



SHIKSHA CLASSES

Subject : Chemistry

BOARD QUESTION PAPER

Total Marks : 20

Class : XII

Topic: 2. Solution

Time : 1 Hr.

Section A

Q.1 : Select and write the most appropriate answer from given alternatives in each sub-question. 5

- i) Bronze alloy is type of solution.
- a) solid in liquid b) liquid in liquid
c) solid in solid d) solid in liquid
- ii) Freezing point of equimolar aqueous solution will be highest from following.
- a) Na_2SO_4 b) HCl c) H_2SO_4 d) MgCl_2
- iii) K_f is depression in freezing point produced by
- a) 1 molar solute b) 1 normal solute c) 1 molal solute d) all of these
- iv) Van't Hoff equation is
- a) $\pi V = RT$ b) $\pi = \frac{RT}{V}$ c) $R = \frac{\pi V}{T}$ d) all of these
- v) _____ obeys Raoult's law in all stages of concentration.
- a) Ideal Solution b) Non-Ideal solution
c) Real Solution d) None of the mentioned

Q.2 : Very short answer type Question. 2

- i) Which of the following solution will have highest boiling point? 0.5M NaCl and 0.5 M CaCl_2 .
- ii) What are isotonic solutions?

Section B

Attempt any THREE. 6

Q.3 : Define the term concentrated solution and dilute solution.

Q.4 : What is molar depression in freezing point constant ? Give its unit.

Q.5 : What is effect of pressure on solubility of gas in liquid. Give mathematical equation for it.

Q.6 : Give example of :

- a) Gas in liquid solution b) Solid in solid solution.

Section C

Attempt any one of following.

3

Q.7 : Derive relation of relative lowering of vapour pressure and mole fraction of solute.

Q.8 : The normal boiling point of ethyl acetate is 77.06°C . A solution of 50g of a nonvolatile solute in 150g of ethyl acetate boils at 84.27°C . Evaluate the molar mass of solute if K_b for ethyl acetate is $2.77^{\circ}\text{C kg mol}^{-1}$.

Section D

Attempt any one.

4

Q.9 : i) Define ebullioscopic constant and its formula and units.

ii) 10 g of substance dissolved in 100 gm of water. The boiling point raised by 1°C . Calculate molecular weight of substance ($K_b = 0.50$)

Q.10 : i) Derive the equation of molar mass of solute from Boiling point elevation.

ii) Osmotic pressure of solution containing 6.8×10^{-3} Kg of protein per 1×10^{-4} m³ of solution is 3.02×10^3 Pa at 37°C . Calculate molar mass of protein. ($R = 8.314\text{JK}^{-1}\text{mol}^{-1}$)

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