

**SECOND YEAR HIGHER SECONDARY SAMPLE QUESTION
PAPER**

CHEMISTRY

Max marks 60
Time 2 hrs

Answer any four questions. Each question carries 1 mark

1. Rate constant for a reaction, $k = 0,069 \text{ s}^{-1}$. What is the order of the reaction?
2. Most common oxidation state of Lanthanoids is -----
3. The co-ordination number of central metal ion in the complex $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]^{2+}$ is -----
4. Name the poisonous gas produced by the air oxidation of Chloroform
5. Which of the following compounds undergo Cannizzaro reaction?
a) Methanal b) Ethanal c) Propanol d) Propanal.

Answer any eight questions from 6 to 15. Each question carries 2 marks

6. State Henry's law. Give any one application.
7. Draw the vapour pressure-mole fraction graph for a binary solution showing negative deviation.
8. Differentiate between primary and secondary cell. Give example for both type.
9. Write Arrhenius equation and explain terms.
10. Give reason for the following properties.
 1. Transition elements form complexes.
 2. Transition elements are good catalysts.
11. Give IUPAC name for the following compounds.
 1. $[\text{Cr}(\text{H}_2\text{O})_6]\text{Cl}_3$
 2. $\text{K}_3[\text{Fe}(\text{CN})_6]$
12. Identify the products A, and B in the following reactions.
 - 1) $\text{CH}_3\text{OH} \xrightarrow{\text{SOCl}_2} \text{A}$
 - 2) $2 \text{CH}_3\text{Cl} + \text{Na} \xrightarrow{\text{Ether}} \text{B}$
13. Write IUPAC name and structure of Picric acid.
14. What is Diazotisation reaction? Explain with equation.
15. What are Essential and non essential amino acids?

Answer any eight questions from 16 to 26. Each question carries 3 marks

16. a) State Kohlrausch's law (1)
b) The limiting molar conductances of KCl, HCl and CH_3COOK are 130.1, 379.4, and (2)
 $95.6 \Omega^{-1}\text{cm}^2\text{mol}^{-1}$ respectively. Find the limiting molar conductance of CH_3COOH
17. Derive the integral rate equation for first order reaction.
18. A reaction is first order in A and second order in B.
 - a) Write the rate equation.
 - b) How is the rate affected, when the concentration of B is doubled?
19. a) Name the ore from which KMnO_4 is prepared.
b) Explain various steps involved in the preparation of KMnO_4 from the ore.
20. a) What are Chelating ligands?
b) Draw the Crystal field splitting in Octahedral complexes.
21. Distinguish between 1°, 2° and 3° alcohols using Luca's reagent
22. Convert the following.
 1. Phenol to Benzene
 2. Ethanol to Ethene

3. R-CHO to R-CH₂OH

23.a) Identify the reagents and name the reaction (2)



b) What is Tollen's reagent? (1)

24.a) What is Esterification? (1)

b) Write the product obtained by the reaction between Acetic acid and Methyl alcohol (1)

c) Write the following compounds in the increasing order of their acidity.



25. Explain the following reactions.

1) Carbyl amine reactions (1)

2) Hoffmann's Bromamide reaction (1)

3) Gattermann reaction (1)

26. Explain the following.

1) Glycosidic linkage (1)

2) Nucleotide (1)

3) Denaturation of proteins (1)

Answer any four questions from 27 to 31. Each carries 4 marks

27.a) Name any two Colligative properties. (1)

b) At 298 K, 100cm³ of a solution containing 3.002 g of an unknown solute shows an osmotic pressure of 2.55atm. Calculate the molar mass of the solute. (2)

c) Define Van't Hoff factor.

28.a) Name the reference electrode used to determine standard electrode potential of other electrodes (1)

b) Derive the Nernst equation for Daniel cell (3)

29. Explain the structural isomerism of coordination compounds with one example for each.

30.a) Which mechanism is followed by 3^o Butyl bromide in nucleophilic substitution reactions?

Explain (3)

b) What are enantiomers? (1)

31.a) Name the test used to distinguish between the following compounds.

1. Ketones and aldehydes (1)

2. Pentan-2-one and Pentan-3-one (1)

b) Which is more reactive towards nucleophilic addition reactions, Aldehydes or Ketones?

Explain the reason (2)

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