

**Class : 12**

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**SECOND MID TERM TEST - 2024**

Time Allowed : 1.30 Hours]

**CHEMISTRY**

[Max. Marks : 50

**PART - I**I. Answer all the questions. **YouTube/ Akwa Academy**

10x1=10

- IUPAC name of the complex  $K_3[Al(C_2O_4)_3]$  is -----
  - potassium tri oxalato aluminium (III)
  - potassium tri oxalato aluminate (II)
  - potassium tris oxalato aluminate (III)
  - potassium tri oxalato aluminate (III)
- The sum of primary valence and secondary valence of the metal M in the complex  $[M(en)_2Ox]Cl$  is -----
  - 3
  - 6
  - 3
  - 9
- The product formed by the reaction an aldehyde with a primary amine is ----
  - carboxylic acid
  - aromatic acid
  - schiff 's base
  - ketone
- Among the following cells, the Primary cells are
  - Leclanche cell
  - Nickel - Cadmium cell
  - Lead storage battery
  - Mercury cell
  - I and IV
  - I and III
  - III and IV
  - II and III
- A certain current liberated 0.504 gm of hydrogen in 2 hours. How many grams of copper can be liberated by the same current flowing for the same time through copper sulphate solution?
  - 31.75
  - 15.8
  - 7.5
  - 63.5
- When aniline reacts with acetic anhydride the product formed is -----
  - o - amino aceto phenone
  - m-amino aceto phenone
  - p - amino aceto phenone
  - acetanilide
- Assertion :** Pure iron when heated in dry air is converted with a layer of rust.  
**Reason :** Rust has the composition  $Fe_3O_4$ 
  - if both assertion and reason are true and reason is the correct explanation of assertion.
  - if both assertion and reason are true but reason is not the correct explanation of assertion.
  - assertion is true but reason is false
  - both assertion and reason are false.
- Which of the following reagent can be used to convert nitrobenzene to aniline?
  - Sn / HCl
  - ZnHg / NaOH
  - Zn/NH<sub>4</sub>Cl
  - All of these
- The structure of  $[Fe_2(CO)_9]$  consists of ----- bridging CO ligands, ----- terminal CO groups
  - three & two
  - three & six
  - two & six
  - six & three
- Which of the following amines does not undergo acetylation?
  - t - butylamine
  - ethylamine
  - diethylamine
  - triethylamine

**PART - II**

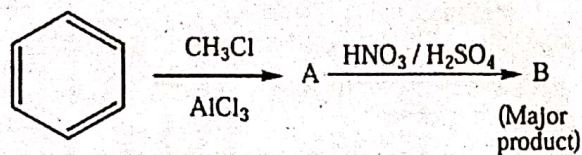
II. Answer any 5 questions. Question number 17 is compulsory.

5 X 2 = 10

- Write Gabriel phthalimide synthesis
- What are ionisation isomers? Give an example.
- What is crystal field stabilization energy (CFSE)?

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14. State Faraday's second law of electrolysis.
15. The complexes of central metal atom such as  $\text{Sc}^{3+}$ ,  $\text{Ti}^{4+}$ ,  $\text{Cu}^+$  are colourless. Why?
16. Write Mustard oil reaction.
17. Identify A and B.



### PART - III

III. Answer any 5 questions, Question number 24 is compulsory.

5x3=15

18. Give the difference between double salts and coordination compounds.
19. What are the limitations of VB theory?
20. Write IUPAC name of the following compounds.
  - a.  $\text{H}_2\text{N}(\text{CH}_2)_6\text{NH}_2$
  - b. Isopropylamine
21. Explain Galvanic cell notation.
22. Write a note on sacrificial protection.
23. Write Gombert reaction.
24. Calculate the molar conductance of 0.025M aqueous solution of calcium chloride at 25°C. The specific conductance of calcium chloride is  $12.04 \times 10^{-2} \text{ Sm}^{-1}$ .

### PART - IV

IV. Answer all the questions.

3x5=15

25. a) In the complex,  $[\text{Co}(\text{en})_2\text{Cl}_2]\text{Cl}$ , identify the following
  - i) IUPAC name
  - ii) Central metal ion
  - iii) Ligand(s)
  - iv) Geometry
  - v) Coordination number

(OR)
- b) Explain the postulates of Werner's theory of coordination compounds.
26. a) State Kohlrausch Law. How is it useful to determine the molar conductivity of weak electrolyte at infinite dilution.
 

(OR)
- b) i) Explain Standard Hydrogen Electrode (SHE)? (3)
- ii) Why is AC current used instead of DC in measuring the electrolytic conductance? (2)
27. a) How will you distinguish between primary secondary and tertiary aliphatic amines.
 

(OR)
- b) Derive an expression for Nernst equation.