

CHM 2210 Exam 1 Review Sheet

- Lewis Dot Structures: Including lone pairs, multiple bonds, and formal charges.
Section 1-4 (Examples 1-1 and 1-2), Section 1-8 (Example 1-3), Section 2-3 (Table 2-2)
- Hybridized Orbitals of C, N, and O: Including shape of orbitals for sp^3 , sp^2 , and sp .
Shape and Location of both σ (hybridized) and π (p only) covalent bonds.
Sections 1-6, 1-7, 1-8, 1-9, and 1-10
- Resonance, as represented by forms and hybrids: Creates delocalization and stability.
Section 2-4
- Rules for Resonance Forms: Note boldface type as well as molecules depicted.
Section 2-5
- Drawing Resonance Forms: Note italicized sentence, as well as curved arrows.
Section 2-6 (Examples 2-2 and 2-3)
- Condensed and Skeletal Structures: Always count carbons and bonds carefully.
Section 1-12 (Example 1-4)
- Dipole Moments: Vector sum of individual bond dipoles for molecule.
Section 2-2 (Example 2-3)
- Conjugate Acid/Base Pairs: Brønsted-Lowry and Lewis definitions.
Sections 2-7 and 2-8 (Examples 2-4 and 2-5) and Sections 2-10 and 2-11 (Example 2-6)
- Constitutional Isomers: Have different atomic bonds.
Section 3-2 (Example 3-1)
- Cis/Trans Stereoisomers: Different geometry, but same atomic bonds.
Section 4-2 (Example 4-1) and Section 7-4
- Newman Projections and Sawhorse Structures.
Section 3-6 (Figures 3-5, 3-6, and 3-7)
- Conformational Isomers: Eclipsed, Gauche, and Anti.
Section 3-7 (Example 3-4, Figure 3-9, and Table 3-5)
- Definitions of Torsional, Steric, and Angle Strains
Section 4-3
- Conformations of Cyclohexane and its Derivatives: Strains for equatorial and axial positions.
Sections 4-5, 4-6, 4-7, and 4-8 (Example 4-2 and Figures 4-14, 4-15, and 4-16)
- Systematic Nomenclature for Alkanes and Cycloalkanes: Follow the rules systematically.
Sections 3-3 and 3-4 (Examples 3-2 and 3-3) and Sections 4-1 and 4-2 (Example 4-1)