SECOND YEAR HIGHER SECONDARY EXAMINATION-MARCH 2023

SECTION A (1 MARK)

1.The temperature dependant concentration term is----------(Molarity, Molality, Mole fraction)

2.The unit for 'k' for second order reaction is ----------

3.The reaction in which amide is converted to primary amine by the action of Br_2 and alcoholic NaOH is known as----------

4. The scientific name of Vitamin C is ----------

5. ---------- is known as animal starch.

SECTION B (2 MARK)

6.Name the four colligative properties ?

7.State Raoult's Law for solutions containing volatile component

8. $CH_3Cl+2Na+Cl\text{-}C_6H_5 \xrightarrow{Dry\ Ether}$ A, Identify A and give the name of the reaction ?

9.Diferentiate between SN1 & SN2 reaction .

10. Phenol is less reactive to nucleophilic substitution than alcohol. Give reason ?

11. Write the fermentation reaction for the conversion of cane sugar to ethanol ?

12.Explaine Williamsons's synthesis for the preparation of ether ?

13.What is aspirin ? How will you prepare it?

14. The rate constant triples when temperature increases from 25° C to 40° C. Calculate the energy of activation ?

15.Write Nernst Equation to calculate the electrode potential. Explain the terms .

SECTION C (3 MARKS)

16. (a) Define osmotic pressure of a solution (1)

(b) 200 cm^3 of aqueous solution of a protein contains 1.26g of protein. The osmotic pressure of the solution at 300K is found to be 8.3 x 10^2 bar. Calculate molar mass of protein (R=0.0821 L Bar/K/mol)

17. Explaine H_2-O_2 fuel cell with reactions .

18. Derive the integrated rate equation for first order reaction.

19. Differentiate between order and molecularity.

20. Describe the steps involved in the preparation of $K_2Cr_2O_7$ from chromite ore.

21. Give reason for the following

(a) Transition elements form coloured compounds.

(b) They show variable oxidation state.

(c) Zr and Hf have similar atomic size.

22. $[Co(H_2O)_6]^{3+}$ is paramagnetic.Explain using Valence Bond Theory of Cordination compounds.

23. Write the IUPAC name of

(i) $[Cr(NH_3)Cl]Br_2$ (ii) $K[BF_4]$ (iii) $[Pt(NH_3)_4][PtCl_4]$

24. Complete the reactions

(i) $C_6H_5\text{-}NH_2 \xrightarrow{Diazotisation} C_6H_5N_2Cl \xrightarrow{CuCl+HCl}$ ----------

(ii) $CH_3\text{-}CH_2\text{-}CH_2$ Br+---------- $\rightarrow CH_3\text{-}CH{=}CH_2$

(iii) $CHCl_3 \xrightarrow{O2+Sunlight}$ ----------

25. How you distinguish between aldehyde and ketone

26.Write any three difference between RNA and DNA

SECTION D (4 marks)

27. (i) What is the relation between Λ_m and Concentration (1)

(ii) Draw the graph which show the variation of Λ_m and concentration (1)

(iii) Calculate the Λ_m° of NH_4OH . The Λ_m° values of NH_4Cl, NaOH & NaCl are 127.8, 148.6 and 153.1 Sm^2/mol respectively. (2)

28. (i) Write the ionization and hydrate isomers possible for the co-ordination compound $[Fe(H_2O)_5Br]SO_4$ (2)
(ii) Give any two applications of Co-ordination compounds ? (2)

29.Explain aldol condensation reaction and Cannizaro reaction with suitable example. (4)

30. (i) How will you convert

(a) $CH_3COCH_3 \rightarrow$ Propane (1)

(b) $CH_3COCH_3 \rightarrow$ tertiary butyl alcohol (1)

(ii) Explain (a) HVZ Reaction (b) Rosenmund reduction (2)

31. (i) What is Hinsberg Reagent (1)

(ii) How will you distinguish between primary, secondary and tertiary amines ? (3)

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