ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

FOR GOD AND COUNTRY

SOLUTION-42(CLASS-12)

TOPIC- SOLUTION

SUBTOPIC- COLLIGATIVE PROPERTIES

SUBJECT – CHEMISTRY **F.M. - 15**

DURATION – 30 mins **DATE -13.07.20**

1.1 **Osmotic pressure of a solution is:**
a) Inversely proportional to its absolute temperature.
b) Inversely proportional to its centigrade temperature.
c) Directly proportional to its centigrade temperature.
d) Directly proportional to its absolute temperature.
Ans. d

1.2 **When 100 g of sucrose (Molar mass = 342) is added to 100 g of water, the vapour pressure is lowered to 0.125 mm Hg at 25°C. What is the vapour pressure of pure water at 25°C.**
a) 2.38 mm Hg b) 1.15 mm Hg c) 0.11 mm Hg d) 23.8 mm Hg
Ans. d

1.3 **If the solvent boils at a temperature T_1 and the solution at a temperature T_2, then the elevation of boiling point is given by:**
a) $T_1 + T_2$ b) $T_1 - T_2$ c) $T_2 - T_1$ d) None of the above
Ans. c

1.4 T**he ratio of elevation in B.P to molality of solution is known as:**
a) Molar elevation constant b) Mole elevation constant c) Normal elevation constant
d) Molal elevation constant
Ans. d

1.5 **Which of the following statements are correct:**
i. colligative property depends upon number of solute of particles present in the solution.
ii. Relative lowering of vapour pressure of a solution is equal to the mole fraction of the non-volatile non-electrolyte solute.
a) I b) iic) Both i& iid) None of the above
Ans. c

1.6**Addition of common salt in water causes**
a) Increase in M.P of solution b) Increase in B.P of solution c) Decrease in B.P of solution.
d) Decrease in both M.P & B.P
Ans. b

1.7**The osmotic pressure of a solution of cane sugar is 5.07 atm at 150°C (Molecular mass = 342). What is the percent of the solution of cane sugar?**
a) 5%b) 6%c) 6.75%d) 5.75%
Ans. a

1.8 **A solution contains 20.0g of glucose, $C_6H_{12}O_6$, in 100 g of water. What is the freezing point of the solution (Kf = 1.86°C / m)?**
a) – 2.06°C b) – 0.20°C c) + 0.32°C d) – 0.32°C.
Ans. a

1.9 **The osmotic pressure of 0.020 M solutions of KI and of sucrose ($C_{12}H_{22}O_{11}$) are 0.565 atm and 0.345 atm respectively. The Van't Hoff factor for KI is:**
a) 0.63 b) 1.63 c) 1.90 d) 0.90.
Ans. b

1.10 **The Ebullioscopic constant is 0.516 K kg mol^{-1}. .What is the latent heat of vaporization, if the b.p of water is 100°C.**
a) 7900 cal / mol b) 8100 cal / mol c) 9700 cal / mold) 6200 cal / mol
Ans. c

1.11**The value of 0.03 M $Ca(OH)_2$ required to neutralise 20 ml of 0.025 M H_3PO_4 is**
a) 25 ml b) 50 ml c) 40 ml d) 55 ml
Ans. a

1.12**60 ml of an acidic solution is neutralized by 30 ml of 0.4 N base. The strength of acid solution is:**
a) 0.1 N b) 0.3 N c) 0.4 N d) 0.2 N
Ans. d

1.13**The boiling point of Benzene, Ethanol, Octane and Pentane are 80°C, 78°C, 126°C and 36°C respectively. Which of the following will show highest vapour pressure at room temperature.**
a) Benzene b) Octane c) Pentane d) Ethanol
Ans. c

1.14**When sugar is added to water, what is the change observed in boiling and freezing points of water?**
a) Both boiling point and freezing point decreases
b) Both boiling point and freezing point increases
c) Boiling point increases and freezing point decreases
d) Boiling point decreases and freezing point increases
Ans. c

1.15**The wrong relation between osmotic pressure (P), volume (V) and temperature (T) is:**
a) P α n if T and V are constant b) PV is constant if T is constant c) P α V if T is constant
d) P α T if V is constant
Ans. b

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