CHEMISTRY CLASS 12 BATCH

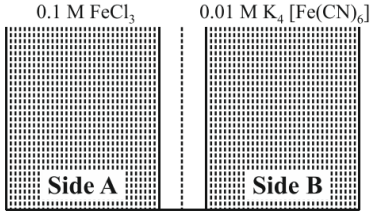
SOLUTIONS

DPP-04

1. A membrane which allows the movement of only solvent particles through it is called
(1) Animal membrane
(2) Plant membrane
(3) Semipermeable membrane
(4) Permeable membrane

2. Which of the following is not a characteristic of osmosis?
(1) Applicable only for solutions
(2) Possible with semipermeable
(3) Movement of only solvent takes place
(4) Irreversible

3. When $FeCl_3$ reacts with $K_4[Fe(CN)_6]$ in aqueous solution blue colour of ferri ferrocyanide, $Fe_4[Fe(CN)_6]_3$ is obtained. There are 0.1 M $FeCl_3$ and 0.01 M $K_4[Fe(CN)_6]$ solution are separated by a semi-permeable membrane as shown and osmosis occurs then



(1) blue colour is seen in side-B
(2) blue colour is seen in side-A
(3) blue colour is seen in both sides A and B.
(4) no blue colour is seen in either side.

4. The process of separating solvent from its solution by applying pressure greater than osmotic pressure is called
(1) fractional distillation
(2) condensation
(3) distillation
(4) reverse osmosis

5. The freezing point of the solution obtained by dissolving 0.5 moles of glucose in 500 g of water will be
(1) –1.86°C (2) –3.2°C
(3) –0.92°C (4) –2.24°C

6. The solution having lesser value of osmotic pressure is called
(1) Hypotonic solution
(2) Hypertonic solution
(3) Isotonic solution
(4) Osmotic solution

7. The osmotic pressure of a solution is 2 atm at 273 K then at 546 K, the osmotic pressure is
(1) 0.5 atm (2) 1 atm
(3) 2 atm (4) 4 atm

8. Osmotic pressure is 0.0821 atm at temperature of 300 K. Find concentration in mole/litre.
(1) 0.33 (2) 0.066
(3) 3.3×10^{-3} (4) 3

9. In a cold climate, water gets frozen causing damage to radiator of a car. Ethylene glycol is used as anti-freezing agent. Calculate the amount of ethylene glycol to be added to 4 kg of water to prevent it from freezing at –6°C (K_f for water = 1.85 K kg mol^{-1})
(1) 8.04 g (2) 80.4 g
(3) 0.80 g (4) 804.32 g

10. Find depression in freezing point of a glucose solution in which mole fraction of glucose is 0.25.
(1) 34.4 K (2) 18.2 K
(3) 24.6 K (4) 6.2 K

11. A solution containing 10.2g glycerine per litres is isotonic with a 2% solution of glucose. Molecular mass of glucose is 180 then molecular mass of glycerine is
(1) 9.18 (2) 0.918
(3) 91.8 (4) 918

12. Elevation in boiling point of an aqueous solution of glucose is 2K. Find the depression in freezing point of the same solution. (K_f = 1.86 K kg/mole and K_b = 0.52 K kg/mole)

(1) 2.16 K (2) 7.14 K
(3) 3.38 K (4) 6.28 K

13. Find the osmotic pressure of 12% solution of cane sugar (mol. wt. 342) at 27°C (d = 1 g/ml)

(1) 9.2 atm (2) 5.62 atm
(3) 7.32 atm (4) 8.64 atm

14. The osmotic pressure of a M/5 solution of glucose at 47°C is

(1) 1.25 atm (2) 2.25 atm
(3) 5.25 atm (4) 7.25 atm

15. The osmotic pressure of 5% (w/v) solution of urea at 27°C is

(1) 20.5 atm (2) 10.5 atm
(3) 12.5 atm (4) 15.5 atm

ANSWER KEY

1. (3)
2. (4)
3. (4)
4. (4)
5. (1)
6. (1)
7. (4)
8. (3)
9. (4)
10. (1)
11. (3)
12. (2)
13. (4)
14. (3)
15. (1)