

Exam #7 Objectives



CHEM 1090 General Chemistry I

Text Reading

Chapter 8: sections 1-8

Chapter 9: sections 1-7

Homework Assignment

McGraw-Hill LearnSmart and Connect online assignments.

Online Quizzes

Bonding and VSEPR

Concepts

1. Draw Lewis structures for compounds.
2. Working from a Lewis structure, draw multiple resonance structures when asked.
3. Calculate formal charge and use it to determine the best Lewis structure when given a choice.
4. Using VSEPR and working from a finished Lewis structure, determine the shape for a molecular with one to six groups about the central atom.
5. Know the ideal bond angles for each of the shapes.
6. Demonstrate the ability to use valence bond theory and molecular orbital theory as discussed in lecture.
7. Given a molecular orbital diagram for a given chemical substance (diatomic only), appropriately fill the molecular orbitals with electrons, determine whether the molecule is diamagnetic or paramagnetic, calculate the bond order, and determine if the given substance is expected to be stable.
8. Demonstrate a working vocabulary of the following terms:

antibonding molecular orbital	formal charge	resonance
atomic orbital	Lewis structure	seesaw
bent	linear	sigma bond
bonding pair	lone pair	square planar
bonding molecular orbital	molecular orbital	square pyramidal
charge cloud	molecular orbital theory	T-shaped
covalent bond	multiple bond	tetrahedral
diamagnetic	octahedral	trigonal bipyramidal
duet rule	octet rule	trigonal planar
electron-dot structure	paramagnetic	trigonal pyramidal
electronegativity	pi bond	VSEPR
expanded octet (hypervalent)		