

Review Sheet for Third Exam

Topics Covered

classes of chemical reactions: solubility–precipitation; acid–base; oxidation–reduction; complex formation–complex dissociation
predicting products of chemical reactions using solubility rules, relative acid–base strength, relative oxidizing–reducing strength
relationship between structure and acid–base strength
oxidation states
ordinary and coordination valency
isomers of metal–ligand complexes
naming metal–ligand complexes
bonding models for metal–ligand complexes
hard–soft acid–base theory

Equations Provided to You

$$c = \lambda\nu$$

$$E = h\nu$$

$$KE = h\nu - W$$

$$\frac{1}{\lambda} = 1.09737 \times 10^{-2} \text{ nm} \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$$

$$V \propto \frac{Q_+ Q_-}{d}$$

$$AVEE = \frac{xIE_s + yIE_p + zIE_d}{x + y + z} \text{ (valence shell electrons only)}$$

$$FC_a = V_a - N_a - \frac{B_a}{2}$$

$$\delta_a = V_a - N_a - B_a \left(\frac{EN_a}{EN_a + EN_b} \right)$$

Constants Provided to You

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

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

$$N_A = 6.022 \times 10^{23} \text{ mol}^{-1}$$

Tables Provided to You (as needed)

periodic table
acid–base strengths and oxidizing–reducing strengths
color wheel

Note: The topics we cover in Chem 130, and their order and emphasis, vary slightly from semester-to-semester. As well, no single exam can touch upon all topics covered. For these reasons, you should view the practice exam available on the course web site as providing general insight into how I construct exams and as providing an opportunity to test your understanding on some of the course's topics. Although exams this semester are similar in format and style to these practice exams, they will, of course, reflect our work and experience as the semester unfolds.