

SECOND YEAR HIGHER SECONDARY EXAMINATION

PART III

Time: 2Hrs.

Maximum score: 60

CHEMISTRY

Cool Off Time: 15 Minutes



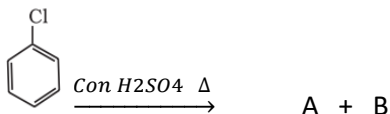
Answer any 4 question from 1- 5. Each carries 1 score

1. The unit $\text{mol L}^{-1} \text{S}^{-1}$ is meant for the rate constant of the reaction having the order _____
2. What is the common oxidation state of lanthanoids
3. Ammoniacal silver nitrate solution is known as _____
4. In which of the following the central atom/ion is in zero oxidation state
 - a. $[\text{Ni}(\text{CN})_4]^{2-}$
 - b. $[\text{NiCl}_4]^{2-}$
 3. $[\text{Ni}(\text{CO})_4]$
 4. $[\text{Ni}(\text{NH}_3)_6]^{2+}$
5. Chloroform is slowly oxidized by air in the presence of light to an extremely poisonous gas called _____

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

6. State Henry's Law. Give two applications of it.
7. What is meant by Azeotropes?. Give an example of minimum boiling azeotrope.
8. State and explain Kohlrausch's Law?
9. Write any two differences between Order and Molecularity?
10. Transition elements are d-block elements
 - a. Write any two properties of transition elements [1]
 - b. Name a transition metal compound and write one use of it. [1]
11. Write the IUPAC name of the following,
 1. $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$ [1]
 2. $\text{K}_3[\text{Fe}(\text{C}_2\text{O}_4)_3]$ [1]

12. Identify the product A and B in the following reaction



13. How will you distinguish Primary, Secondary and Tertiary alcohols using Lucas Test?
14. Describe a chemical reaction shown only by primary amines?
15. Classify the following Carbohydrates as monosaccharides, Oligosaccharides and Polysaccharides.
Ribose, Glycogen, Lactose, Cellulose.

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

16. The cell reaction in Daniel cell is $\text{Zn}_{(s)} + \text{Cu}^{2+}_{(aq)} \rightarrow \text{Zn}^{2+}_{(aq)} + \text{Cu}_{(s)}$ and Nernst equation for single electrode potential for general electrode reaction $\text{M}^{n+}_{(aq)} + n\text{e}^- \rightarrow \text{M}_{(s)}$ is

$$E_{\text{Mn}^+/M} = E^0_{\text{Mn}^+/M} - \frac{2.303RT}{nF} \log \frac{[M]}{[M^{n+}]}$$

Derive Nernst equation for Daniel cell

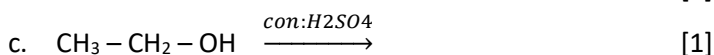
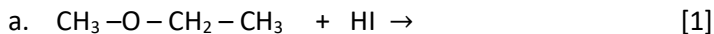
17. Rate constant K_2 of a reaction at 310 K is two times of its rate constant K_1 at 300 K. Calculate activation energy of the reaction. [$\log 2 = 0.3010$, $\log 1 = 0$]
18. Derive the expression for the half life of a chemical reaction of 1st order

19. Potassium dichromate is an important compound of chromium. Explain the method for the preparation of $K_2Cr_2O_7$ from chromite ore.

20. $[Cr(NH_3)_5CO_3]Cl$ is a co-ordination compound

- Name the central metal ion of the above compound [1]
- Name the ligands present in the above compound [1]
- What is the ionization isomer of this compound [1]

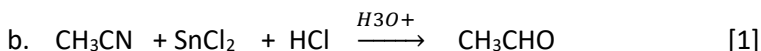
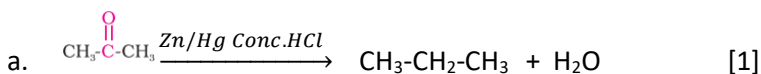
21. Complete the following reactions



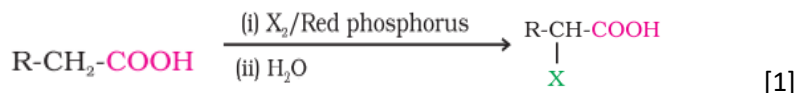
22.

- Describe the preparation of ethanol from molasses [2]
- What is meant by denaturation of alcohol [1]

23. Name the following reactions

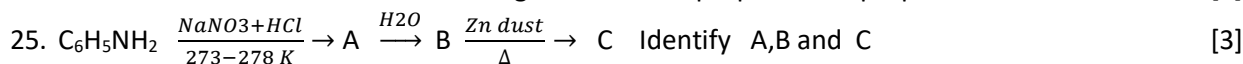


c.



24. Explain

- Propanal is more reactive than propanone towards hydroxylamine. Give reason [2]
- Name a chemical test to distinguish between propanal and propanone [1]



26. Explain primary, secondary and tertiary structure of protein. [3]

Answer any 4 question from 27 to 31. Each carries 4 scores.

27.

- What are colligative properties [1]
- Name any two colligative properties [1]
- Calculate the Osmotic pressure exerted by dissolving 1.0 g of a polymer of molar mass 18500g/mol in 450 ml of water at $37^\circ C$. [2]

28. Diagrammatically represent $H_2 - O_2$ fuel cell and write the half cell reactions taking place in the cell [4]

29.

- $[Co(NH_3)_6]^{3+}$ is a diamagnetic complex and $[CoF_6]^{3-}$ is a paramagnetic complex. Substantiate the above statement using Valence Bond Theory. [3]
- Classify the above mentioned complex into inner orbital and outer orbital complexes. [1]

30.

- What are the products obtained when 2- Bromopentane is treated with alcoholic KOH [2]
- Identify the major product obtained in the above reaction. [1]
- Name the rule that decides the formation of the major product. [1]

31. Explain the following reactions

- Gatterman - Koch reaction [2]
 - Cannizarro reaction [2]
-

CLUSTER GROUP NO: 2

Members

1. NIJI C. HSST CHEMISTRY, SAVIO HSS, DEVAGIRI, KOZHIKODE
2. SMITHA B. HSST CHEMISTRY, GHSS MEDICAL COLLEGE CAMPUS, KOZHIKODE
3. SOUMYA RAJ , HSST CHEMISTRY, PANTHEERANKAVE HSS, KOZHIKODE
4. NIJIL E.T, JDT ISLAM HSS KARANATHUR, KOZHIKODE
5. SREEVANDANA N.HSST CHEMISTRY, CHINMAYA VIDHYALAYA, KOZHIKODE
6. SUJATHA N.S, HSST CHEMISTRY,GHSS MAVOOR, KOZHIKODE
7. HASNA U. HSST CHEMISTRY, CMM HSS THALAKKULATHUR, KOZHIKODE

