

Chapter 11 Warm-Up #1

Multiple Choice

1. The molality of the glucose in a 1.0-molar glucose solution can be obtained by using which of the following?
(A) Volume of the solution (B) Temperature of the solution
(C) Solubility of glucose in water (D) Degree of dissociation of glucose
(E) Density of the solution
2. Under which of the following sets of conditions could the most $O_2(g)$ be dissolved in $H_2O(l)$?
Pressure of $O_2(g)$ Above $H_2O(l)$ Temperature of $H_2O(l)$
(atm) $^{\circ}C$
- | | | |
|----|-----|----|
| A) | 5.0 | 80 |
| B) | 5.0 | 20 |
| C) | 1.0 | 80 |
| D) | 1.0 | 20 |
| E) | 0.5 | 20 |
3. What is the mole fraction of ethanol, C_2H_5OH , in an aqueous solution in which the ethanol concentration is 4.6 molal?
(A) 0.0046 (B) 0.076 (C) 0.083 (D) 0.20 (E) 0.72
4. The weight of H_2SO_4 (molecular weight 98.1) in 50.0 milliliters of a 6.00-molar solution is
(A) 3.10 grams (B) 12.0 grams (C) 29.4 grams (D) 294 grams (E) 300. grams
5. Which of the following does NOT behave as an electrolyte when it is dissolved in water?
(A) CH_3OH (B) K_2CO_3 (C) NH_4Br (D) HI (E) CH_3COONa
6. A solution of toluene (molecular weight 92.1) in benzene (molecular weight 78.1) is prepared. The mole fraction of toluene in the solution is 0.100. What is the molality of the solution?
(A) 0.100 *m* (B) 0.703 *m* (C) 0.921 *m* (D) 1.28 *m* (E) 1.42 *m*
7. Given that a solution is 5 percent sucrose by mass, what additional information is necessary to calculate the molarity of the solution?
I. The density of water
II. The density of the solution
III. The molar mass of sucrose
- (A) I only (B) II only (C) III only (D) I and III (E) II and III
8. If the temperature of an aqueous solution of $NaCl$ is increased from 20 $^{\circ}C$ to 90 $^{\circ}C$, which of the following statements is true?
(A) The density of the solution remains unchanged.
(B) The molarity of the solution remains unchanged.
(C) The molality of the solution remains unchanged.
(D) The mole fraction of solute decreases.
(E) The mole fraction of solute increases.

