

PRERNA EDUCATION

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIIth
DATE : 08th April, 2022

SUBJECT : CHEMISTRY
DPP No. : 1

Topic :-SOLUTION

- A solution of two liquids boils at a temperature more than the boiling point of either them. Hence, the binary solution shows
 - Negative deviation from Raoult's law
 - Positive deviation from Raoult's law
 - No deviation from Raoult's law
 - Positive or negative deviation from Raoult's law depending upon the composition
- Vapour pressure of pure 'A' is 70 mm of Hg at 25°C. It from an ideal solution with 'B' in which mole fraction of A is 0.8. If the vapour pressure of the solution is 84 mm of Hg at 25°C, the vapour pressure of pure 'B' at 25°C is
 - 28 mm
 - 56 mm
 - 70 mm
 - 140 mm
- Abnormal colligative properties are observed only when the dissolved non-volatile solute in a given dilute solution
 - Is a non-electrolyte
 - Offers an intense colour
 - Associates or dissociates
 - Offers no colour
- As a result of osmosis, the volume of the concentrated solution :
 - Gradually decreases
 - Gradually increases
 - Suddenly increases
 - None of these

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5. At a suitable pressure near the freezing point of ice, there exists :
- a) Only ice
 - b) Ice and water
 - c) Ice and vapour
 - d) Ice, water and vapours, all existing side by side
6. Which of the following concentration units is independent of temperature?
- a) Normality
 - b) Molarity
 - c) Molality
 - d) ppm
7. In cold countries, ethylene glycol is added to water in the radiators of cars during winters. It results in :
- a) Lowering in boiling point
 - b) Reducing viscosity
 - c) Reducing specific heat
 - d) Lowering in freezing point
8. Calculate the molal depression constant of a solvent which has freezing point 16.6°C and latent heat of fusion 180.75 Jg^{-1} .
- a) 2.68
 - b) 3.86
 - c) 4.68
 - d) 2.86
9. The freezing point depression constant for water is $1.86 \text{ K kgmol}^{-1}$. If 45 g of ethylene glycol is mixed with 600 g of water, the freezing point of the solution is
- a) 2.2 K
 - b) 270.95 K
 - c) 273 K
 - d) 275.35 K
10. The movement of solvent molecules through a semipermeable membrane is called
- a) Electrolysis
 - b) Electrophoresis
 - c) Osmosis
 - d) Cataphoresis
11. An aqueous solution of methanol in water has vapour pressure
- a) Less than that of water
 - b) More than that of water

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17. The osmotic pressure of a 5% (wt./vol) solution of cane sugar at 150°C is
a) 3.078 atm b) 4.078 atm c) 5.078 atm d) 2.45 atm
18. Ethylene glycol is used as an antifreeze in a cold climate. Mass of ethylene glycol which should be added to 4 kg of water to prevent it from freezing at -6°C will be (K_f for water = $1.86\text{ K kg mol}^{-1}$. and molar mass of ethylene glycol = 62 g mol^{-1})
a) 804.32 g b) 204.30 g c) 400.00 g d) 304.60 g
19. Mole fraction of solute in benzene is 0.2 then find molality of solute
a) 3.2 b) 2 c) 4 d) 3.6
20. When a solute is added in two immiscible solvents, it distributes itself between two liquids so that its concentration in first liquid is c_1 and that in the second liquid is c_2 . If the solute forms a stable trimer in the first liquid, the distribution law suggests that :
a) $3c_1 = c_2$
b) $c_1/\sqrt[3]{c_2} = \text{constant}$
c) $c_1/3 = c_2$
d) $c_2/\sqrt[3]{c_1} = \text{constant}$

Space for Rough Work