Tsi12C

Tenkasi District

Common Second Revision Examination - 2025

29-01-2025

Standard 12

CHEMISTRY

Time: 3.00 Hours

Marks: 70

Part - A

15x1=15

I. Choose the best answer.

1) Collodion is a 4% solution of which one of the following compounds in alcohol - other mixture?
a) Nitre cellulose b) Nitroglycerine c) Cellulose acetate d) Glycol dinitrate

2) Which of the following electrolytic solution has the least specific conductance?
a) 2N b) 0.02N c) 0.002N d) 0.2N

3) Among the following the Lewis acid is
a) F^- b) $R-NH_2$ c) CaO d) Cu^{2+}

4) The rate constant of a reaction is $5.8 \times 10^{-2} s^{-1}$. The order of the reaction is
a) zero order b) first order c) second order d) Third order

5) The total number of tetrahedral voids in the face centred unit cell is .....
a) 6 b) 8 c) 10 d) 12

6) Which of the following is paramagnetic in nature?
a) $[Zn(NH_3)_4]^{2+}$ b) $[Co(NH_3)_6]^{3+}$ c) $[NiCH_2O)_6]^{2+}$ d) $[Ni(CN)_4]^{2-}$

7) Which one of the following ions has the same number of unpaired electrons as present in V^{3+}?
a) Ti^{3+} b) Fe^{3+} c) Ni^{2+} d) Cr^{3+}

8) Among the following the correct order of acidity is
a) $HClO < HClO_2 < HClO_3 < HClO_4$ b) $HClO_3 < HClO_4 < HClO_2 < HClO$
c) $HClO_4 < HClO_2 < HClO < HClO_3$ d) $HClO_2 < HClO < HClO_3 < HClO_4$

9) Match items in column - I with the items of column - II and assign the correct code

Column I	Column II
A. Borazole	1) $B(OH)_3$
B. Boric acid	2) $B_3N_3H_6$
C. Quartz	3) $Na_2[B_4O_5(OH)_4].8H_2O$
D. Borax	4) SiO_2

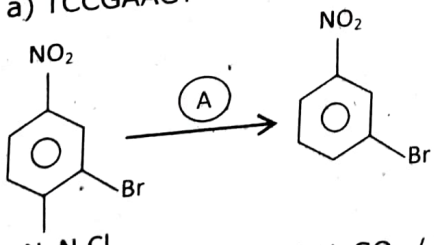
	A	B	C	D
a)	2	1	4	3
b)	1	2	4	3
c)	1	2	3	4

d) None of these

10) Semi conductor materials are refined by
a) liquation b) distillation c) Zone refining d) Mond's process

11) The polymer used in making blankets (artificial wool) is
a) Polystyrene b) PAN c) Polyester d) Polythene

12) If one strand of the DNA has the sequence 'ATGCTTGA' then the sequence of complementary strand would be
a) TCCGAACT b) TACGTACT c) TACGRAGT d) TACGAACT

13) 

A is
a) H^+ / H_2O b) $HgSO_4 / H_2SO_4$ c) Cu_2Cl_2 d) H_3PO_2 and H_2O

14) Carboxylic acids have higher boiling points than aldehyde, ketones and even alcohols of comparable molecular mass. It is due to their
a) more extensive association of Carboxylic acid via Vander waals force of attraction.
b) formation of carboxylate 100^o
c) formation of Intra molecular H-bonding
d) formation of Inter molecular H-bonding

15) **Assertion :** Phenol is more acidic than ethanol
Reason : phenoxide ion is resonance stabilized
a) if both assertion and reason are true and reason is the correct explanation of assertion
b) if both assertion and reason are true but reason is not the correct explanation of assertion
c) assertion is true but reason is false
d) both assertion and reason are false

Part - B

II. Answer any 6 questions. (Q.No. 24 is compulsory) **6x2=12**

16) Give one example for each of the following
i) Icosogens ii) Tetragen iii) pnictogen iv) Chalcogens
17) Why do zirconium and Hafnium exhibit similar properties?
18) Write the IUPAC name s of the following complexes?
i) $[Co(NH_3)_5Cl]^{2+}$ ii) $K_3[Fe(CN)_5NO]$
19) What are primitive and non primitive unit cell?
20) Discuss Loary - Bronsted concepts of acid and bases
21) Define electrophoresis?
22) Write short note on carbylamine reaction
23) What are bio degradable polymers? Give examples
24) What is the action of anhydrous $ZnCl_2$ with ethylene glycol?

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Part - C

III. Answer any 6 questions. (Q.No. 33 is compulsory) **6x3=18**

25) Write note on magnetic separation?
26) Give the uses of helium?
27) In an octahedral crystal field, draw the figure to show splitting of d orbitals
28) Explain the rate determining step with an example?
29) Explain any three factors which influences the adsorption of a gas on a solid?
30) How will you prepare Malachite green?
31) Write short notes on Schotten - Boumann reaction?
32) What are the functions of lipids in living organism
33) Write note on Lithium - ion Battery?

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Part - D

IV. Answer all the questions. **5x5=25**

34) a) i) What is the role of quick lime in the extraction of Iron from its oxide Fe_2O_3? (2M)
ii) Expalin the principle of electrolytic refining with an example? (3M) **(OR)**
b) i) How will you identify borate radical? (2M)
ii) Write a note on Fisher tropsch synthesis (3M)
35) a) i) What are the interhalogen compounds? Give examples? (2M)
ii) Calculate the number of unpaired electrons in Ti^{3+}, Mn^{2+} and calculate the spin only magnetic moment? (3M) **(OR)**
b) Write the oxidation state, coordination number, nature of ligand, magnetic property and electronic configuration in octahedral crystal field for the complete $K_4(Mn(CN)_6]$
36) a) i) What is F-centre? (2M)
ii) Calcuate the number of atoms in sc, bcc, fcc unit cell. (3M) **(OR)**
b) Derive integrated rate law for a first order reaction.(5M)
37) a) i) Define solubility product? (2M) **(OR)**
ii) Describe adsorption theory of catalysis (3M)
b) Expalin the mechanism of aldol condensation
38) a) An organic compound A of molecular formula C_6H_6O gives violet coloration with netural $FeCl_3$. A react with metallic sodium and gives B. compund B on treatement with CO_2 at 400K under pressure give C. The product on acidification gives compound D ($C_7H_6O_3$) which is used in medicine. Idenitfy A, B, C and D and explain the reactions. **(OR)**
b) i) Give two difference between Hormones and Vitamins (2M)
ii) How are (i) Phenol (ii) biphanyl prepared by using benzene diazonium chloride (3M)

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