

Review Sheet for Second Exam

Topics Covered

Lewis structures
VSEPR (including names and ideal bond angles)
partial charges and formal charges
polarity of bonds and polarity of ions and molecules
valence bond theory and hybrid orbitals
molecular orbitals and molecular orbital diagrams
covalent bonds vs. ionic bonds vs. metallic bonds
solid-state structures

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

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

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

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

Other Information Provided to You

periodic table

as needed: Slater's rules, ionization energies, electron affinities, atomic radii, ionic radii, AVEE values, electronegativity values

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.