

Class : XII

GSEB

Time: 1:30 hrs.

Sub : CHEMISTRY

PA-1 TEST JULY 2024

Date: - 31/07/2024

Maximum Marks: 50

SECTION –A

Q1. Write the answer of the following questions. [Each carries 1 Mark] [25 M]

- Which of the following aqueous solutions should have the highest boiling point?
(A) 1.0 M NaOH (B) 1.0 M Na₂SO₄ (C) 1.0 M NH₄NO₃ (D) 1.0 M KNO₃
- The unit of ebullioscopic 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)
- In comparison to a 0.01 M solution of glucose, the depression in freezing point of a 0.01 M MgCl₂ solution is
(A) the same (B) about twice (C) about three times (D) about six times
- 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.
- Which of the following is non aqueous solvent?
(A) Benzene (B) Ether (C) CCl₄ (D) All of these
- What is the use of Henry's law?
(A) In preparation of cold drinks (B) In biochemical processes
(C) In the industry (D) All of these
- Which of the following pair is of non ideal solution?
(A) HCl + H₂O (B) HNO₃ + H₂O
(C) C₆H₅OH + C₆H₅NH₂ (D) All of these
- solution has highest freezing point.
(A) 1 m K₄ [Fe(CN)₆] (B) 1 m NaCl (C) 1 m glucose (D) 1 m KCl
- Density of solution prepared by dissolving 120 gm urea in 1000 gm water is 1.15 gm/mL. then find out molarity of solution is....

(A) 0.50 M (B) 1.78 M (C) 1.02 M (D) 2.05 M

10. Find out molarity of solution on addition of 200 mL of water in 500 mL of 0.2 M solution.

(A) 0.501 M (B) 0.02847 M (C) 0.709 M (D) 0.1428 M

11. If temperature increases the value of Henry's law constant.....

(A) remains constant. (B) increases. (C) decreases. (D) none of the above

12. What is true for spontaneity of cell?

(A) $\Delta G = 0, \Delta H = 0$ (B) $\Delta G = -ve, \Delta H = 0$

(C) $\Delta G = +ve, \Delta H = 0$ (D) $\Delta G = -ve$

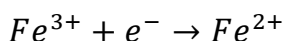
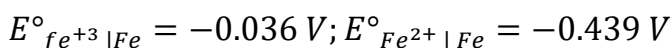
13. If E° value of given cell is 1.1 V at 298 K temperature, then what is the value of equilibrium constant?

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

14. Which elements can be obtained as anode mud in purification reaction of copper by electrolysis?

(A) Al, Ni (B) Ag, Au (C) Sn, Pb (D) Pb, Ni

15. What is the electrode potential for following reaction?



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

16. How much electric charge is required for complete oxidation of 0.1 mole of MnO_4^{2-} ?

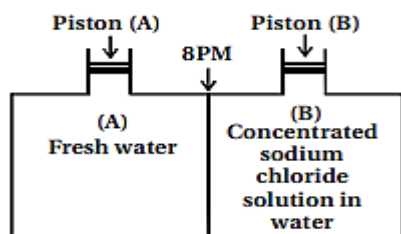
(A) 96500 C (B) $2 \times 96500 C$ (C) 9650 C (D) 96.50 C

17. Which of the following aqueous solution is ideal for conductivity of current?

(A) Ammonia, NH_3 (B) Fructose, $C_6H_{12}O_6$

(C) Acetic acid, $C_2H_4O_2$ (D) Hydrochloric acid, HCl

18. Consider the Figure and mark the correct option.



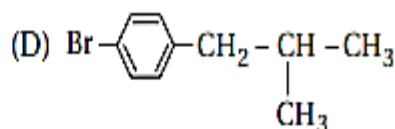
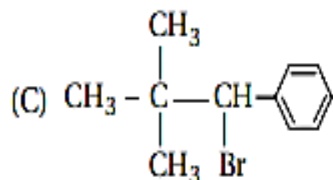
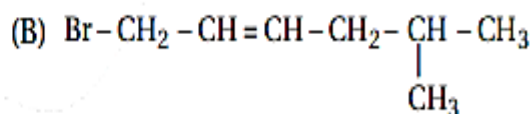
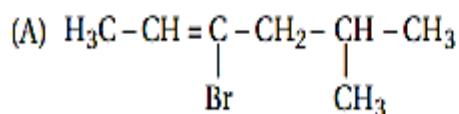
(A) Water will move from side (A) to side

(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).

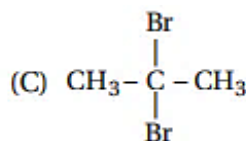
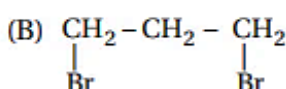
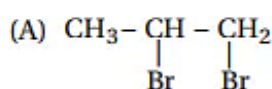
(C) Water will move from side (B) to side (A) if a pressure equal to osmotic pressure is applied on piston (B).

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

19. Which of the following is allylic halide?

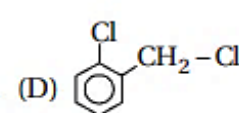
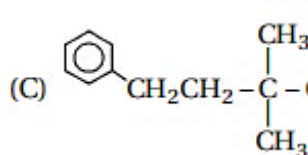
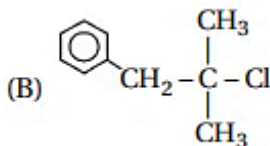
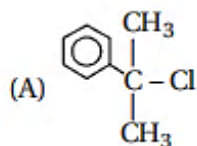


20. Which of the following is a vicinal dihalides?

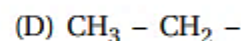
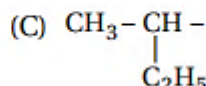
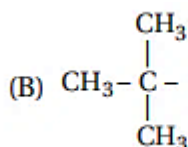
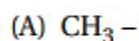
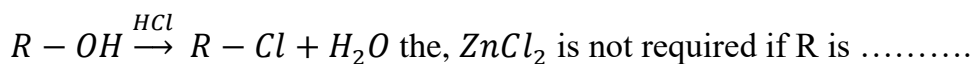


(D) All of these

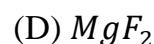
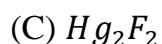
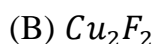
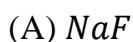
21. Which of the following is 3° - Benzylic halide?



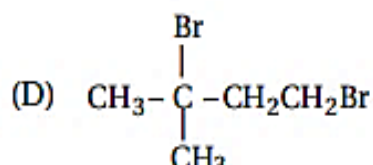
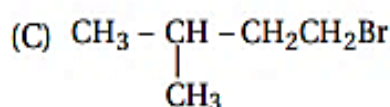
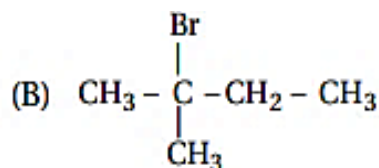
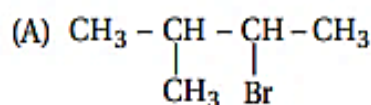
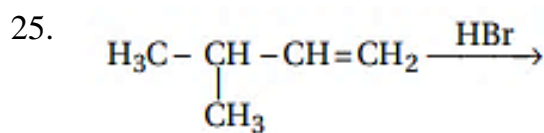
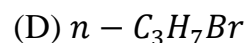
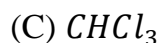
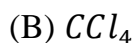
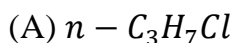
22. In the following reaction:



23. The metallic fluoride used in a Swarts reaction is.....



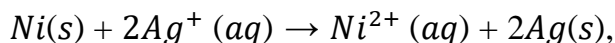
24. Which of the following has maximum density?



SECTION – B

Q1. Write the answer of the following questions. [Each carries 2 Mark] [8 M]

26. Determine the values of equilibrium constant (K_c) and ΔG° for the following reaction:



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

27. Write down the structures of benzyl chloride and ortho chloro nitro benzene.

28. Describe the Fuel cell.

29. Explain Faraday second law of electrolysis.

SECTION – C

Q2. Write the answer of the following question. [Each carries 3 Mark] [9 M]

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

OR

30. Write down the difference between electrochemical cell and electrolytic cell.

31. Write down the difference between ideal solution and non ideal solution.

32. Write down the difference between SN1 and SN2 mechanism.

SECTION – D

Q3. Write the answer of the following question. [Each carries 4 Mark] [8 M]

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

OR

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

34. How the following conversion can be carried out?

(A) Toluene to benzyl alcohol

(B) ethanol to propane nitrile