

Tsi12C

Tenkasi District Common Examinations
Common First Revision Examination - January 2023



09-01-2023

Standard 12
CHEMISTRY

Time: 3.00 hrs

Marks: 70

15×1=15

I. Answer all the questions.

- Wolframite ore is separated from tinstone by the process of
 - Smelting
 - Calcination
 - Roasting
 - Electromagnetic Separation
- Phosgene is
 - COCl₂
 - CNCl
 - NOCl
 - SOCl₂
- In the industrial preparation of NH₃, which of the following is used to increase the rate of attainment of equilibrium.
 - K₂O and Al₂O₃
 - Na₂O₂ and Al₂O₃
 - BaO and Fe₂O₃
 - CU₂O and Al₂O₃
- The magnetic moment of Sc³⁺ ion is
 - 0
 - 1.73
 - 2.83
 - 3.87
- Which of the following is outer orbital complex
 - [FeF₆]⁴⁻
 - [Ti(H₂O)₆]³⁺
 - [Fe(CN)₆]⁴⁻
 - [Fe(CN)₆]³⁻
- Assertion : due to Frenkel defect, density of the crystalline solid decreases
Reason : in Frenkel defect cation and anion leaves the crystal
 - Both assertion and reason are true and reason is the correct explanation of assertion
 - Both assertion and reason are true and reason is not the correct explanation of assertion
 - Assertion is true but reason is false
 - Both assertion and reason are false
- If 75% of first order reaction was completed in 60 minutes, 50% of the same reaction under the same conditions would be completed in
 - 20 minutes
 - 30 minutes
 - 35 minutes
 - 75 minutes
- Dissociation constant of NH₄OH is 1.8×10⁻⁵ the hydrolysis constant of NH₄Cl would be
 - 1.8×10⁻¹⁹
 - 5.55×10⁻¹⁰
 - 5.55×10⁻⁵
 - 1.80×10⁻⁵
- Among the following cells

I) Leclanche Cell	II) Nickel - Cadmium Cell
III) Lead Storage battery	IV) Mercury Cell

 Primary cells are
 - I and IV
 - I and III
 - III and IV
 - II and III
- Name of the colloid where dispersion medium is solid and dispersed phase is liquid is
 - Gel
 - emulsion
 - Foam
 - Solid Sol
- On reacting with neutral ferric chloride, phenol gives
 - red colour
 - violet colour
 - dark green colour
 - no colouration
- Which of the following represents the correct order of acidity in the given compounds
 - FCH₂COOH > CH₃COOH > BrCH₂COOH > ClCH₂COOH
 - FCH₂COOH > ClCH₂COOH > BrCH₂COOH > CH₃COOH
 - CH₃COOH > ClCH₂COOH > FCH₂COOH > Br-CH₂COOH
 - ClCH₂COOH > CH₃COOH > BrCH₂COOH > ICH₂COOH

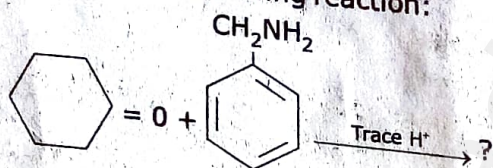
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- 13) Nitro benzene on reaction with conc. $\text{HNO}_3/\text{H}_2\text{SO}_4$ at $80-100^\circ\text{C}$ forms which one of the following products?
- a) 1, 4 - dinitro benzene b) 2, 4, 6 trinitro benzene
c) 1, 2 - dinitro benzene d) 1, 3, - dinitro benzene
- 14) In a protein, various amino acids linked together by
- a) Peptide bond b) Dative bond
c) α -glycosidic bond d) β -glycosidic bond
- 15) The polymer used in making artificial wool is
- a) polystyrene b) PAN c) polyester d) polythene

Part - II

II. Answer any six of the following. Question number 20 is compulsory. $6 \times 2 = 12$

- 16) What is auto reduction? Give example.
- 17) What is Catenation? Describe briefly the catenation property of carbon.
- 18) Write the structure of dichromate ion.
- 19) Give the formula for the following co-ordination compounds
(i) di ammine silver (I) dicyanido argentate (I)
(ii) Tetra carbonyl Nickel (0)
- 20) A solution of silver nitrate is electrolysed for 20 min with a current of 2 amperes. Calculate the mass of silver deposited at the cathode.
- 21) Explain the pseudo first order reaction with an example.
- 22) State any two factors that affect the electrolytic conductance.
- 23) What is Urotropine? How is it prepared?
- 24) Complete the following reaction:



Part - III

Answer any six of the following. Question number 29 is compulsory. $6 \times 3 = 18$

- 25) Explain the preparation of Borax ($\text{Na}_2\text{B}_4\text{O}_7$)
- 26) Complete the following:
- i) $\text{P}_4 + ? \rightarrow 4 \text{PCl}_3 + 4 \text{SO}_2 + 2 \text{S}_2\text{Cl}_2$
ii) $3 \text{C}_2\text{H}_5\text{OH} + ? \rightarrow 3 \text{C}_2\text{H}_5\text{Cl} + \text{H}_3\text{PO}_3$
iii) $\text{H}_3\text{PO}_2\text{Cl} + \text{H}_2\text{O} \rightarrow ? + \text{HCl}$
- 27) Explain the oxidising property of potassium permanganate.
- 28) Explain the solvate isomers by the complex $\text{CrCl}_3 \cdot 6\text{H}_2\text{O}$.
- 29) Show that in case of first order reaction, the time required for 99.9% completion is nearly ten times the time required for half completion of the reaction.
- 30) Differentiate Lewis acid and Lewis bases.
- 31) What is TNG? How is it prepared?
- 32) What happens when the following alkenes are subjected to reductive ozonolysis.
(i) Propene (ii) 1-Butene (iii) Isobutylene
- 33) What are narcotic and non-narcotic drugs? Give examples.

c) For a period of time

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Part - IV

IV. Answer all the questions:

5 × 5 = 25

- 34) a) Explain how Zr and Ti are refined by Van-Arkel method. (3)
 b) How Alum is prepared? (2)

(OR)

- c) Write short notes on Allotropic forms of sulphur. (5)

- 35) a) Describe the variable oxidation state of 3d series elements. (3)
 b) Give one test to differentiate $[\text{CO}(\text{NH}_3)_5\text{Cl}]\text{SO}_4$ and $[\text{CO}(\text{NH}_3)_5\text{SO}_4]\text{Cl}$ (2)

(OR)

- c) Explain Schottky defect. (3)
 d) A solution of 0.10 m of a weak electrolyte is found to be dissociated to the extent of 1.20% at 25°C. Find the dissociation constant of the acid (2)

- 36) a) Derive an expression for Nerast equation. (3)
 b) Applying Kohlrausch's Law how will you calculate the molar conductance of weak electrolyte at infinite dilution. (2)

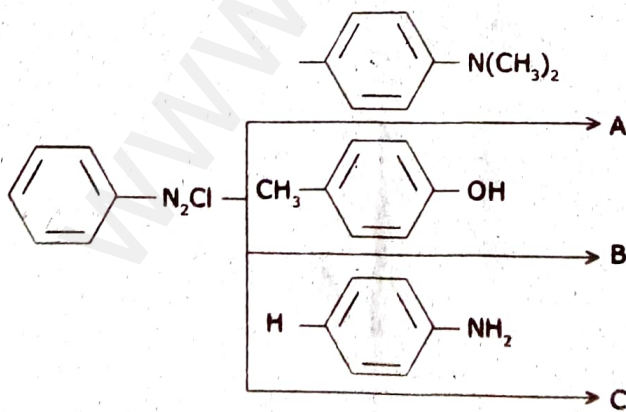
(OR)

- c) Explain the catalytic reaction by intermediate compound formation theory. (3)
 d) What is the difference between homogenous and heterogenous catalysis? (2)

- 37) a) A compound (A) with molecular formula $\text{C}_2\text{H}_3\text{N}$ on acid hydrolysis gives (B) which reacts with thionyl chloride to give compound (C). Benzene reacts with compound (C) in presence of anhy. AlCl_3 to give compound (D). Compound (D) on reduction with Zn/Hg and Conc. HCl gives (E). Identify (A), (B), (C), (D), (E). Write the equations. (3)
 b) Identify the products formed when 1-methoxy propane is heated with excess HI . Name the mechanism involved in the reaction. (2)

(OR)

- c) Find out A, B, C for the following reactions (3)



- d) Write short notes on Mustard oil reaction. (2)

- 38) a) Explain the secondary structure of proteins. (3)
 b) Differentiate DNA and RNA. (2)

(OR)

- c) Explain the structure of fructose. (5)

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