

VNR12C

Virudhunagar District
Common Half Yearly Examination - December 2024

Standard 12

CHEMISTRY

Time: 3.00 Hrs.

Marks: 70

PART - I

I. Choose the correct answer and answer all the questions: 15×1=15

- Which one of the following reduction is not thermodynamically feasible?
 - $\text{Cr}_2\text{O}_3 + 2\text{Al} \rightarrow \text{Al}_2\text{O}_3 + 2\text{Cr}$
 - $\text{Al}_2\text{O}_3 + 2\text{Cr} \rightarrow \text{Cr}_2\text{O}_3 + 2\text{Al}$
 - $3\text{TiO}_2 + 4\text{Al} \rightarrow 2\text{Al}_2\text{O}_3 + 3\text{Ti}$
 - none of these
- Which of the following is not Sp^2 hybridised?
 - Fullerene
 - Graphite
 - Diamond
 - Graphene
- Assertion :** Ce^{4+} is used as an oxidising agent in volumetric analysis
Reason : Ce^{4+} has the tendency of attaining +3 oxidation state
 - Both assertion and reason are true but reason is the correct explanation of assertion
 - 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
- The co-ordination number and oxidation state of the complex $\text{Na}_2[\text{Ni}(\text{EDTA})]$ are respectively
 - 2, +2
 - 4, +4
 - 6, +2
 - 6, +4
- The oxidation state of chlorine in Cl_2O_7 is
 - +6
 - +7
 - +4
 - +5
- If the Rate constant of the reaction is $5.8 \times 10^{-2} \text{S}^{-1}$, what is the order of the reaction
 - first order
 - zero order
 - second order
 - third order
- Cl^- is the conjugate base of
 - HClO_4
 - HCl
 - ClO_4^-
 - HClO_3
- The vacant space in bcc lattice unit cell is
 - 32%
 - 33%
 - 48%
 - 26%
- Pyrogallol is
 - 1, 2, 4 trihydroxy benzene
 - 1, 3, 5 trihydroxy benzene
 - 1, 3 dihydroxy benzene
 - 1, 2, 3 trihydroxy benzene
- Which of the following electrolytic solution has the least specific conductance
 - 1N
 - 0.01 N
 - 0.1
 - 2N
- Fog is a colloidal solution of
 - gas in gas
 - solid in gas
 - gas in liquid
 - liquid in gas
- Which one of the following reduces Tollens reagent
 - Formic acid
 - acetic acid
 - Benzophenone
 - none of these
- $\text{C}_6\text{H}_5\text{NO}_2 \xrightarrow{\text{Fe/HCl}} \text{A} \xrightarrow[273\text{K}]{\text{NaNO}_2/\text{HCl}} \text{B} \xrightarrow{\text{H}_2\text{O}/283\text{K}} \text{C}$, C is
 - $\text{C}_6\text{H}_5\text{OH}$
 - $\text{C}_6\text{H}_5\text{CH}_2\text{OH}$
 - $\text{C}_6\text{H}_5\text{CHO}$
 - $\text{C}_6\text{H}_5\text{NH}_2$
- Glucose and Mannose are epimers at
 - C_3 Carbon
 - C_4 carbon
 - C_1 carbon
 - C_2 carbon
- Match the following:
 - Major tranquilizer - i) non-steroid anti inflammatory drug
 - analgesics - ii) Propofol
 - NSAIDS - iii) Clozapine
 - Intravenous general anesthetics - iv) Aspirin
 - 1-iii 2-iv 3-i 4-ii
 - 1-i 2-ii 3-iii 4-iv
 - 1-ii 2-i 3-iv 4-iii
 - 1-iv 2-iii 3-ii 4-i

VNR12C

2

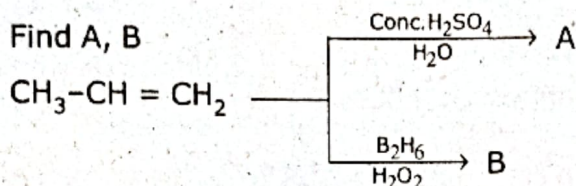
PART - II

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

6×2=12

- 16) How the ores are concentrated by Gravity separation method?
- 17) Write the chromyl chloride test.
- 18) Uses of borax-2
- 19) Define unit cell
- 20) Define Faraday's second law of electrolysis.
- 21) Distinguish antagonists from agonists.
- 22) Define order of the reaction.
- 23) How will you convert the following:
 - i) Ethylene glycol → 1, 4 dioxane
 - ii) Ethylene → Ethylene glycol

24) Find A, B



Part - III

III. Answer any six questions. Q.No. 33 is compulsory:

6×3=18

- 25) What is Catenation? Give any two conditions for catenation.
- 26) Give the laboratory preparation of chlorine.
- 27) Differences between octahedral voids and tetrahedral voids.
- 28) Write the Thorpe-Nitrile condensation reaction.
- 29) What is formalin-Give uses.
- 30) How will you prepare Nylon-2-nylon-6
- 31) Write the formula for the following co-ordination compounds.
 - a] Sodium tetra fluoridodihydroxydichromate (III)
 - b] Pentaamminenitrito-KN cobalt (III) ion
- 32) Explain the formation of peptide bond with example.
- 33) A copper electrode is dipped in 0.1 M copper sulphate solution at 25°C.

Calculate the electrode potential of copper. [Given $E^\circ_{\text{Cu}^{2+}/\text{Cu}} = 0.34\text{V}$]

Part - IV

IV. Answer all the questions:

5×5=25

- 34) a] i) Describe the Mond Process. ii) What is roasting?
(OR)
- b] Describe the rate constant for the first order reaction.
- 35) a] i) Distinguish diamond from graphite.
 ii) McAfee process.
(OR)
- b] Write the differences between Lanthanoids and Actinoids.
- 36) a] Write notes on i) Holmes signal ii) Ziegler-Natta catalyst.
(OR)
- b] Write the postulates of Valence Bond Theory.
- 37) a] i) What are Lewis acids and Lewis bases? Give examples.
 ii) Differences between DNA and RNA - 6 points.
(OR)
- b] What is packing efficiency? Calculate the packing efficiency of FCC lattice.
- 38) a] i) Write briefly Vulcanization of Rubber
 ii) What are promoters. Give examples.
(OR)
- b] Explain the mechanism of Cannizzaro reaction.