

Factors that affect Rate of Solution Formation and Solubility – Sample Questions

- 2) The phrase "like dissolves like" refers to the fact that _____.
- A) polar solvents dissolve nonpolar solutes and vice versa
 - B) solvents can only dissolve solutes of similar molar mass
 - C) gases can only dissolve other gases
 - D) polar solvents dissolve polar solutes and nonpolar solvents dissolve nonpolar solutes
 - E) condensed phases can only dissolve other condensed phases
- 4) Oil does not dissolve in water because
- A) oil is polar.
 - B) oil is nonpolar.
 - C) water is nonpolar.
 - D) water is saturated.
 - E) oil is hydrated.
- 5) The solubility of solids in water:
- A) is independent of the temperature.
 - B) increases with increasing temperature.
 - C) decreases with increasing temperature.
 - D) Solids are not soluble in water.

11. Increasing temperature increases reaction rate by what means?

- A. Higher temperature means the particles are moving faster so they will collide more often, increasing the chance of a bond-breaking collision.
- B. Higher temperature means the particles are moving faster so they will collide with higher energy, increasing the chance of a bond-breaking collision.
- C. Both a and b are correct.
- D. None of these are correct.

12.

- Gases become more soluble in liquids at the temperature and the pressure
- Solids tend to become more soluble in liquids as the surface area and the temperature

(surface area of the solid solute)

- _____ 19. Which does *not* affect the rate at which a solid solute dissolves?
- a. the vapor pressure of the solvent
 - b. the temperature of the solvent
 - c. the surface area of the solid
 - d. the speed at which the solution is stirred
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5. Which of the following should most greatly increase the rate of dissolving of a salt in water?

- A. ?) Stirring and increasing the pressure
 - B. ?) Increasing the temperature and stirring
 - C. ?) Decreasing the temperature and stirring
 - D. ?) Increasing the pressure
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7. Breaking a solid into smaller pieces increases the rate of dissolving because

- A. ?) it increases the temperature of the solution
 - B. ?) it increases the energy of the solution
 - C. ?) it increases the surface area of the solute
 - D. ?) it increases the pressure above the solution
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13. Which of the following is least likely to produce a solution?

- A. ?) A nonpolar solute in a polar solvent
- B. ?) An ionic solute in a polar solvent
- C. ?) A nonpolar solute in a nonpolar solvent
- D. ?) A polar solute in a polar solvent

ANSWERS:

2. D

4. B

5. B

11. C

**12. decreases, increases
(surface area of the solid solute) increases, increases**

19. A

5. B

7. C

13. A *ionic = most extreme of being polar (complete separation of charge, not just slight charged areas)