ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

WORKSHEET-44(CLASS-12)

TOPIC- SOLUTION

SUBTOPIC- COLLIGATIVE PROPERTIES

SUBJECT – CHEMISTRY **F.M. - 15**

DURATION – 30 mins **DATE -20.07.20**

1.1 **What is the vapour pressure of pure liquid A at 27°C if it forms an ideal solution with another liquid B, the vapour pressure and mole fraction of pure liquid B at 27°C is 140 torr and 0.2 respectively? The total vapour pressure of the solution is 84 torr at 27°C.**
a) 56 torr b) 140 torr c) 70 torr d) 17 torr.

1.2 **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%

1.3 **Addition of non-volatile solute in water results in:**
a) An increase in melting point of the liquid b) A decrease in the boiling point of the liquid.
c) A decrease in the vapour pressure of the liquid d) No change in the boiling point of the liquid

1.4 **The value of Vant Hoff factor (i) = 2 is for:**
a) Glucose b) Sucrose c) Calcium chloride d) Sodium chloride

1.5 **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

1.6 **If a solute is in associated state then Vant Hoff factor is:**
a) $i = 1$ b) $i > 1$ c) $i = 0$ d) $i < 1$

1.7 **Positive deviation from Raoult's law is observed when:**
a) Inter molecular forces of attraction between the two liquids is greater than that between individual liquids.
b) Inter molecular forces of attraction between the two liquids is smaller than that between individual liquids.
c) Force of attraction between two liquids is greater than that between individual liquids.
d) Force of attraction between two liquids is smaller than that between individual liquid

1.8 **Vapour pressure decreases with:**
a) Increase in concentration of the solution b) Decrease in solute particles in the solution.
c) Decrease in boiling point d) Increase in freezing point.

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.

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 / mol d) 6200 cal / mol

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.

1.12 **Rectified spirit contains ……. % ethanol by mass.**
a) 99 b) 91 c) 95 d) 98

1.13 **……. Shows the presence of strong intermolecular forces in a liquid.**
a) A low heat of vaporization b) A low critical temperature.
c) A low vapour pressure d) A low boiling point.

1.14 **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.

1.15 **Which of the following does not changes with the change in temperature? i. Mole fraction. ii. Molality.**
a) None of the above b) Both i & ii c) i. d) Only ii.

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