circ\text{C}) \times (1 \text{ K} / 1^\circ\text{C}) \quad q = m s \Delta t \quad \Delta E = q + w \quad w = -P\Delta V$$

$$PV = nRT \quad (P + an^2/V^2)(V - nb) = nRT \quad q = C \Delta t \quad M_{\text{initial}} V_{\text{initial}} = M_{\text{final}} V_{\text{final}}$$

$$PM = dRT \quad \Delta H^\circ_{\text{rxn}} = \sum n \Delta H^\circ_f(\text{products}) - \sum m \Delta H^\circ_f(\text{reactants})$$

$$P_1 V_1 / T_1 = P_2 V_2 / T_2 \quad \text{molarity} = \text{moles solute/liters solution}$$

$$P_T = P_1 + P_2 + P_3 + \dots \quad \text{mole fraction} = \text{moles component/total moles solution}$$

$$P_i = X_i P_T \quad u_{\text{rms}} = \sqrt{3RT/M} \quad r_1/r_2 = \sqrt{M_2/M_1} \quad c = \lambda\nu \quad E = h\nu = hc/\lambda$$

$$\% \text{ composition} = (\text{mass element} / \text{total mass}) \times 100\% \quad \% \text{ yield} = (\text{actual/theoret}) \times 100\%$$

$$E_n = -R_H (1/n^2) \quad \Delta E = h\nu = R_H (1/n_1^2 - 1/n_2^2) \quad \lambda = h/mv \quad R_H = 2.18 \times 10^{-18} \text{ J}$$

$$FC = V - (NB + B/2)$$

