

Name: _____

Exam 3 Equations (Chapters 5-6)

$$1 \text{ cal} = 4.184 \text{ J}$$

$$c_{\text{H}_2\text{O}} = 4.184 \frac{\text{J}}{\text{g K}}$$

$$q = mc\Delta T$$

$$c = 2.998 \times 10^8 \text{ m/s}$$

$$\nu\lambda = c$$

$$E = h\nu = \frac{hc}{\lambda}$$

$$\frac{1}{\lambda} = R_H \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$$

$$q = n\Delta H_{rxn}$$

$$\Delta H_{rxn} = \frac{-mc\Delta T}{n_{rxn}} \quad \left(n_{rxn} = \frac{n_{limiting}}{\nu_{limiting}} \right)$$

$$\Delta U_{rxn} = \frac{-C\Delta T}{n_{rxn}} \quad \left(n_{rxn} = \frac{n_{limiting}}{\nu_{limiting}} \right)$$

$$\Delta H_{rxn} = \sum_{\text{products}} \nu \Delta H_f - \sum_{\text{reactants}} \nu \Delta H_f$$

$$h = 6.626 \times 10^{-34} \text{ J s}$$

$$\Delta E = R_H \left(\frac{1}{n_f^2} - \frac{1}{n_i^2} \right)$$

$$R_H = 2.179 \times 10^{-18} \text{ J}$$

$$R_H = 1.097 \times 10^7 \text{ m}^{-1}$$