# DPP
DAILY PRACTICE PROBLEMS

**CLASS : XIth** **SUBJECT : CHEMISTRY**
**DATE :** **DPP No. : 1**

## Topic :-SOLUTION

1. A solution of two liquids boils at a temperature more than the boiling point of either them. Hence, the binary solution shows
   a) Negative deviation from Raoult's law
   b) Positive deviation from Raoult's law
   c) No deviation from Raoult's law
   d) Positive or negative deviation from Raoult's law depending upon the composition

2. 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
   a) 28 mm b) 56 mm c) 70 mm d) 140 mm

3. Abnormal colligative properties are observed only when the dissolved non-volatile solute in a given dilute solution
   a) Is a non-electrolyte b) Offers an intense colour
   c) Associates of dissociates d) Offers no colour

4. As a result of osmosis, the volume of the concentrated solution :
   a) Gradually decreases
   b) Gradually increases
   c) Suddenly increases
   d) None of these

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℃ 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 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
c) Equal to that of water
d) Equal to that of methanol

12. Which pair shows a contraction in volume on mixing along with evolution of heat?
a) $CHCl_3 + C_6H_6$ b) $H_2O + HCl$ c) $H_2O + HNO_3$ d) All of these

13. The vapour pressure of water at 20°C is 17.5 mmHg.
If 18 g of glucose ($C_6H_{12}O_6$) is added to 178.2 g of water at $20°C$, the vapour pressure of the resulting solution will be
a) 17.675 mmHg b) 15.750 mmHg c) 16.500 mmHg d) 17.325 mmHg

14. At 80°C, the vapour pressure of pure liquid $'A'$ is 520 mm Hg and that of pure liquid $'B'$ is 1000 mm Hg. If a mixture of solution $'A'$ and $'B'$ boils at 80°C and 1 atm pressure, the amount of $'A'$ in the mixture is : (1 atm = 760 mm Hg)
a) 50 mol per cent b) 52 mol per cent c) 34 mol per cent d) 48 mol per cent

15. Van't Hoff factor($i$):
a) Is less than one in case of dissociation
b) Is more than one in case of association
c) $i = \frac{\text{normal molecular mass}}{\text{observed molecular mass}}$
d) $i = \frac{\text{observed molecular mass}}{\text{normal molecular mass}}$

16. Following solutions at the same temperature will be isotonic :
a) 3.42 g of cane sugar in one litre water and 0.18 g of glucose in one litre water
b) 3.42 g of cane sugar in one litre water and 0.18 g of glucose in 0.1 litre water
c) 3.42 g of cane sugar in one litre water and 0.585 g of NaCl in one litre water
d) 3.42 g of cane sugar in one litre water and 1.17 g of NaCl in one litre water

17. The osmatic 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 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) $c_2/\sqrt[3]{c_1} = \text{constant}$