

## Solutions

1. Mole fraction of glycerine  $\text{C}_3\text{H}_5(\text{OH})_3$  in solution containing 36 g of water and 46 g of glycerine is

- (a) 0.46
- (b) 0.40
- (c) 0.20
- (d) 0.36

▼ **Answer**

Answer: c

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2. Out of molality (m), molarity (M), formality (F) and mole fraction (x), those which are independent of temperature are

- (a) M, m
- (b) F, x
- (c) m, x
- (d) M, x

▼ **Answer**

Answer: c

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3. Which of the following condition is not satisfied by an ideal solution?

- (a)  $\Delta H_{\text{mixing}} = 0$
- (b)  $\Delta V_{\text{mixing}} = 0$
- (c) Raoult's Law is obeyed
- (d) Formation of an azeotropic mixture

▼ **Answer**

Answer: d

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4. The boiling point of an azeotropic mixture of water and ethanol is less than that of water and ethanol. The mixture shows

- (a) no deviation from Raoult's Law.
- (b) positive deviation from Raoult's Law.
- (c) negative deviation from Raoult's Law.
- (d) that the solution is unsaturated.

▼ **Answer**

Answer: b

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5. Which has the lowest boiling point at 1 atm pressure?

- (a) 0.1 M KCl
- (b) 0.1 M Urea
- (c) 0.1 M  $\text{CaCl}_2$
- (d) 0.1 M  $\text{AlCl}_3$

▼ **Answer**

Answer: b



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6. Osmotic pressure of a solution is 0.0821 atm at a temperature of 300 K. The concentration in moles/litre will be

- (a) 0.33
- (b) 0.666
- (c)  $0.3 \times 10^{-2}$
- (d) 3

▼ **Answer**

Answer: c

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7. People add sodium chloride to water while boiling eggs. This is to

- (a) decrease the boiling point.
- (b) increase the boiling point.
- (c) prevent the breaking of eggs.
- (d) make eggs tasty.

▼ **Answer**

Answer: b

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8. The van't Hoff factor (i) accounts for

- (a) degree of solubilisation of solute.
- (b) the extent of dissociation of solute.
- (c) the extent of dissolution of solute.
- (d) the degree of decomposition of solution.

▼ **Answer**

Answer: b

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9. Which relationship is not correct?

(a)  $\Delta T_b = \frac{K_b \cdot 1000 \cdot W_2}{M_2 \cdot W_1}$  (b)  $M_2 = \frac{K_f \cdot 1000 \cdot W_1}{W_2 \cdot \Delta T_b}$

(c)  $\pi = \frac{n_2}{V}$  (d)  $\frac{p^o - p_s}{p^o} = \frac{W_2}{M_2} \times \frac{M_1}{W_1}$

▼ **Answer**

Answer: b

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10. The molal elevation constant depends upon

- (a) nature of solute.
- (b) nature of the solvent.
- (c) vapour pressure of the solution.
- (d) enthalpy change.

▼ **Answer**

Answer: b

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