Chapter 8 Solutions, Acids, and Bases

Section 8.1 Formation of Solutions (pages 228–234)

This section explains the parts of a solution, the processes that occur when compounds dissolve, and how the properties of a solution compare with those of its solvent and solute.

Reading Strategy (page 228)

Comparing and Contrasting Contrast dissociation and ionization by listing the ways they differ in the Venn diagram below. For more information on this reading strategy, see the Reading and Study Skills in the Skills and Reference Handbook at the end of your textbook.

Dissolving (pages 229–230)

1. A solution is a ____________ mixture of two or more substances.

2. Circle the letter that identifies a substance whose particles are dissolved in a solution.
   a. solvent
   b. solute
   c. ion

3. The process in which an ionic compound separates into ions as it dissolves is called ______________. Circle the correct answer.
   dispersion dissociation ionization

4. The process in which particles dissolve by breaking apart and scattering is called ______________. Circle the correct answer.
   dispersion dissociation ionization

5. Is the following sentence true or false? Dissolving by ionization is a physical change. ______________

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Properties of Liquid Solutions (page 231)

6. Circle the letters of the physical properties of a solution that can differ from those of its solute and solvent.
   a. conductivity
   b. freezing point
   c. boiling point

7. Circle the letters that identify what happens to water as it freezes.
   a. The water molecules become more organized.
   b. The water molecules become more disorganized.
   c. The water molecules arrange themselves in a hexagonal pattern.

Heat of Solution (page 232)

8. Dissolving sodium hydroxide in water is a(n) ____________ process, as it releases heat. Circle the correct answer.
   endothermic  exothermic  hydrothermic

9. Dissolving ammonium nitrate in water is a(n) ____________ process, as it absorbs heat.

10. Is the following sentence true or false? Breaking the attractions among solute particles and the attractions among solvent particles releases energy. ____________

Factors Affecting Rates of Dissolving (page 234)

11. Powdered sugar has more surface area per unit mass than granulated sugar. Which will dissolve faster in water, powdered sugar or granulated sugar? ____________

12. Heating a solvent increases the energy of its particles and _________ the rate at which a solid solute can dissolve in the solvent.

13. Stirring or shaking a solution that contains a solid solute moves dissolved particles away from the surface of the solid. It also causes _________ collisions between the solute and solvent particles. Circle the correct answer.
   less frequent  more frequent  less forceful