HW01b - Concentration

⚠ This is a preview of the published version of the quiz

Started: Feb 1 at 8:46am

Quiz Instructions

Homework 01b: Concentration

Question 1 3 pts

What is the molarity of a solution prepared by dissolving 12.9 grams of NaF in enough water to produce 750 mL of solution?

- 0.41 M
- 3.1 M
- 0.31 M
- 0.00041 M
- 17 M

Question 2 3 pts

Calculate the molality of a solution of 45.2 g NaCl dissolved in 0.556 kg of water.

- 1.39 m
- 0.139 m
- 0.0813 m
- 81.3 m
- 0.00139 m

Question 3

3 pts

Calculate the molality of perchloric acid in 9.2 M $HClO_4$ (aq). The density of this solution is 1.54 g/mL.

- 14 m
- 16 m
- 15 m
- 21 m
- 18 m

Question 4

3 pts

Consider the following solution

1.1m $(NH_4)_2SO_4$ in water with a density of 1.08 g/mL

Find the molarity of this solution.

- 1.24 M
- 0.46 M
- 1.04 M
- 1.6 M
- 0.11 M

Question 5

3 pts

The hardness of water (hardness count) is usually expressed in milligrams of $CaCO_3$ per liter of water. What is the molar concentration of Ca^{2+} ions in a water sample with a hardness count of 175 mg $CaCO_3$/L H_2O? Assume the density of the solution is the same as pure water.

- 1750 M
- There is not enough information to answer the question.

- 1.75×10^{-3} M
- 1.75 M
- 17.5 M

Question 6 3 pts

Calculate the mole fraction of carbon dioxide gas in the following solution:

22 g of CO_2 gas in 0.45 L of water. Assume the density of the water is 1g/mL.

- 2.00
- 0.500
- 0.0409
- 0.912
- 0.0196

Question 7 3 pts

The molality of an aqueous solution of sucrose ($C_{12}H_{22}O_{11}$) is 1.64 m. Calculate the mole fraction of the water.

- 0.97
- 1.64
- 0.36
- 0.097
- 0.03

Question 8 3 pts

0.25 g of $CaCl_2$ are dissolved in water to give 500 mL of solution. What is the ppm of chloride ions in solution?

- 482 ppm
- 159 ppm
- 0.002 ppm
- 212 ppm
- 319 ppm

Question 9 **3 pts**

What mass of HCl is contained in 45.0 mL of an aqueous HCl solution that has a density of 1.19 g/cm^3 and contains 37.21% HCl by mass?

- 1990 g HCl
- 19.9 g HCl
- 16.7 g HCl
- 53.6 g HCl
- 167 g HCl

Question 10 **3 pts**

A cough syrup contains 5.0% ethyl alcohol, C_2H_5OH, by mass. If the density of the solution is 0.9928 g/mL, determine the molarity of the alcohol in the cough syrup.

- 4.96 M
- 0.191 M
- 10.8 M
- 1.08 M

0.050 M

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