

# HALF YEARLY EXAMINATION - 2024

CLASS: 12

CHEMISTRY

Reg.No

Time : 3.00 Hours

Marks : 70

## PART - I

I Choose the correct answer:

15X1=15

- Considering Ellingham diagram, which of the following metals can be used to reduce Alumina?
  - Fe
  - Cu
  - Mg
  - Zn
- The Correct order of the thermal stability of hydrogen halide is
  - HI > HBr > HCl > HF
  - HF > HCl > HBr > HI
  - HCl > HF > HBr > HI
  - HI > HCl > HF > HBr
- Duraluminium is an alloy of \_\_\_\_\_
  - Cu, Mn
  - Cu, Al, Mg
  - Al, Mn
  - Al, Cu, Mn, Mg
- The actual position of Lanthanoids in the Periodic table is at
  - Group number 3 and Period number 4
  - Group number 6 and Period number 3
  - Group number 4 and Period number 4
  - Group number 3 and Period number 6
- How many geometrical isomer are possible for [Pt (Py) (NH<sub>3</sub>) Br Cl]
  - 3
  - 4
  - 0
  - 15
- Match the following
 

1) Ionic Solid	-	(i) diamond
2) Covalent Solid	-	(ii) Cu-Zn
3) Non Polar molecular solid	-	(iii) NaCl
4) Metallic Solid	-	(iv) Anthracene

  - 1 - iii, 2 - i, 3 - iv, 4 - ii
  - 1 - iii, 2 - iv, 3 - i, 4 - ii
  - 1 - iv, 2 - iii, 3 - ii, 4 - i
  - 1 - ii, 2 - i, 3 - iv, 4 - iii
- A zero order reaction  $x \longrightarrow$  product, with an initial concentration 0.02M has a half life of 10 min if one starts with concentration 0.04 M, then the half life is
  - 10 s
  - 5 min
  - 20 min
  - cannot be predicted using the given information
- Which of the following Fluoro compounds is most likely to behave as a Lewis base?
  - BF<sub>3</sub>
  - PF<sub>3</sub>
  - CF<sub>4</sub>
  - SiF<sub>4</sub>
- During electrolysis of molten sodium chloride the time required to produce 0.1 mol of chlorine gas using a current of 3A is
  - 55 minutes
  - 107.2 minutes
  - 220 minutes
  - 330 minutes
- Which one of the following is incorrect for physisorption?
  - reversible
  - increase with increase in T
  - low heat of adsorption
  - increase with increase in surface area
- Which one of the following will react with phenol to give salicylaldehyde after hydrolysis?
  - Dichloro methane
  - trichloro ethane
  - trichloro methane
  - CO<sub>2</sub>
- CH<sub>3</sub>Br  $\xrightarrow{\text{KCN}}$  A  $\xrightarrow{\text{H}_3\text{O}^+}$  B  $\xrightarrow{\text{PCl}_5}$  C, Product (C) is
  - Acetyl chloride
  - Chloro acetic acid
  - $\alpha$  - Chlorocyno ethanoic acid
  - None of these
- Which one of the following will not undergo Hofmann bromamite reaction
  - CH<sub>3</sub>CONHCH<sub>3</sub>
  - CH<sub>3</sub>CH<sub>2</sub>CONH<sub>2</sub>
  - CH<sub>3</sub>CONH<sub>2</sub>
  - C<sub>6</sub>H<sub>5</sub>CONH<sub>2</sub>
- Cheilosis is a vitamin deficiency disease caused by
  - Vitamin B<sub>6</sub>
  - Vitamin B<sub>9</sub>
  - Vitamin B<sub>7</sub>
  - Vitamin B<sub>2</sub>
- Which of the following is a co-polymer.
  - orlon
  - PVC
  - Teflon
  - PHBV

M Poovarasan M.Sc  
PG Asst In chemistry  
Dharmapuri district

## PART - II

II Answer any 6 questions. Q.No: 24 is compulsory.

6x2=12

16. What is Calcination?
17. Write a short note on anomalous properties of the first element of P - block.
18. What is inert pair effect?
19. Define solubility product.
20. A solution of silver nitrate is electrolysed for 20 minutes with a current of 2 amperes. Calculate the mass of silver deposited at the cathode.
21. How is acrolein prepared from glycerol?
22. What are hormones? Give Examples.
23. What are antibiotics?
24. What happens when increase the surface area of the reactant?

## PART - III

III Answer any 6 questions. Question no 33 is compulsory.

6x3=18

25. Give the uses of helium.
  26. Out of  $\text{Lu}(\text{OH})_3$  and  $\text{La}(\text{OH})_3$ , which is more basic and why?
  27. Explain Schotky defect.
  28. Give the differences between order and molecularity of a reaction.
  29. Write short notes on tyndall effect.
  30. Explain reducing nature of formic acid.
  31.  $\text{C}_6\text{H}_5\text{N}_2\text{Cl}$  —  $\begin{array}{l} \xrightarrow{\text{Cu}} \text{ (A)} \\ \xrightarrow{\text{HCl}} \\ \xrightarrow{\text{LiBF}_4} \text{ (B)} \end{array}$
- Identify A & B and write the equation.
32. Write a short note on peptide bond.
  33.  $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$  is coloured, while  $[\text{Sc}(\text{H}_2\text{O})_6]^{3+}$  is colourless - explain.

## PART - IV

IV Answer all the questions.

5x5=25

34. a) i) Explain gravity Separation. (3)
- ii) Write the limitations of Ellingham diagram. (OR) (2)
- b) i) Write the uses of Boric acid. (2)
- ii) How will you prepare chlorine from Deacon process. (3)
35. a) i) Why transition elements form interstitial compounds. (2)
- ii) Compare Lanthanoids and actinoids. (OR) (3)
- b) i) Write a short notes on double salts and co-ordination compounds. (3)
- ii) What is crystal field stabilization energy (CFSE)? (2)
36. a) Write the difference between Crystalline and Amorphous solids. (OR) (5)
- b) Derive Henderson - Hasselbalch equation. (5)
37. a) i) State Kohlrausch law. (3)
- ii) Write note on catalytic poison. (OR) (2)
- b) i) How will you convert Glycol in to 1,4 - dioxane. (3)
- ii) What happens when oxygen react with di-ethyl ether? (2)
38. a) i) Write the equation for reduction of Nitrobenzene in acidic and neutral Medium. (3)
- ii) Write short note on carbylamine reation. (2)
- b) i) What is epimerisation? Give example (OR) (3)
- ii) What are bio-degradable polymers? (2)