Test bank chapters 12

In how many grams of water should 25.31 g of potassium nitrate (KNO_3) be dissolved to prepare a 0.1982 m solution?

A. 250.0 g B. 792 g C. 1,000. g D. 1,263 g

Calculate the molality of a solution containing 14.3 g of NaCl in 42.2 g of water.

A. 2.45×10^{-4} m B. 5.80×10^{-4} m C. 2.45×10^{-1} m D. 5.80 m

Calculate the molality of a 15.0% by mass solution of $MgCl_2$ in H_2O. The density of this solution is 1.127 g/mL.

A. 0.157 m B. 11.8 m C. 1.86 m D. 0.0134 m

The solubility of nitrogen gas at 25°C and a nitrogen pressure of 522 mmHg is 4.7×10^{-4} mol/L. What is the value of the Henry's Law constant in mol/L·atm?

A. 6.8×10^{-4} mol/L·atm
B. 4.7×10^{-4} mol/L·atm
C. 3.2×10^{-4} mol/L·atm
D. 9.0×10^{-7} mol/L·atm

The solubility of CO_2 gas in water

A. increases with increasing temperature.
B. decreases with decreasing temperature.
C. decreases with increasing temperature.
D. is not dependent on temperature.

Consider a solution made from a nonvolatile solute and a volatile solvent. Which statement is true?

A. The vapor pressure of the solution is always greater than the vapor pressure of the pure solvent.
B. The boiling point of the solution is always greater than the boiling point of the pure solvent.
C. The freezing point of the solution is always greater than the freezing point of the pure solvent.

The vapor pressure of water at 20°C is 17.5 mmHg. What is the vapor pressure of water over a solution prepared from 2.00×10^2 g of sucrose ($C_{12}H_{22}O_{11}$) and 3.50×10^2 g water?

A. 0.51 mmHg
B. 16.0 mmHg
C. 17.0 mmHg
D. 18.0 mmHg

- Which of the following liquids would make a good solvent for iodine, I_2?

A) HCl B) H_2O C) CH_3OH D) CS_2

Which of the following aqueous solutions has the highest osmotic pressure at 25°C?

A. 0.2 M KBr
B. 0.2 M ethanol
C. 0.2 M Na_2SO_4
D. 0.2 M KCl

A solution that contains 55.0 g of ascorbic acid (Vitamin C) in 250. g of water freezes at –2.34°C. Calculate the molar mass (in units of g/mol) of the solute. K_f of water is 1.86°C/m.

A. 1.26 B. 10.9 C. 43.6 D. 175

What is the osmotic pressure of a solution that contains 13.7 g of propyl alcohol (C_3H_7OH) dissolved in enough water to make 500. mL of solution at 27°C?

A. 0.014 atm B. 11.2 atm C. 0.456 atm D. 0.01 atm

Consider a 0.90 M $Al(NO_3)_3$ solution. This solution has a nitrate ion concentration of

A. 2.7 M B. 0.90 M C. 0.01 M D. 8.1 M

What is the osmotic pressure of a solution prepared from 13.7 g of the electrolyte HCl and enough water to make 0.500 L of solution at 18°C?

A. 0.55 atm B. 1.10 atm C. 8.95 atm D. 35.9 atm

The osmotic pressure of a 0.010 M $MgSO_4$ solution at 25°C is 0.318 atm. Calculate *i*, the van't Hoff factor, for this $MgSO_4$ solution.

A. 0.013 B. 1.3 C. 1.5 D. 2.0

The total mass of a solution is 153.4 g. The solvent mass is 125.2 g. What is the percent by mass of the solute?

A)18.38% B) 1.838% C) 13.88% D) 15.38%

Crystallization occurs from (an) _____ solution

A.supersaturated B. saturated C. dilute D. unsaturated

Negative Deviation from Raoult's Law occur when

a) when the A-B attractions are stronger than A-A and B-B attractions

b) when the A-B attractions are weaker than A-A and B-B attractions

c) when the A-B attractions have the same values of A-A and B-B attractions

d) cannot be predicted