

Name:

Date:

Period:

Solutions Quiz

1. Which of the following explains why water is the universal solvent?

- A. Water is a small molecule
- B. Water has a polar structure
- C. Water is made of nonmetals
- D. None of the above

2. Which of the following compounds is likely to dissolve in water?

- A. CH₃OH
- B. NaCl
- C. Both A and B
- D. C₂H₆

3. Which of the following are likely to dissolve in water?

- I. BaCl₂
- II. CH₄
- III. OCl₂
- IV. NH₃

- A. I only
- B. I and IV only
- C. II and III only
- D. I, II, and III only

4. For the following reaction, which products, if any, would form a precipitate in water?



- A. Ca(OH)₂
- B. K₂CO₃
- C. Ca(OH)₂ and K₂CO₃
- D. No precipitates would form

5. Which of the following best explains why barium sulfate is insoluble?

- A. It is an ionic compound
- B. It is a covalent compound
- C. All sulfates are insoluble
- D. Sulfates are generally soluble, but Barium is a common exception

6. Which of the following compounds are soluble?

- I. K_2CO_3
- II. $\text{Ba}(\text{ClO}_2)_2$
- III. AgI
- IV. CaS

- A. I only
- B. I and IV only
- C. II and III only
- D. I, II, and IV only

7. Which of the following solutions has the highest concentration of solute?

- A. 1.5 mol solute in 0.300L solvent
- B. 3.0 mol solute in 0.600L solvent
- C. 0.5 mol solute in 0.05L solvent
- D. 5.0 mol solute in 5.0L solvent

8. In a solution of 2.44L, 0.65 moles of Sodium Chloride are dissolved. What is the molarity of the solution?

- A. 0.27 M
- B. 3.8 M
- C. 1.6 M
- D. 1.8 M

9. How many grams of $\text{Ca}(\text{CN})_2$ are dissolved in 1.75L of a 0.770 M solution of $\text{Ca}(\text{CN})_2$?

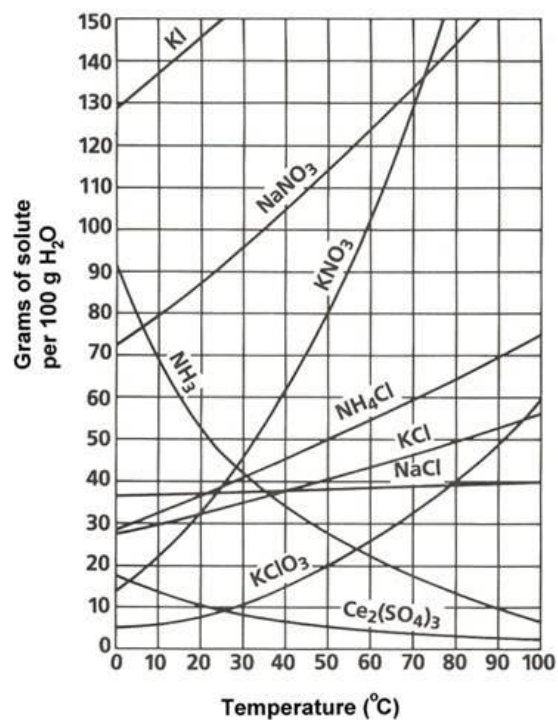
- A. 209g $\text{Ca}(\text{CN})_2$
- B. 40.5g $\text{Ca}(\text{CN})_2$
- C. 124g $\text{Ca}(\text{CN})_2$
- D. 107g $\text{Ca}(\text{CN})_2$

10. Brandon has a 2.55 M solution of zinc (II) bromide. How many liters of the solution would contain 4.6 moles of zinc (II) chloride?

- A. 1.8 L
- B. 0.55 L
- C. 12 L
- D. 8.1 L

11. If a solution is diluted by tripling its volume with water, what will happen to the concentration?
- A. It will increase by a factor of 5
 - B. It will triple
 - C. It will decrease by a third
 - D. It will decrease by a factor of 5
12. A chemistry student dilutes 0.85L of 3.6 M sodium chloride to prepare 5.0L solution. What is the concentration of the new diluted solution?
- A. 0.61 M
 - B. 6.1M
 - C. 21 M
 - D. 10 M
13. A chemist has a contained of concentrated 15.0 M sodium hydroxide solution. If she wants to prepare 0.500L of 1.5 M sodium hydroxide, how much of the concentrated solution will she need to use?
- A. 5.0 L
 - B. 0.5 L
 - C. 0.05 L
 - D. 0.005 L
14. How much water must be added in order to dilute 0.6L of 10.0 M HCl to a concentration of 5.0 M?
- A. 1.2 L
 - B. 1.8 L
 - C. 0.6 L
 - D. 1.4 L
15. Which of the following is an example of an electrolyte?
- A. BaCr_2O_7
 - B. KOH
 - C. Both A and B
 - D. H_2CO_3
16. What is true of all electrolytes?
- A. They are solutions of ionic compounds
 - B. They contain metals
 - C. They conduct electricity
 - D. All of the above

Questions 17-18 use the following graph:



17. A chemistry student prepares a saturated solution of NH_4Cl in 100g water at 70°C . She then rapidly cools the solution to 50°C . Use the graph to estimate how much solute will likely precipitate:

- A. About 20g
- B. About 10g
- C. About 15g
- D. About 30g

18. If 80g of NaNO_3 are dissolved in 100g H_2O at 10°C , what type of solution was made?

- A. Saturated
- B. Unsaturated
- C. Supersaturated
- D. Semi-Saturated