Class : XII | **CBSE** | **Time: 1:30 hrs.**

Sub : CHEMISTRY | **PA-1 TEST JULY 2024** | **Date: - 31/07/2024**

Maximum Marks: 35

SECTION –A

Q1. Write the answer of the following questions. [Each carries 1 Mark] [10 M]

1. The unit of ebulioscopic constant is .....

   (A) $K\ kg\ mol^{-1}\ or\ K\ (molality)^{-1}$ (B) $mol\ kg\ K^{-1}\ or\ K^{-1}\ (molality)$

   (C) $kg\ mol^{-1}\ K^{-1}\ or\ K^{-1}\ (molality)^{-1}$ (D) $K\ mol\ kg^{-1}\ or\ K\ (molality)$

2. In isotonic solutions .....

   (A) Solute and solvent both are same.

   (B) Osmotic pressure is same.

   (C) Solute and solvent may or may not be same.

   (D) Solute is always same solvent may be different.

3. Which of the following is non aqueous solvent?

   (A) Benzene (B) Ether (C) CCl_4 (D) All of these

4. Which of the following pair is of non ideal solution?

   (A) $HCl + H_2O$ (B) $HNO_3 + H_2O$

   (C) $C_6H_5OH + C_6H_5NH_2$ (D) All of these

5. ---------- solution has highest freezing point.

   (A) 1 $m\ K_4\ [Fe(CN)_6]$ (B) 1 $m\ NaCl$

   (C) 1 $m\ glucose$ (D) 1 $m\ KCl$

6. If $E°$ value of given cell is 1.1 $V\ at$ 298 K temperature, then what is the value of equilibrium constant?

   (A) 10^{-37} (B) 10^{37} (C) 10^{-73} (D) 10^{73}

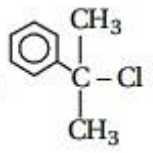
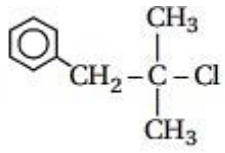
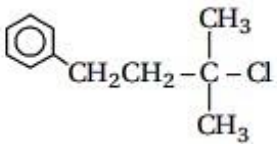
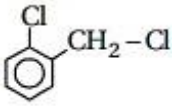
7. What is the electrode potential for following reaction?

   $E°_{Fe^{+3}|Fe} = -0.036\ V; E°_{Fe^{2+}|Fe} = -0.439\ V$

   $Fe^{3+} + e^- \rightarrow Fe^{2+}$

   (A) $-0.0272\ V$ (B) $0.385\ V$ (C) $0.770\ V$ (D) $-0.270\ V$

8. Which of the following is 3° − Benzylic halide?

(A) 
(B) 
(C) 
(D) 

9. $H_3C-\underset{\underset{CH_3}{|}}{CH}-CH=CH_2 \xrightarrow{HBr}$

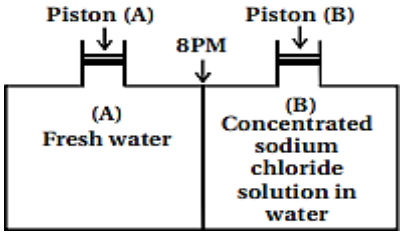
(A) $CH_3-\underset{\underset{CH_3}{|}}{CH}-\underset{\underset{Br}{|}}{CH}-CH_3$

(B) $CH_3-\underset{\underset{CH_3}{|}}{\overset{\overset{Br}{|}}{C}}-CH_2-CH_3$

(C) $CH_3-\underset{\underset{CH_3}{|}}{CH}-CH_2CH_2Br$

(D) $CH_3-\underset{\underset{CH_3}{|}}{\overset{\overset{Br}{|}}{C}}-CH_2CH_2Br$

10. Consider the Figure and mark the correct option.



(A) Water will move from side (A) to side

(B) if a pressure lower than osmotic pressure is applied on piston (B). (B)Water will move from side (B) to side (A) if a pressure greater than osmotic pressure is applied on piston (B).

(C) Water will move from side (B) to side (A) if a pressure equal to osmotic pressure is applied on piston (B).

(D) Water will move from side (A) to side (B) if pressure equal to osmotic pressure is applied on piston (A).

SECTION – B

Q2. Write the answer of the following questions. [Each carries 2 Mark] [8 M]

11. Determine the values of equilibrium constant $(Kc) and\ \Delta G°$ for the following reaction:

$Ni(s) + 2Ag + (aq) \rightarrow Ni2 + (aq) + 2Ag(s)$,

$E° = 1.05\ V \qquad (1F = 96500\ C\ mol^{-1})$

12. Write down the structures of benzyl chloride and ortho chloro nitro benzene.
13. Describe the Fuel cell.
14. Explain Faraday second law of electrolysis.

SECTION – C

Q3. Write the answer of the following question. [Each carries 3 Mark] [12 M]

15. State Kohlrausch law of independent migration of ions. Why does the conductivity of a solution decrease with dilution?

0R

15. How the following conversion can be carried out?

    (A) Propene to Propane -1- ol

    (B) Toluene to benzyl alcohol

    (C) ethanol to propane nitrile

16. Write down the difference between electrochemical cell and electrolytic cell.
17. Write down the difference between ideal solution and non ideal solution.
18. Write down the difference between SN1 and SN2 mechanism.

SECTION – D

Q4. Write the answer of the following question. [5 M]

19. What are Colligative Property? Draw the curve for elevation in boiling point and depression in frezing point for binary solution.

OR

19. Write down the SN1 reaction mechanism with suitable example.