

Honors Chemistry
Ch 8 REVIEW for Test
Dooner/CHS

1. Be able to define a “diatomic molecule” and give examples of elements that exist in nature as diatomic molecules only. P 214
2. In terms of melting point and boiling point, how do molecular compounds compare to ionic compounds? P 214
3. Be able to identify how many electrons are shared in single, double, and triple covalent bonds. P217 and 221
4. Be able to identify how many unshared pairs exist in the Lewis structure of any particular molecule. P 218
5. Be able to diagram and explain the “promotion” of an electron from the 2s to the 2p orbital in the carbon atom of a molecule of methane. P 219
6. Be able to draw the correct Lewis structure for diatomic nitrogen. P 221
7. Be able to demonstrate how an ammonium ion is formed from a molecule of ammonia through the addition of a hydrogen ion and a coordinate covalent bond. Be able to define a coordinate covalent bond. P 223
8. Be able to draw the Lewis structure for a simple polyatomic ion(i.e. one that does not constitute an exception or have resonance structures). P 224
9. Be able to evaluate the relative strength of bonds in terms of bond dissociation energy when given the values in kJ/mol. Be able to define bond dissociation energy. P 226
10. Be able to define a resonance structure and draw them for a molecule or polyatomic ion that has two or more resonance structures. P 227
11. Be able to draw Lewis structures for molecules containing sulfur or phosphorus which constitute exceptions to the octet rule. P 229
12. Be able to describe Molecular Orbital theory. Be able to describe and diagram a sigma bond and a pi bond in relation to their relative strength and relation to the bond axis. P230-31
13. Be able to define VSEPR Theory. Be able to predict and name the shapes of simple molecules like water, ammonia, and methane. P 232-233
14. Be able to diagram and explain the formation of sp^3 , sp^2 , and sp hybrid orbitals in the carbon atom. P 234, class notes
15. Be able to identify the type of hybrid orbitals that would form based on the number of “regions of high electron density” around an atom. Class notes
16. Be able to evaluate the relative electronegativity of the atoms in a bond and use Table 8.3 or similar to evaluate the bond as being nonpolar covalent, moderately polar covalent, very polar covalent, or ionic. P 238
17. Be able to identify and label the positive and negative ends of a bond or molecule using Greek
18. Be able to define Dipole. P 239
19. Be able to list and describe the two types of Van der Waals Forces. Are they intermolecular or intramolecular forces? P 240
20. Be able to diagram and explain a “hydrogen bond”. Is it an intermolecular or intramolecular force? How do they compare in strength to covalent and ionic bonds? P 241 Give two examples of important hydrogen bonds in nature. (class lecture)

OVER

WHEN YOU ARE FINISHED DISCUSSING THE QUESTIONS ABOVE WITH A PARTNER, BEGIN TO ANSWER THE FOLLOWING QUESTIONS ON YOUR OWN IN PREPARATION FOR THE CHAPTER 8 TEST ON FRIDAY:

p. 247

41, 43, 44, 45, 47, 49, 51, 52, 53, 54a,c, and e, 55, 56d, 58, 59, 60

Use your knowledge of Dispersion Forces to explain the different states of the elements in Group 7A at room temperature.

P 248

65c, 68a, b, c, d

P 249

82 b and 82b

P 251

1-5