

Solutions Quiz Answer Key PDF

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Which of the following is a colligative property?

- A. Density
- B. Boiling point elevation ✓**
- C. Color
- D. Viscosity

In which industry are solutions commonly used for drug delivery?

- A. Automotive
- B. Pharmaceutical ✓**
- C. Textile
- D. Construction

Which of the following is an example of a gaseous solution?

- A. Saltwater
- B. Air ✓**
- C. Brass
- D. Vinegar

What does molarity measure?

- A. Moles of solute per kilogram of solvent
- B. Moles of solute per liter of solution ✓**
- C. Grams of solute per liter of solution
- D. Volume of solute per volume of solution

Which property is NOT characteristic of a solution?

- A. Homogeneity
- B. Stability
- C. Large particle size ✓**
- D. Uniform composition

Which of the following are examples of liquid solutions? (Select all that apply)

- A. Saltwater ✓**
- B. Air
- C. Vinegar ✓**
- D. Steel

How does temperature generally affect the solubility of gases in liquids?

Increasing temperature generally decreases the solubility of gases in liquids because higher temperatures provide more energy for gas molecules to escape from the liquid.

Explain how boiling point elevation is related to the number of solute particles in a solution.

Boiling point elevation occurs because the presence of solute particles disrupts the solvent's ability to vaporize, requiring more heat to reach the boiling point, and is proportional to the number of solute particles.

Discuss the importance of solutions in the pharmaceutical industry and provide an example of their use.

Solutions are crucial in the pharmaceutical industry for drug delivery, ensuring uniform distribution of active ingredients. An example is saline solutions used for intravenous therapy.

Explain what distinguishes a solution from a suspension.

A solution is a homogeneous mixture where the solute is completely dissolved in the solvent, while a suspension is a heterogeneous mixture where particles are dispersed but not dissolved and can settle over time.

Describe the difference between a solid solution and a liquid solution, providing an example of each.

A solid solution is a mixture of solids, such as alloys like steel (iron and carbon), while a liquid solution involves a solute dissolved in a liquid solvent, such as saltwater.

Why is particle size important in distinguishing solutions from other types of mixtures?

In solutions, the particle size is at the molecular or ionic level, which ensures uniform distribution and stability, unlike suspensions or colloids where larger particles can settle or scatter light.

Which statements are true about solutions? (Select all that apply)

- A. They are always clear.
- B. They have a uniform composition. ✓**
- C. Solute particles settle out over time.
- D. They are stable. ✓**

Which of the following are units of concentration? (Select all that apply)

- A. Molarity ✓**
- B. Molality ✓**
- C. Density
- D. Percent Composition ✓**

Which of the following are colligative properties? (Select all that apply)

- A. Freezing point depression ✓**
- B. Osmotic pressure ✓**
- C. Surface tension
- D. Vapor pressure lowering ✓**

What is a solution?

- A. A heterogeneous mixture
- B. A homogeneous mixture ✓**
- C. A pure substance
- D. A colloid

What is the first step in preparing a solution?

- A. Measuring the solvent
- B. Stirring the mixture
- C. Heating the solvent
- D. Measuring the solute ✓**

Which types of reactions can occur in solutions? (Select all that apply)

- A. Precipitation reactions ✓**
- B. Acid-base reactions ✓**
- C. Combustions reactions
- D. Redox reactions ✓**

Which factors affect the solubility of a substance? (Select all that apply)

- A. Temperature ✓**
- B. Pressure ✓**
- C. Color
- D. Nature of solvent and solute ✓**

Which factor generally increases the solubility of solids in liquids?

- A. Decreasing temperature
- B. Increasing pressure
- C. Increasing temperature ✓**
- D. Decreasing pressure