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SKIP

- 13) What occurs as a salt dissolves in water?
- 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.
- 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  $\text{NH}_4\text{Cl}$
  - 2) a saturated solution of  $\text{KCl}$
  - 3) a saturated solution of  $\text{KClO}_3$
  - 4) an unsaturated solution of  $\text{NaCl}$
- 15) A solution containing 55 grams of  $\text{NH}_4\text{Cl}$  in 100. grams of water is saturated at a temperature of
- 1) 67°C
  - 2) 57°C
  - 3) 47°C
  - 4) 77°C
- 16) How many grams of  $\text{KNO}_3$  are needed to saturate 50. grams of water at 70.°C?
- 1) 160 g
  - 2) 30 g
  - 3) 130 g
  - 4) 65 g
- 17) Based on the *Solubility Curves* chemistry reference table, when 100 grams of water saturated with  $\text{KNO}_3$  at 70°C is cooled to 25°C, the total number of grams of  $\text{KNO}_3$  that will precipitate is
- 1) 45 g
  - 2) 30 g
  - 3) 95 g
  - 4) 80 g
- 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
  - 2) increasing the temperature
  - 3) increasing the pressure
  - 4) decreasing the temperature
- 19) Which salt has the *greatest* change in solubility between 30°C and 50°C?
- 1)  $\text{NaCl}$
  - 2)  $\text{KNO}_3$
  - 3)  $\text{NaNO}_3$
  - 4)  $\text{KCl}$
- 20) Based on the *Solubility Curves* chemistry reference table, which substance is *most* soluble at 60°C?
- 1)  $\text{NH}_4\text{Cl}$
  - 2)  $\text{NaCl}$
  - 3)  $\text{NH}_3$
  - 4)  $\text{KCl}$
- 21) Based on the *Solubility Guidelines* chemistry reference table, which saturated solution would be the *least* concentrated?
- 1) lithium sulfate
  - 2) potassium sulfate
  - 3) sodium sulfate
  - 4) barium sulfate
- 22) Solutions of  $\text{AgNO}_3(\text{aq})$  and  $\text{KCl}(\text{aq})$  are mixed. Will a visible reaction occur?
- 1) No, because  $\text{KNO}_3$  is soluble in water.
  - 2) Yes, because  $\text{KNO}_3$  will precipitate out of solution.
  - 3) No, because  $\text{AgCl}$  is soluble in water.
  - 4) Yes, because  $\text{AgCl}$  will precipitate out of solution.
- 23) In the laboratory, a student mixes aqueous solutions of  $\text{NiSO}_4$  and  $\text{NaOH}$ . What will be the result of this experiment?
- 1)  $\text{Na}_2\text{SO}_4$  precipitates out of solution
  - 2)  $\text{Ni}(\text{OH})_2$  precipitates out of solution
  - 3)  $\text{SO}_2$  gas is released
  - 4) no visible reaction occurs

# Mixed Multiple Choice Practice

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.

~~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

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

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.