

- 4 13) What occurs as a salt dissolves in water?
 SKIP 1) The number of ions in the solution increases, and the freezing point increases.
 2) The number of ions in the solution decreases, and the freezing point increases.
 3) The number of ions in the solution decreases, and the freezing point decreases.
 4) The number of ions in the solution increases, and the freezing point decreases.
- 1 14) Based on the *Solubility Curves* chemistry reference table, which salt solution could contain 42 grams of solute per 100 grams of water at 40°C?
 1) an unsaturated solution of NH_4Cl 3) a saturated solution of KClO_3
 2) a saturated solution of KCl 4) an unsaturated solution of NaCl
- 2 15) A solution containing 55 grams of NH_4Cl in 100. grams of water is saturated at a temperature of
 1) 67°C 2) 57°C 3) 47°C 4) 77°C
- 4 16) How many grams of KNO_3 are needed to saturate 50. grams of water at 70.°C?
 1) 160 g 2) 30 g 3) 130 g 4) 65 g
- 3 17) Based on the *Solubility Curves* chemistry reference table, when 100 grams of water saturated with KNO_3 at 70°C is cooled to 25°C, the total number of grams of KNO_3 that will precipitate is
 1) 45 g 2) 30 g 3) 95 g 4) 80 g
- 2 18) Based on the *Solubility Curves* chemistry reference table, what change will cause the solubility of $\text{KNO}_3(\text{s})$ to increase?
 1) decreasing the pressure 3) increasing the pressure
 2) increasing the temperature 4) decreasing the temperature
- 2 19) Which salt has the *greatest* change in solubility between 30°C and 50°C?
 1) NaCl 2) KNO_3 3) NaNO_3 4) KCl
- 1 20) Based on the *Solubility Curves* chemistry reference table, which substance is *most* soluble at 60°C?
 1) NH_4Cl 2) NaCl 3) NH_3 4) KCl
- 4 21) Based on the *Solubility Guidelines* chemistry reference table, which saturated solution would be the *least* concentrated?
 1) lithium sulfate 3) sodium sulfate
 2) potassium sulfate 4) barium sulfate
- 4 22) Solutions of $\text{AgNO}_3(\text{aq})$ and $\text{KCl}(\text{aq})$ are mixed. Will a visible reaction occur?
 1) No, because KNO_3 is soluble in water.
 2) Yes, because KNO_3 will precipitate out of solution.
 3) No, because AgCl is soluble in water.
 4) Yes, because AgCl will precipitate out of solution.
- 2 23) In the laboratory, a student mixes aqueous solutions of NiSO_4 and NaOH . What will be the result of this experiment?
 1) Na_2SO_4 precipitates out of solution 3) SO_2 gas is released
 2) $\text{Ni}(\text{OH})_2$ precipitates out of solution 4) no visible reaction occurs

Mixed Multiple Choice Practice

Key

1. What happens when KI(s) is dissolved in water?

- (1) I^- ions are attracted to the oxygen atoms of the water.
- (2) K^+ ions are attracted to the oxygen atoms of the water.
- (3) K^+ ions are attracted to the hydrogen atoms of the water.
- (4) No attractions are involved; the crystal just falls apart.

molecule-ion attraction

~~If 0.169 g of carbon dioxide can be dissolved in 100. g of H_2O at $20^\circ C$, what is the concentration in parts per million? [1]~~

2. When a teaspoon of sugar is added to water in a beaker, the sugar dissolves. The resulting mixture is

- (1) a compound
- (2) a homogeneous solution
- (3) a heterogeneous solution
- (4) an emulsion

evenly mixed

3. Under which conditions are gases most soluble in water?

- (1) high temperature and high pressure
- (2) high temperature and low pressure
- (3) low temperature and high pressure
- (4) low temperature and low pressure

4. A solution

- (1) will separate on standing
- (2) may have color
- (3) can be cloudy
- (4) can be heterogeneous

5. Nonpolar solvents will most easily dissolve solids that are

- (1) ionic
- (2) covalent
- (3) metallic
- (4) heterogeneous

"likes dissolve likes"

6. What happens when a crystal of a salt is dropped into an unsaturated solution of the same salt?

- (1) Excess solute crystals form.
- (2) The crystal dissolves.
- (3) The crystal drops to the bottom, unchanged.
- (4) The solution becomes colorless.

more solute can be dissolved.