


**Name:****Score:** 0 / 23 points (0%) [2 open-ended questions not graded]

## Chapter 13 Practice Exam


### Multiple Choice

*Identify the choice that best completes the statement or answers the question.*

-  \_\_\_\_\_ 1. The process of solute particles being surrounded by solvent particles is known as \_\_\_\_\_.
- a. salutation
  - b. agglomeration
  - c. solvation
  - d. agglutination
  - e. dehydration


**ANSWER: C**


**POINTS: 0 / 1**

-  \_\_\_\_\_ 2. The solubility of oxygen gas in water at 25°C and 1.0 atm pressure of oxygen is 0.041 g/L. The solubility of oxygen in water at 3.0 atm and 25°C is \_\_\_\_\_ g/L.
- a. 0.041
  - b. 0.014
  - c. 0.31
  - d. 0.12
  - e. 3.0

**ANSWER: D**



**POINTS: 0 / 1**

 nar001-1.jpg

-  \_\_\_\_\_ 3. A sample of potassium nitrate (49.0 g) is dissolved in 101 g of water at 100°C, with precautions taken to avoid evaporation of any water. The solution is cooled to 30.0°C and no precipitate is observed. This solution is \_\_\_\_\_.
- hydrated
  - placated
  - saturated
  - unsaturated
  - supersaturated


**ANSWER:** E

**POINTS:** 0 / 1

-  \_\_\_\_\_ 4. The solubility of  $\text{MnSO}_4$  monohydrate in water at 20°C is 70.0 g per 100.0 mL of water. A solution at  that is 4.22 M in  $\text{MnSO}_4$  monohydrate is best described as a(n) \_\_\_\_\_ solution. The formula weight of  $\text{MnSO}_4$  monohydrate is 168.97 g/mol.
- hydrated
  - solvated
  - saturated
  - unsaturated
  - supersaturated

**ANSWER:** E


**POINTS:** 0 / 1

-  \_\_\_\_\_ 5. A solution is prepared by dissolving 23.7 g of  $\text{CaCl}_2$  in 375 g of water. The density of the resulting solution is 1.05 g/mL. The concentration of  $\text{CaCl}_2$  is \_\_\_\_\_ % by mass.
- 5.94
  - 6.32
  - 0.0632

- d. 0.0594
- e. 6.24


**ANSWER: A**

**POINTS: 0 / 1**

-  \_\_\_\_\_ 6. The concentration of nitrate ion in a solution that contains 0.900 M aluminum nitrate is \_\_\_\_\_ M.
- a. 0.900
  - b. 0.450
  - c. 0.300
  - d. 2.70
  - e. 1.80


**ANSWER: D**

**POINTS: 0 / 1**

-  \_\_\_\_\_ 7. The concentration of lead nitrate ( $\text{Pb}(\text{NO}_3)_2$ ) in a 0.726 M solution is \_\_\_\_\_ molal. The density of the solution is 1.202 g/mL.
- a. 0.476
  - b. 1.928
  - c. 0.755
  - d. 0.819
  - e. 0.650


**ANSWER: C**

**POINTS: 0 / 1**


-  \_\_\_\_\_ 8. A solution is prepared by dissolving 15.0 g of  $\text{NH}_3$  in 250.0 g of water. The density of the resulting solution is 0.974 g/mL. The mole fraction of  $\text{NH}_3$  in the solution is \_\_\_\_\_.
- a. 0.0640
  - b. 0.0597
  - c. 0.940
  - d. 0.922
  - e. 16.8

**ANSWER: B**



**POINTS: 0 / 1**

-  \_\_\_\_\_ 9. The concentration (M) of HCl in a solution prepared by dissolving 5.5 g of HCl in 200 g of  $\text{C}_2\text{H}_6\text{O}$  is \_\_\_\_\_ M. The density of the solution is 0.79 g/mL.
- a. 21
  - b. 0.93
  - c. 0.58
  - d.  $6.0 \times 10^{-4}$
  - e. 1.72


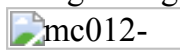
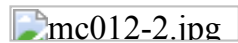
**ANSWER: C****POINTS: 0 / 1**

-  10. The vapor pressure of pure ethanol at 60 °C is 0.459 atm. Raoult's Law predicts that a solution prepared by dissolving 10.0 mmol naphthalene (nonvolatile) in 90.0 mmol ethanol will have a vapor pressure of \_\_\_\_\_ atm.
- 0.498
  - 0.413
  - 0.790
  - 0.367
  - 0.0918



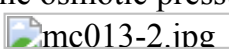
**ANSWER: B****POINTS: 0 / 1**

-  11. The freezing point of ethanol (C<sub>2</sub>H<sub>5</sub>OH) is -114.6 °C. The molal freezing point depression constant for ethanol is 2.00 °C/m. What is the freezing point (°C) of a solution prepared by dissolving 50.0 g of glycerin ( a nonelectrolyte) in 200.0 g of ethanol?
- 115
  - 5.42
  - 132.3
  - 120.0
  - 114.6

**ANSWER: D****POINTS: 0 / 1**

-  12. A solution containing 10.0 g of an unknown liquid and 90.0 g water has a freezing point of -3.33°C. Given  for water, the molar mass of the unknown liquid is 
- 69.0
  - 333
  - 619
  - 161
  - 62.1

**ANSWER: E****POINTS: 0 / 1**

-  13. A solution is prepared by dissolving 0.60 g of nicotine (a nonelectrolyte) in water to make 12 mL of solution. The osmotic pressure of the solution is  at 25°C. The molecular weight of nicotine is 
- 28
  - 43
  - 50
  - 160
  - 0.60











