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المزيد من الملفات بحسب الصف العاشر المتقدم والمادة كيمياء في الفصل الثالث

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# G10 Advanced Chemistry

## Chapter 10 - Revision Problems - Answer Key

### Multiple Choice Questions.

<b>Q1.</b>	Which of the following is true about mixtures?
<b>a.</b>	Mixtures consist of only one kind of atom.
<b>b.</b>	Mixtures have two or more substances mixed together, but are not chemically combined.
<b>c.</b>	Mixtures cannot be separated by physical means.
<b>d.</b>	Mixtures consist of two or more substances chemically combined.

<b>Q2.</b>	The substances in a(n) _____ mixture are usually easily seen and separated.
<b>a.</b>	contaminated
<b>b.</b>	uncontaminated
<b>c.</b>	homogeneous
<b>d.</b>	heterogeneous

<b>Q3.</b>	Ahmed wants to separate salt from water. He tried pouring the saltwater through a piece of filter paper, but the salt did not separate from the water. What change should he make to his plan to separate the mixture successfully?
<b>a.</b>	Use two pieces of filter paper
<b>b.</b>	Freeze the saltwater, and then let it melt again
<b>c.</b>	Allow the water to evaporate
<b>d.</b>	Stir the saltwater with a magnet

<b>Q4.</b>	Which of the following is an example of a mixture?
<b>a.</b>	Banana
<b>b.</b>	Salad
<b>c.</b>	Strawberries
<b>d.</b>	Oranges

<b>Q5.</b>	Which is an example of a solution?
<b>a.</b>	Tea
<b>b.</b>	Bag of candy
<b>c.</b>	Trail mix
<b>d.</b>	Cereal with nuts and bananas

<b>Q6.</b>	Which solution is more concentrated?  Solution 1: 500 mL of water, 100 g of salt Solution 2: 500 mL of water, 90 g of salt, Solution 3: 500 mL of water, 120 g of salt
<b>a.</b>	Solution 1
<b>b.</b>	<b>Solution 2</b>
<b>c.</b>	Solution 3
<b>d.</b>	All have same concentration

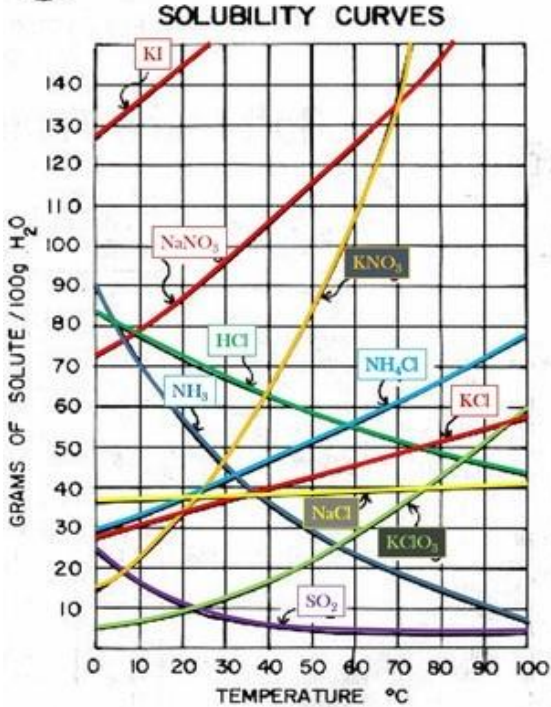
<b>Q7.</b>	Which solution is more diluted?  Solution 1: 1000 mL of water, 60g of salt Solution 2: 500 mL of water, 60 g of salt Solution 3: 800 mL of water, 60 g of salt
<b>a.</b>	<b>Solution 1</b>
<b>b.</b>	Solution 2
<b>c.</b>	Solution 3
<b>d.</b>	They are equally diluted

<b>Q8.</b>	How many liters would you need to make a 1 M solution if you have 6 mol of Sodium Hydroxide?
<b>a.</b>	2
<b>b.</b>	3
<b>c.</b>	4
<b>d.</b>	<b>6</b>

<b>Q9.</b>	What is the molarity of 4 g of NaCl (MM=58.45) in 3,800 mL of solution?
<b>a.</b>	<b>0.018 M</b>
<b>b.</b>	0.062 M
<b>c.</b>	1.052 M
<b>d.</b>	0.0011 M

<b>Q10.</b>	What is the molality of a solution made by dissolving 2 moles of NaOH in 400 grams of water?
<b>a.</b>	3 mol/kg. solvent
<b>b.</b>	<b>5 mol/kg. solvent</b>
<b>c.</b>	4 mol/kg. solvent
<b>d.</b>	6 mol/kg. solvent

<b>Q11.</b>	Factors affecting solubility of gases include _____.
<b>a.</b>	environment
<b>b.</b>	nature
<b>c.</b>	temperature and nature
<b>d.</b>	temperature and pressure

<b>Q12.</b>	<p>With reference to the solubility curve graph on the the right, which solute is the most soluble at 10 °C?</p>  <p>The graph shows the solubility of various substances in 100g of water at different temperatures. At 10 °C, KI has the highest solubility, followed by NaNO3 and KNO3. Other substances like HCl, NH3, NH4Cl, NaCl, KCl, KClO3, and SO2 have lower solubilities at this temperature.</p>
<b>a.</b>	NH <sub>4</sub> Cl
<b>b.</b>	KI
<b>c.</b>	KClO <sub>3</sub>
<b>d.</b>	HCl

<b>Q13.</b>	If 1 mol of each of the solutes listed below is dissolved in 1 L of water, which solute will have the greatest effect on the vapor pressure of its respective solution?
<b>a.</b>	MgCl <sub>2</sub>
<b>b.</b>	KBr
<b>c.</b>	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>
<b>d.</b>	CaSO <sub>4</sub>

<b>Q14.</b>	What volume of a 0.125M NiCl <sub>2</sub> solution contains 3.25 g of NiCl <sub>2</sub> ?
<b>a.</b>	32.5 mL
<b>b.</b>	201 mL
<b>c.</b>	26.0 mL
<b>d.</b>	38.5 mL

<b>Q15.</b>	Which is NOT a colligative property?
<b>a.</b>	boiling point elevation
<b>b.</b>	freezing point depression
<b>c.</b>	osmotic pressure
<b>d.</b>	solubility

## Constructed Response Questions.

<b>Q1</b>	
<b>a.</b>	<b>How can the Tyndall effect be used to distinguish between a colloid and a solution? Why?</b>
<b>Ans.</b>	A beam of light is visible in a colloid but not in a solution. Dispersed colloid particles are large enough to scatter light (Tyndall effect).
<b>b.</b>	<b>What is the difference between percent by mass and percent by volume?</b>
<b>Ans.</b>	Percent by mass is a comparison between the mass of solute and the total mass of the solution. Percent by volume is a comparison between the volume of the solute and the total volume of the solution.
<b>c.</b>	<b>According to lab procedure, you stir 25.0 g of <math>\text{MgCl}_2</math> into 550 mL of water. What is the percent by mass of <math>\text{MgCl}_2</math> in the solution?</b>
<b>Ans.</b>	4.3%

Q2

a. Describe the process of solvation.

Ans. A solute introduced into a solvent is surrounded by solvent particles. Due to the attraction between solute and solvent particles, solute particles are pulled apart and surrounded by solvent particles. Once separated, solute particles disperse into solution.

b. At 4.5 atm of pressure, the solubility of a gas is 9.5 g/L. How much gas, in grams, will dissolve in 1 L if the pressure is reduced by 3.5 atm?

Ans. 2.1 g

c.

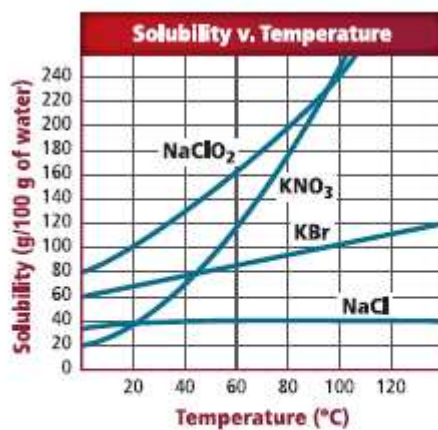


Figure 26

Using Figure 26, compare the solubility of potassium bromide (KBr) and potassium nitrate (KNO<sub>3</sub>) at 80°C.

Ans. The solubility of KBr is 95 g/100 g H<sub>2</sub>O. The solubility of KNO<sub>3</sub> is nearly twice as high at the same temperature, at nearly 170 g/100 g H<sub>2</sub>O.