

COMMON QUARTERLY EXAMINATION - 2024

Standard XII

Reg.No. 123123

CHEMISTRY

Time : 3.00 hrs

Part - I

Marks : 70

15 x 1 = 15

I. Choose the correct answer:

- Which of the metal is extracted by Hall-Heront process?
 - Al
 - Ni
 - Cu
 - Zn
- Which of the following is not sp^2 hybridised?
 - graphite
 - graphene
 - fullerene
 - dry ice
- Most easily liquefiable gas is
 - Ar
 - Ne
 - He
 - Kr
- Permanganate ion changes to _____ in acidic medium.
 - MnO_4^{2-}
 - Mn^{2+}
 - Mn^{3+}
 - MnO_2
- Assertion : Monoclinic sulphur is an example of monoclinic crystal system
Reason : For a monoclinic system $a \neq b \neq c$ and $\alpha = \gamma = 90^\circ$, $\beta \neq 90^\circ$
 - Both assertion and reason are true, and reason is the correct explanation of assertion
 - Both assertion and reason are true, but reason is the not correct explanation of assertion
 - Assertion is true, but reason is false
 - both assertion and reason are false
- The vacant space in bcc lattice unit cell is
 - 48%
 - 23%
 - 32%
 - 26%
- The rate constant of a reaction is $5.8 \times 10^{-2} \text{ s}^{-1}$. The order of the reaction is
 - first order
 - zero order
 - second order
 - third order
- Which of these is not likely to act as Lewis base?
 - BF_3
 - PF_3
 - CO
 - F^-
- Carbolic acid is
 - phenol
 - picric acid
 - benzoic acid
 - phenyl acetic acid
- The reagent used to distinguish between acetaldehyde and benzaldehyde is
 - Tollens reagent
 - Fehling's solution
 - 2,4-dinitrophenyl hydrazine
 - semi carbazide
- The IUPAC name of $\begin{array}{c} \text{CH}_3 - \text{O} - \text{CH} - \text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$
 - 1-methoxy propane
 - 2-methoxy propane
 - methyl propyl ether
 - methoxy methane
- The value of spin only magnetic moment of V^{3+}
 - 1.75
 - 2.76
 - 3.86
 - 4.80
- Which metal is purified by Van-Arkel method?
 - Zirconium
 - Titanium
 - both (a) and (b)
 - Nickel
- $H_2PO_4^-$ the conjugate base of
 - PO_4^{3-}
 - P_2O_5
 - H_3PO_4
 - HPO_4^{2-}
- Which is used in medicine as a Typtotic
 - formaldehyde
 - benzaldehyde
 - paraldehyde
 - acetophenone

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XII Chemistry

Part - II

II. Answer any 6 questions. (Q.No.24 is compulsory)

6 x 2 = 12

16. Write the limitations of Ellingham diagram?
17. How will you identify borate radical?
18. What is inert pair effect?
19. Which is more stable Fe^{3+} or Fe^{2+} , why?
20. Calculate the number of atoms in a fcc unit cell.
21. Write two examples for first order reaction.
22. Define pH.
23. Write the Kolbe's reaction.
24. The rate constant for a first order reaction is $1.54 \times 10^{-3} \text{ s}^{-1}$. Calculate its half-life time.

Part - III

III. Answer any 6 questions. (Q.No.33 is compulsory)

6 x 3 = 18

25. What is the role of lime stone in the extraction of iron from its oxide Fe_2O_3 ?
26. Write a note on Fisher-Tropsch synthesis.
27. Write the uses of helium.
28. What is lanthanoid contraction? and write its consequences.
29. Write a note of Frankel defect.
30. Discuss the Lowery-Bronsted concept of acids and bases.
31. Write the tests for carboxylic acid.
32. How will you prepare acetaldehyde from acetyl chloride? Write the equation.
33. Phenol is distilled with Zn dust gives compound A. A reacts with propene gives compound B., which is on air oxidation gives compound C. Identify A, B and C.

Part - IV

IV. Answer all the questions.

5 x 5 = 25

34. a) Explain the principle of Electrolytic refining with an example. (OR)
- b) i) Write a note on Zeolites.
- ii) CO is reducing agent. Justify with an example.
35. a) i) Give a reason to support that sulphuric acid is a dehydrating agent.
- ii) What are interhalogen compounds? Give example. (OR)
- b) Differentiate Lanthanoids and Actinids.
36. a) i) What are molecular solids? Give examples.
- ii) Write Bragg's equation and expand terms. (OR)
- b) Derive integrated rate law for a zero order reaction : $\text{A} \longrightarrow \text{Product}$
37. a) Define Ostwald's dilution law. And derive it. (OR)
- b) What is Lucas reagent? And differentiate primary, secondary and tertiary alcohols by Lucas test.
38. a) Explain the mechanism of Cannizzaro reaction. (OR)
- b) i) How Urotropine is prepared? And write its uses.
- ii) Write Kolbe's electrolytic decarboxylation.
