DPP

DAILY PRACTICE PROBLEMS

**CLASS : XIth** **SUBJECT : CHEMISTRY**
**DATE :** **DPP No. : 7**

# Topic :-SOLUTION

1. You are given 100 mL of $CCl_4$ to extract iodine from 200 mL of its aqueous solution. For extracting maximum amount of iodine, which one of the following processes would you use?
   a) Use all 100 mL of $CCl_4$ at one time
   b) Use 50 mL of $CCl_4$ twice
   c) Use 10 mL of $CCl_4$ 10 times
   d) Use 25 mL of $CCl_4$ 4 times

2. Normality of 2 M sulphuric acid is
   a) 2N b) 4N c) $\frac{N}{2}$ d) $\frac{N}{4}$

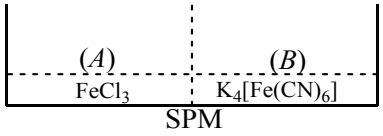
3. The elevation in boiling point of a solution of13.44 g of $CuCl_2$in 1 kg of water using the following information will be (molecular weight of $CuCl_2 = 134.4$ and $k_b = 0.52\ Km^{-1}$)
   a) 0.16 b) 0.05 c) 0.1 d) 0.2

4. The degree of dissociation $(\alpha)$ of a weak electrolyte , $A_xB_y$ is related to van't Hoff factor (i) by the expression
   a) $\alpha = \frac{i-1}{(x+y-1)}$ b) $\alpha = \frac{i-1}{x+y+1}$ c) $\alpha = \frac{x+y-1}{i-1}$ d) $\alpha = \frac{x+y+1}{i-1}$

5. On adding a solute to a solvent having vapour pressure 0.80 atm vapour pressure reduces to 0.60 atm. Mole fraction of solute is
   a) 0.25 b) 0.75 c) 0.50 d) 0.33

6. Generally those gases are soluble in water to a greater extent which :
   a) Are easily liquefied
   b) Are ionized in water
   c) React with water
   d) All are correct

7. Two solutions $(A)$ containing $FeCl_3(aq)$ and $(B)$ containing $K_4[Fe(CN)_6]$ are separated by semipermeable membrane as shown below. If $FeCl_3$ on reaction with $K_4[Fe(CN)_6]$, produces blue colour of $Fe_4[Fe(CN)_6]$, the blue colour will be noticed in :




a) $(A)$
b) $(B)$
c) In both $(A)$ and $(B)$
d) Neither in $(A)$ nor in $(B)$

8. The difference between the boiling point and freezing point of an aqueous solution containing sucrose (mol wt. $= 342\ gmol^{-1}$) in 100 g of water is $105.0°C$. If $K_f$ and $K_b$ of water are 1.86 and 0.51 K kg $mol^{-1}$ respectively, the weight of sucrose in the solution is about
a) 34.2 g b) 342 g c) 7.2 g d) 72 g

9. Pressure cooker reduces cooking time for food because
a) Boiling point of water involved in cooking is increased
b) Heat is more evenly distributed in the cooking space
c) The higher pressure inside the cooker crushes the food material
d) Cooking involves chemical changes helped by a rise in temperature

10. 9.8 g of $H_2SO_4$ is present in 2 L of a solution. The molarity of the solution is
a) 0.05 M b) 0.01 M c) 0.03 M d) 0.02 M

11. At 95 C, an aqueous solution of iodine containing 0.0156 g/litre is in equilibrium with a $CCl_4$ solution containing 4.412 g/litre. If the solubility of $I_2$ in water at 95 C is 0.34 g/litre, then its solubility in $CCl_4$ is :
a) $\frac{4.412 \times 0.0156}{0.34}$
b) $\frac{0.0156 \times 0.34}{4.412}$
c) $\frac{4.412 \times 0.34}{0.0156}$
d) $\frac{0.0156}{4.412 \times 0.34}$

12. Calculate the normality of 250 mL aqueous solution of $H_2SO_4$ having pH = 0.00.
a) 0.25 N b) 0.50 N c) 1 N d) 2 N

13. Van't hoff factor of $Ca(NO_3)_2$ is
    a) Benzoic acid is an organic solute
    b) Benzoic acid has higher molar mass than benzene
    c) Benzoic acid gets associated in benzene
    d) Benzoic acid gets dissociated in benzene

14. A solution of 5 g of iodine in $CS_2$ was shaken with the same volume of water. The amount of iodine in water is : (Given $K$ in favour of $CS_2 = 420$
    a) 0.119 g  b) 0.0119 g  c) 0.00119 g  d) 1.19 g

15. From the colligative properties of solution which one is the best method for the determination of molecular weight of proteins and polymers :
    a) Osmotic pressure
    b) Lowering in vapour pressure
    c) Lower in freezing point
    d) Elevation in boiling point

16. Observe the following abbrevations
    $\pi_{obs} =$ observed colligative property
    $\pi_{cal} =$ theoretical colligative property assuming normal behaviour of solute.
    Van't Hoff factors ($i$) is given by
    a) $i = \pi_{obs} \times \pi_{cal}$  b) $i = \pi_{obs} + \pi_{cal}$  c) $i = \pi_{obs} - \pi_{cal}$  d) $i = \frac{\pi_{obs}}{\pi_{cal}}$

17. The vapour pressure of two pure liquid ($A$) and ($B$) are 100 torr and 80 torr respectively. The total pressure of solution obtained by mixing 2 mole of ($A$) and 3 mole of ($B$) would be :
    a) 120 torr  b) 36 torr  c) 88 torr  d) 180 torr

18. On the basis of intermolecular forces predict the correct order of decreasing boiling points of the compounds:
    a) $CH_3OH > H_2 > CH_4$  b) $CH_3OH > CH_4 > H_2$  c) $CH_4 > CH_3OH > H_2$  d) $H_2 > CH_4 > CH_3OH$

19. Which has the highest freezing point at one atmosphere?
    a) 0.1 $M$ NaCl solution  b) 0.1 $M$ sugar solution  c) 0.1 $M$ $BaCl_2$ solution  d) 0.1 $M$ $FeCl_3$ solution

20. Binary liquid mixtures which exhibit positive deviations from Raoult's law boil at.... temperature than the expected b. p.:
    a) lower  b) Higher  c) Same  d) Cannot be said