

**Class : 12**Register  
Number**SECOND REVISION EXAMINATION - 2024**

Time Allowed : 3.00 Hours]

**CHEMISTRY**

[Max. Marks : 70

**PART - A**

15x1=15

- I. Choose the correct answer.
- Roasting of sulphide ore gives the gas (A). (A) is a colourless gas. Aqueous solution of (A) is acidic. The gas (A) is  
a)  $\text{CO}_2$                       b)  $\text{SO}_2$                       c)  $\text{SO}_3$                       d)  $\text{H}_2\text{S}$
  - Which of the following is strongest acid among all?  
a)  $\text{HI}$                       b)  $\text{HF}$                       c)  $\text{HBr}$                       d)  $\text{HCl}$
  - Which of the following lanthanoid ions is diamagnetic?  
a)  $\text{Eu}^{2+}$                       b)  $\text{Yb}^{2+}$                       c)  $\text{Ce}^{2+}$                       d)  $\text{Sm}^{2+}$
  - The fraction of total volume occupied by the atoms in a simple cubic is  
a)  $\left(\frac{\pi}{4\sqrt{2}}\right)$                       b)  $\left(\frac{\pi}{6}\right)$                       c)  $\left(\frac{\pi}{4}\right)$                       d)  $\left(\frac{\pi}{3\sqrt{2}}\right)$
  - The half life period of a radio active element is 140 days. After 560 days, 1 gram of element will be reduced to  
a)  $(1/2)$  g                      b)  $(1/4)$  g                      c)  $(1/8)$  g                      d)  $(1/16)$  g
  - The  $\text{p}^{\text{H}}$  of an aqueous solution is zero. The solution is  
a) Slightly acidic                      b) Strongly acidic                      c) Neutral                      d) Basic
  - Isopropyl benzene on air oxidation in the presence of dilute acid gives.  
a)  $\text{C}_6\text{H}_5\text{COOH}$                       b)  $\text{C}_6\text{H}_5\text{COCH}_3$                       c)  $\text{C}_6\text{H}_5\text{COCO}_2\text{H}_2$                       d)  $\text{C}_6\text{H}_5\text{OH}$
  - $\text{CH}_3\text{Br} \xrightarrow{\text{KCN}} \text{A} \xrightarrow{\text{H}_3\text{O}^+} \text{B} \xrightarrow{\text{PCl}_5} \text{C}$ . Product C is  
a) Acetyl Chloride                      b) Chloro acetic acid  
c)  $\alpha$  - Chlorocyno ethanoic acid                      d) None of these
  - Which of the following are epimers?  
a) D(+) - glucose and D(+) - Galactose                      b) D(+) - Glucose and D(+) - Mannose  
c) Neither (a) nor (b)                      d) Both (a) and (b)
  - Which one of the following is a bio degradable polymer?  
a) HDPE                      b) PVC                      c) Nylon 6                      d) PHBV
  - The most stable form of carbon is  
a) Graphite                      b) Diamond                      c) Fullerene                      d) Carbon nano tubes
  - The crystal with a metal deficiency defect is  
a)  $\text{NaCl}$                       b)  $\text{KCl}$                       c)  $\text{ZnO}$                       d)  $\text{FeO}$
  - Acid hydrolysis of an ester is an example for ----- order reaction.  
a) Zero                      b) First                      c) Pseudo first                      d) Second
  - Hydrolysis of  $\text{CH}_3\text{COONa}$  gives  
a) Acidic solutions                      b) Basic solution                      c) Neutral solution                      d) No solution
  - The role of barium sulphate in Rosenmund reduction is  
a) Catalyst                      b) Reducing agent                      c) Catalytic Poison                      d) Promoler

**PART - B**

- II. Answer any six questions. Question No. 24 is compulsory.

6x2=12

- How will you identify borate radical?
- Why Europium (II) is more stable than Cerium (II)?
- What is radius ratio in an ionic solid?
- Define solubility product?

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20. In case of chemisorption, why adsorption first increases and then decreases with temperature?
21. Write note on Benedict's Solution test?
22. What is chloropicrin? How is it prepared?
23. Write the structure of  $\alpha$  - D(+)-glucopyranose.
24. Write the following for the complex  $K_4[Mn(CN)_6]$  a) IUPAC name b) Ligand c) Coordination Number

## PART - C

III Answer any six questions. Question No. 33 is compulsory. 6x3=18

25. Explain the following terms with suitable examples.
- (i) Gangue (ii) Slag
26. Complete the following Reactions.
- i)  $P_4 + NaOH + H_2O \rightarrow ?$  ii)  $XeOF_4 + SiO_2 \rightarrow ?$
27. Write the IUPAC ligand name for the following.
- (i)  $C_2O_4^{2-}$  (ii)  $H_2O$  (iii)  $Cl^-$  (iv)  $NH_3$
28. Derive integrated rate law for a zero order. reaction  $A \rightarrow \text{Product}$ .
29. Write a note on Sacrificial protection.
30. How will you prepare the following compounds from Glycerol? (i) TNG (ii) Acrolein
31. Write Libermann's Nitroso Test.
32. Which sweetening agents are used to prepare sweets for a diabetic patient?
33. Calculate the molar conductance of 0.025 M aqueous solution of calcium chloride at 25°C. The specific conductance of  $CaCl_2$  is  $12.04 \times 10^{-3} \text{ Sm}^{-1}$ .

## PART - D

IV Answer all the questions.

5x5=25

34. (a) i) Explain the electro metallurgy of aluminium. (3)
- ii) Give the uses of Silicones. (2) (OR)
- (b) i) What happens when  $PCl_5$  is heated? (3)
- ii) What type of hybridisation occur in
- (a)  $BrF_5$  (b)  $XeO_3$  (2)
35. (a) (i) A solution of  $[Ni(H_2O)_6]^{2+}$  is green, where as a solution of  $[Ni(CN)_4]^{2-}$  is colorless - Explain. (3)
- (ii) What are actinides? Give three example. (2) (OR)
- (b) i) Write short note on metal excess and metal deficiency defect with an example. (3)
- ii) The rate constant for a first order reaction is  $1.54 \times 10^{-3} \text{ S}^{-1}$ . Calculate its half life time. (2)
36. (a) (i) Define Ionization of water. (2)
- (ii) State Kohlrausch law. (3)
- (OR)
- (b) i) Write a note on electro osmosis. (3)
- ii) Give two uses of emulsions. (2)
37. (a) (i) How will you convert acetylene into n-butyl alcohol (3)
- (ii) How will you prepare lactic acid from ethanal. (2)
- (OR)
- (b) i) What are hormones? Give examples. (2)
- ii) What are narcotic and non-narcotic drugs. Give examples. (3)
38. (a) An organic Compound (A)  $C_7H_7NO$  on treatment with  $Br_2$  and  $KOH$  gives an amine (B) which gives carbylamine test. (B) upon diazotization to give (C). (C) on react with  $CuCN / KCN$  to give (D). Identify A, B, C and D. Write its equation. (5)
- (OR)
- (b) i) Sodium metal crystallizes in bcc structure with the edge length of the unit cell  $4.3 \times 10^{-8} \text{ cm}$ . Calculate the radius of Sodium atom. (3)
- ii) In a first order reaction  $A \rightarrow \text{products}$  60% of the given sample of A decomposes in 40 min. What is the half life of the reaction? (2)

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