



Class 12 Chemistry | Solutions

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. A solution contains 0.15 mol solute in 0.50 kg solvent. Its molality is:

- A. 0.15 mol kg⁻¹ B. 3.0 mol kg⁻¹
C. 0.30 mol kg⁻¹ D. 0.075 mol kg⁻¹

2. Which concentration remains unchanged when a closed solution is heated?

- A. Molarity
B. Mass per unit volume
C. Moles per litre
D. Molality

3. For an ideal solution, $p_A^\circ = 80$ kPa and $x_A = 0.25$. The partial pressure p_A is:

- A. 320 kPa B. 80 kPa C. 20 kPa D. 60 kPa

4. An ideal binary mixture has $x_A = 0.40$, $p_A^\circ = 50$ and $p_B^\circ = 100$ kPa. Total pressure is:

- A. 60 kPa B. 70 kPa C. 150 kPa D. 80 kPa

5. At fixed temperature Henry's law is $p = K_H x$. Doubling p makes gas mole fraction:

- A. Unchanged B. Double C. Half D. Four times

6. For equal gas pressure, a larger Henry constant K_H implies:

- A. Lower gas solubility
B. Identical gas solubility
C. Higher gas solubility
D. Complete chemical reaction

7. Which condition characterises ideal mixing?

- A. $\Delta H_{mix} = 0$ and $\Delta V_{mix} = 0$
B. $\Delta H_{mix} > 0$ only
C. Solute-solvent forces vanish
D. $\Delta V_{mix} < 0$ always

8. A solution with weaker unlike interactions than like interactions tends to show:

- A. Positive deviation
B. Ideal behaviour always
C. Negative deviation
D. Zero vapour pressure

9. A maximum-boiling azeotrope is associated with:

- A. Positive deviation
B. Ideal behaviour
C. No intermolecular forces
D. Negative deviation

10. For a nonvolatile solute in an ideal solution, relative lowering of vapour pressure equals:

- A. Solute molarity
B. Solute mole fraction
C. Solvent mole fraction
D. Solvent molality

11. For a nonelectrolyte, $K_b = 0.50$ K kg mol⁻¹ and $m = 0.20$. ΔT_b is:

- A. 0.25 K B. 0.10 K C. 2.50 K D. 0.40 K

12. An aqueous glucose solution has $m = 0.10$ and $K_f = 1.86$. Its freezing point is approximately:

- A. -18.6°C B. -1.86°C
C. +0.186°C D. -0.186°C

13. For complete dissociation, van't Hoff factor of CaCl_2 is:

- A. 3 B. 2 C. 1 D. 4

14. A solute completely dimerises in solution. Its van't Hoff factor is:

- A. 2 B. 1 C. 0.5 D. 4

15. At the same temperature, dilute solutions are isotonic when they have equal:

- A. Solvent masses B. Solute masses
C. Molar masses D. Osmotic pressures

ANSWER KEY — check after completing all 15 questions

1.C 2.D 3.C 4.D 5.B 6.A 7.A 8.A 9.D 10.B 11.B 12.D 13.A 14.C 15.D

Original exam-style practice • Reference notes: www.physics.guru/cbse-practice-papers/ • Not an official paper