CHEMISTRY CLASS 12 BATCH

SOLUTIONS

DPP-03

1. Colligative properties of the solution depend upon
(1) nature of the solution
(2) nature of the solvent
(3) number of solute particles
(4) number of moles of solvent

2. Correct expression for relative lowering of vapour pressure of a dilute solution.
(1) $\frac{P_A^o - P_A}{P_A^o} = \frac{n_A}{n_B - n_A}$
(2) $\frac{P_A^o - P_A}{P_A^o} = \frac{n_B}{n_A + n_B}$
(3) $\frac{P_A^o - P_A}{P_A} = \frac{n_B}{n_A + n_B}$
(4) $\frac{P_A^o - P_A}{P_A^o} = \frac{n_B}{n_A}$

3. Find elevation in boiling point of a solution obtained by dissolving 90 g of glucose in 200 g of water. (K_b of H_2O = 0.52 K kg/mole)
(1) 2.6 K (2) 5.3 K
(3) 1.3 K (4) 4.2 K

4. Find molar mass of a non-volatile solute whose 20 g on dissolving in 500 g of water produces a solution having boiling point = 105.2°C.
[K_b = 0.52 K kg mole^{-1}]
(1) 8 g mol^{-1} (2) 6 g mol^{-1}
(3) 4 g mol^{-1} (4) 12 g mol^{-1}

5. 30 g of a non-volatile solute is dissolved in 360 g of water at 100°C. If vapour pressure of solution is 570 mm of Hg, find molar mass of solute
(1) 5.5 g (2) 4.5 g
(3) 6.5 g (4) 7.5 g

6. Which of the following can be measured by the ostwald – walker method?
(1) V.P. of the solvent.
(2) Relative lowering of V.P.
(3) Lowering of V.P.
(4) All of these

7. The vapour pressure of water at 20°C is 18 mm. When 20 g of a non-ionic substance is dissolved in 100 g of water the vapour pressure is lowered by 6 mm. What is the molar mass of the non-ionic substance?
(1) 10.8 g (2) 7.2 g
(3) 4.4 g (4) 6.4 g

8. The temperature at which the vapour pressure of a liquid becomes equal to the atmospheric pressure is known as
(1) Boiling point
(2) Freezing point
(3) Absolute temperature
(4) none of these

9. Calculate the relative lowering in vapour pressure (RLVP) if 100 g of a non-volatile solute of molar mass 100 g/mol is dissolved in 432 g of water.
(1) 0.04 (2) 0.07
(3) 0.06 (4) 0.09

10. A solution is obtained by dissolving 12 g of urea (M = 60) in one litre of solution. Another solution is made by dissolving 68.4 g of cane sugar (M = 342) in a litre of solution at the same temperature. The lowering of vapour pressure in the first solution is
(1) nearly 5 times that of second solution
(2) same as that of second solution
(3) double that of second solution
(4) nearly one fifth of the second solution

11. Find boiling point of deci molal aqueous solution of glucose. (K_b = 0.52 K kg/mole)

(1) 373.052 (2) 473.052

(3) 573.052 (4) 273.052

12. Find the molality of an aqueous solution of urea which has a boiling point of 102.08°C.

(Take K_b = 0.52 K kg mol^{-1})

(1) 1 (2) 2

(3) 3 (4) 4

13. The boiling point of 0.1 molal aqueous solution of urea is 100.18°C at 1 atm. The molal elevation constant of water is

(1) 0.2 K kg mol^{-1} (2) 0.8 K kg mol^{-1}

(3) 1.2 K kg mol^{-1} (4) 1.8 K kg mol^{-1}

14. A centimolal non-aqueous solution of a non-electrolyte has elevation in boiling point of 0.6°C. Find elevation in boiling point of the same solution if molality is 0.4 mole/kg.

(1) 12°C (2) 24°C

(3) 6°C (4) 36°C

15. Find concentration of a non-electrolyte solute required to lower the vapour pressure of a solvent by 20% in mole fraction assuming concentrated solution.

(1) 0.2 (2) 0.4

(3) 0.6 (4) 0.8

ANSWER KEY

1.	(3)
2.	(4)
3.	(3)
4.	(3)
5.	(2)
6.	(2)
7.	(2)
8.	(1)
9.	(1)
10.	(2)
11.	(1)
12.	(4)
13.	(4)
14.	(2)
15.	(1)