Chapter 6 Review Answer Key

(Note: Solutions to Problems 17, 20, & 30 – 38 can be found in the Book Answer Key)

Assignments:

- Chapter Review questions 1-42 on pages 216-218
- Written Assessment questions 43 - 48 on page 218
- Focus on Graphing questions 52-57 on pages 219

Chapter Review Assignment

1. The length of a bond can be found at their minimum potential energy.
2. A shared pair of electrons is known as a nonpolar covalent bond, while a polar covalent bond's electrons are shared unequally. In a polar covalent bond, the electrons are more likely to be found nearer to the atom with a higher electronegativity.
3. Lewis structures only show valence electrons.
4. Resonance structures
5. VSEPR allows you to predict the shape of a molecule.
6. A molecular has a positive end and a negative end.
7. Electronegativity affects the stability of a bond.
8. triple bond
9. In a polar covalent bond, the electrons are more likely to be found nearer to the atom with a higher electronegativity, however in a nonpolar, the electrons are shared equally.
10. The greater the bond energy, the more difficult the covalent bond is to break.
11. Covalent bonds share pairs of electrons instead of passing them.
12. The greater the bond energy, the more difficult the covalent bond is to break.
13. Covalent bonds are elastic.
14. Potential energy decreases as the attractive electric forces pull the two atoms closer together. They keep getting closer till the repulsive forces are balanced.
15. a. ionic b. nonpolar cov c. nonpolar cov d. polar cov e. polar cov f. nonpolar cov
16. The outer shell - valence electrons.
17. See textbook answer key.
18. electronegativity
19. Student answers will vary but should discuss the properties of ionic and covalent bonds.
20. See textbook answer key.
21. Students answers will vary but should relate to Lewis structures.
22. valence electrons
23. two pair between the atoms - see page 205 for an example
24. Resonance structures are used when multiple Lewis structures are possible.
25. a. sulfur tetrafluoride b. xenon tetrafluoride c. phosphorus pentabromide d. dinitrogen pentoxide e. trisulfur tetranitride
26. They oppose one another because they both have a negative charge.
27. a. tetrahedral b. nonpolar linear c. trigonal planar
28. Student answers will vary.

29. a. The molecule is bent because it is polar. b. When the molecule is bent, the polarities do not cancel one another.
30. See textbook answer key.
31. See textbook answer key.
32. See textbook answer key.
33. See textbook answer key.
34. See textbook answer key.
35. See textbook answer key.
36. See textbook answer key.
37. See textbook answer key.
38. See textbook answer key.
39. Answers will vary, but must include the properties of both molecular compounds and ionic compounds.
40. A halogen does not have two valence electrons.
41. a. linear b. bent c. trigonal planar d. tetrahedral
42. Answers will vary but students must support their answers.
43. The dipole is a molecule which has two separate partial charges while the electronegativity difference creates the partial poles.
44. Because F has such a high electronegativity.
45. a. there are 10 shared electrons instead of 8. b. 1 pair of unshared electrons c. 8 electrons make up the four shared pairs.
46. Methane has more shared pairs of electrons than ammonia.
47. See page 203.
48. C is shortest, A is longest.

52. atoms

53. (75, -436)

54. the relationship between Potential Energy and Distance between hydrogen nuclei in a hydrogen molecule

55. they are closest

56. positive

57. Student answers will vary, but must relate distance and energy.