Faculty Submitting: Allison Kelly

Specify here whether "Pre" or "End" of Unit and the Unit #: Pre Unit 7

LOs: *Describe the difference between ionic and covalent bonding and differentiate between ionic and covalent compounds.* *Use the concept of electronegativity to predict bond covalency, bond polarity, and the dipole moment of molecules.* *Draw Lewis symbols, structures, and resonance structures. Use formal charge to rank likely Lewis structures.* *Use VSEPR to determine atomic orbital hybridization, predict electron pair and molecular geometry for molecules and ions.* *Describe sigma (σ) and pi (π) bonding in hybrid and molecular orbitals. Understand the differences between valence bond and molecular orbital theory.*	
Unit 7_ Question 1	**Canvas Question Type: Multiple DropDowns**
	Metals have relatively [dropone] ionization potentials and [droptwo] electrons easily to form [dropthree]. Nonmetals have relatively [dropfour] electron affinities and [dropfive] electrons easily to form [dropsix].
	Dropone: low high DropTwo: lose gain DropThree: cations anions DropFour: high low DropFive: gain lose Dropsix: anions cations
Read More	https://openstax.org/books/chemistry-2e/pages/7-1-ionic-bonding
Unit 7_ Question 2	**Canvas Question Type: Multiple Choice**

	Which of the following is NOT true of covalent compounds
	Correct Answer: Good conductors of electricity Wrong Answers: Lower melting and boiling points Softer in their solid states Formed by atoms with similar tendencies to attract electrons
Read more	https://openstax.org/books/chemistry-2e/pages/7-2-covalent-bonding
Unit 7_ Question 3	**Canvas Question Type: Matching**
	Match the type of bond to the approximate difference in electronegativity. (Remember these are only guidelines!) Ionic - >1.8 Polar Covalent – 0.4 to 0.8 Pure Covalent - < 0.4
Read more	https://openstax.org/books/chemistry-2e/pages/7-2-covalent-bonding
Unit 7_ Question 4	**Canvas Question Type: Multiple Dropdowns**
	Use Figure 7.6 to indicate which atom in each polar covalent bond would have the partial negative charge and which would have the partial positive charge [dropone] H—F [droptwo] [dropthree] F—C [dropfour] [dropfive] S—O [dropsix] [dropseven] O—N [dropeight]
	Dropone: δ+ δ- DropTwo: δ- δ+ DropThree: δ- δ+

	Dropfour: δ+ δ- Drop Give: δ+ δ- Dropsix: δ- δ+ Dropseven: δ- δ+ Dropeight: δ+ δ-
Read more	https://openstax.org/books/chemistry-2e/pages/7-2-covalent-bonding
Unit 7_ Question 5	**Canvas Question Type: Multiple fill in the blanks**
	How many electrons are shared in each type of bond? Single bond [two] electrons Double bond [four] electrons Triple bond [six] electrons
Read more	https://openstax.org/books/chemistry-2e/pages/7-3-lewis-symbols-and-structures
Unit 7_ Question 6	**Canvas Question Type: Matching**
	List the steps for drawing a Lewis structure using the octet rule 1. Determine the total number of valence electrons 2. Draw a skeleton structure of the molecule and connect with single bonds 3. Distribute remaining electrons to fill the octet of terminal atoms 4. Place all remaining electrons on the central atom 5. Form double or triple bonds as needed
Read more	https://openstax.org/books/chemistry-2e/pages/7-3-lewis-symbols-and-structures
Unit 7_ Question 7	**Canvas Question Type: Fill in multiple blanks**
	Elements in the [third] and higher periods can have an expanded valence shell because they have empty [d] orbitals in the same shell.
Read more	https://openstax.org/books/chemistry-2e/pages/7-3-lewis-symbols-and-structures

Unit 7_ Question 8	**Canvas Question Type: Multiple Choice**
	Which of the following is NOT true of formal charge
	Correct Answer: Formal charge is the charge on an atom in the molecule Wrong Answer: A structure which minimizes formal charge is preferred Formal charge is the hypothetical charge an atom would have if electrons were evenly distributed The formal charge on all atoms in a structure must sum to the total charge on the molecule or ion
Read more	https://openstax.org/books/chemistry-2e/pages/7-4-formal-charges-and-resonance
Unit 7_ Question 9	**Canvas Question Type: True/False**
	A molecule rapidly fluctuates between resonance forms FALSE
Read more	https://openstax.org/books/chemistry-2e/pages/7-4-formal-charges-and-resonance
Unit 7_ Question 10	**Canvas Question Type: Fill in Multiple Blanks**
	The VSEPR module assumes that [electron] pairs in the valence shell of a central atom will arrange to [minimize] repulsion by [maximizing] distance
Read more	https://openstax.org/books/chemistry-2e/pages/7-6-molecular-structure-and-polarity
Unit 7_ Question 11	**Canvas Question Type: Multiple DropDown**
	A sigma (σ) bond forms via [dropone] orbital overlap along the internuclear axis A pi (π) bond forms via [droptwo] orbital overlap on opposite sides of the internuclear axis
	Dropone: end-to-end side-to-side Droptwo: side-to-side end-to-end
Read more	https://openstax.org/books/chemistry-2e/pages/8-1-valence-bond-theory
	Additional topics that were not covered but this assignment was getting too long: Hybrid atomic orbitals Molecular geometry (in more depth) Energy of bonds (covalent bonds and lattice energy)