



12th Standard

CHEMISTRY

FIRST REVISION

TEST-2023

**Various District
Question Paper Collection**

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Time : 3.00 hrs

PART - I**Choose and write the correct answer :****15 × 1 = 15**

- Zinc is obtained from ZnO by...?
 - Carbon reduction
 - Reduction using Silver
 - Electro chemical process
 - Acid Leaching
- Which of the following plot gives Ellingham diagram...?
 - ΔS Vs T
 - ΔG° Vs T
 - ΔG° Vs $\frac{1}{T}$
 - ΔG° Vs T^2
- The metal oxide which cannot be reduced to metal by carbon is...?
 - PbO
 - Al_2O_3
 - ZnO
 - FeO
- The basic structural unit of Silicates is...?
 - $(SiO_3)^{2-}$
 - $(SiO_4)^{2-}$
 - $(SiO)^-$
 - $(SiO_4)^{4-}$
- Which among the following is not a borane?
 - B_2H_6
 - B_3H_6
 - B_4H_{10}
 - None of these
- Among the following which is the strongest oxidizing agent?
 - Cl_2
 - F_2
 - Br_2
 - I_2
- When Copper is heated with Conc. HNO_3 it produces...
 - $Cu(NO_3)_2$, NO & NO_2
 - $Cu(NO_3)_2$ & N_2O
 - $Cu(NO_3)_2$ & NO_2
 - $Cu(NO_3)_2$ & NO
- Solid CO_2 is an example of...?
 - Covalent Solid
 - Metallic Solid
 - Molecular Solid
 - Ionic Solid
- The vacant space in BCC Lattice unit cell is...?
 - 48%
 - 23%
 - 32%
 - 26%
- The addition of a catalyst during a chemical reaction alters which of the following quantities?
 - Enthalpy
 - Activation energy
 - Entropy
 - Internal energy
- If 75% of a first order reaction was completed in 60 min, 50% of the same reaction under the same conditions would be completed in...?
 - 20min
 - 30min
 - 35min
 - 75min
- On reacting with neutral ferric chloride, Phenol gives ...?
 - Red colour
 - Violet colour
 - Dark green colour
 - No colouration
- $(CH_3)_3C-CH(OH)CH_3 \xrightarrow{\text{Conc. } H_2SO_4} X$ (Major Product).
 - $(CH_3)_3C-CH=CH_2$
 - $(CH_3)_2C=C(CH_3)_2$
 - $CH_2=C(CH_3)CH_2CH_2CH_3$
 - None of these
- Which one of the following undergoes reaction with 50% Sodium hydroxide solution to give the corresponding alcohol and acid...?
 - Phenyl methanal
 - Ethanal
 - Ethanol
 - Methanol
- The formation of cyanohydrin from acetone is an example of....?
 - Nucleophilic substitution
 - Electrophilic substitution
 - Electrophilic addition
 - Nucleophilic addition

PART – II

Answer any Six questions. (Question No. 23 is Compulsory) :-**6 × 2 = 12**

16. Give the limitations of Ellingham diagram?
17. Give the structure of CO and CO₂ ?
18. What is inert pair effect ?
19. Write the Bragg's equation ?
20. Calculate the number of atoms in a FCC ?
21. Define half life of a reaction?
22. How is ethane-1,2-diol prepared from ethane ?
23. How will you get P-hydroxy azo benzene from Phenol ?
24. Write the decarboxylation reaction ?

PART – III

Answer any Six questions. (Question No. 32 is Compulsory) :-**6 × 3 = 18**

25. Describe a method for refining Nickel ?
26. How will you convert Boric acid to Boron nitride ?
27. Give the uses of Helium ?
28. Explain Schottky defect..?
29. Explain Pseudo first order reaction with an example ?
30. Differentiate Order of a reaction and Molecularity of a reaction ?
31. Write the test for Phenol ?
32. Identify A , B , C and D ? ethanoic acid $\xrightarrow{\text{SOCl}_2}$ A $\xrightarrow{\text{Pd/BaSO}_4}$ B $\xrightarrow{\text{NaOH}}$ C $\xrightarrow{\Delta}$ D
33. How will you get Benzaldehyde from Benzene ...?

PART – IV

Answer all the Questions:-**5 × 5 = 25**

34. a) Explain Zone refining Process ? b) What is Auto reduction ? Give example ? (OR)
Write the Silicones Preparation , Structure and Uses ?
35. Describe the Structure of Diborane ? (OR)
a) What are interhalogen compounds? b) What is Holmes Signal ?
36. Calculate the percentage efficiency of packing in case of body Centered Cubic Crystal ? (OR)
Derive integrated rate law for first order reaction.?
37. How is the following prepared from Phenol ? i) Phenolphthalein ii) Salicylaldehyde iii) Picric acid (OR)
a) Write short note on Auto oxidation of ethers? b) What is Williamsons Synthesis?
38. a) Write the Cannizzaro reaction ? b) What is Urotropine ? Write the Structure and Uses? (OR)
Write the following reaction :- a) Esterification b) Claisen Condensation.

COMMON FIRST REVISION TEST - 2023

Standard XII

Reg.No.

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CHEMISTRY
Part - I

Time: 3.00 hours

Marks: 70
15 x 1 = 15

I. Choose the correct answer:

1. Galena is
a) PbS b) ZnS c) Ag₂S d) FeS
2. In diborane the number of electrons that accounts for banana bond is
a) six b) four c) two d) three
3. Among the following which is the strongest oxidizing agent?
a) Cl₂ b) Br₂ c) F₂ d) I₂
4. The most common oxidation state of actinoids
a) +2 b) +4 c) +3 d) +6
5. A complex in which the oxidation number of the metal is zero is
a) K₄[Fe(CN)₆] b) [Fe(Co)₅] c) [Fe(CN)₃(NH₃)₃] d) Both (b) & (c)
6. An example of metal defect
a) NaCl b) CsCl c) AgCl d) FeS
7. The rate constant of a reaction is $5.8 \times 10^{-2} \text{ s}^{-1}$. The order of reaction is
a) first order b) second order c) zero order d) third order
8. An example of basic buffer is
a) NH₄OH and NH₄Cl b) NH₄OH and NaOH
c) NaOH and NH₄Cl d) NaOH and KOH
9. Among the following cells
i) Leclanche cell ii) Nickel-Cadmium cell
iii) Lead Storage battery iv) Mercury cell
Primary cells are
a) i and iv b) iii and iv c) i and iii d) ii and iii
10. fog is colloidal solution of
a) solid in gas b) liquid in gas c) gas in gas d) gas in liquid
11. On reacting with neutral Ferric chloride phenol gives
a) red colour b) dark green colour
c) violet colour d) no coloration
12. The reagent used to distinguish between acetaldehyde and benzaldehyde is
a) Tollens reagent b) Fehling's solution
c) 2, 4-dinitrophenyl hydrazine d) Semi Carbazite
13. The product formed by the reaction of aldehyde with a primary amine
a) carboxylic acid b) aromatic acid c) schiff's base d) Ketone
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. Which of the following is an analgesic?
a) streptomycin b) aspirin c) chloromycetin d) penicillin

Part - II

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

6 x 2 = 12

16. What is inert pair effect?
17. Give any two difference between double salt and coordination compounds.

18. What are the uses of boric acid?
19. Draw the unit cells : a) FCC b) BCC
20. Distinguish between Lewis acid and Lewis base.
21. State Faraday's first law.
22. Write a note on electro osmosis.
23. How do antiseptics differs from disinfectants.
24. Draw the structure of zwitter ion.

Part - III**III. Answer any 6 questions. (Q.No.33 is compulsory)****6 × 3 = 18**

25. What are the differences between minerals and ores.
26. What are the reasons for the anomalous properties of first element of p-block.
27. What is Lanthanide contraction and what are the effects of Lanthanide contraction.
28. Write a note on Frenkel defect.
29. Write Arrhenius equation and explain the terms involved.
30. What is Henderson equation.
31. What are promoters and catalytic poison? Give example.
32. Write short notes on Gabriel phthalimide synthesis.
33. Convert glycerol to acrolein.

Part - IV**IV. Answer all the questions.****5 × 5 = 25**

34. a) i) Write short notes on zone refining. [3 m]
 ii) Define slag flux. [2 m]
 (OR)
 b) i) Explain the structure of Diborane. [3 m]
 ii) Which is more stable Fe^{3+} or Fe^{2+} . Explain. [2 m]
35. a) Write the postulates of Werner's theory. [5 m]
 (OR)
 b) i) Describe the preparation of potassium dichromate. [3 m]
 ii) What is chromyl chloride test? Give equation. [2 m]
36. a) Distinguish between physisorption and chemisorption. [5 m]
 (OR)
 b) i) Derive Ostwald's dilution law. [3 m]
 ii) Write the cell representation of the galvanic cell in which the following reaction takes place :

$$\text{Zn}_{(s)} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}_{(s)} \quad [2 \text{ m}]$$
37. a) Convert the following :
 1) Phenol \rightarrow Picric acid 2) Glycol \rightarrow Dioxane [3 m]
 3) What is Mustard oil reaction. [2 m]
 (OR)
 b) Differentiate 1°, 2°, 3° alcohol by Victor Meyer method. [5 m]
38. a) Elucidate the structure of glucose. [5 m] (OR)
 b) i) What are drugs? How are they classified? [2 m]
 ii) Write a note on vulcanization of rubber. [3 m]

12 R

Time : 3.00 hrs.

First Revision Test - 2023
CHEMISTRY

Reg. No.

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Max. Marks : 70

PART - I

Note : i) Answer all the questions. ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer

15 x 1 = 15

1. The incorrect statement among the following is
a) Nickel is refined by Mond's Process b) Titanium is refined by Van Arkel's Process.
c) Zinc blende is concentrated by froth floatation d) In the metallurgy of gold, the metal is leached with dilute sodium chloride solution.
2. Inorganic benzene is
a) B_2H_6 b) $B_3N_3H_6$ c) H_3BO_3 d) $H_2B_4O_7$
3. Assertion : bond dissociation energy of fluorine is greater than chlorine gas.
Reason : Chlorine has more electronic repulsion than fluorine.
a) Both assertion and reason are true and reason is the correct explanation of the assertion.
b) 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
4. $CH_3 - CHO + CO \xrightarrow{Rh/Ir \text{ complex}} ?$
a) Poly propylene b) Butane - 1 - al c) Acetic acid d) Acetone
5. Which of the following is paramagnetic in nature?
a) $[Zn(NH_3)_4]^{2+}$ b) $[Co(NH_3)_6]^{3+}$ c) $[Ni(H_2O)_6]^{2+}$ d) $[Ni(CN)_4]^{2-}$
6. Packing efficiency of body centred cubic unit cell.
a) 52.31% b) 68% c) 86% d) 52.13%
7. If 75% of a first order reaction was completed in 60 minutes, 50% of the same reaction under the same conditions would be completed in a) 20 minutes b) 30 minutes c) 35 minutes d) 75 minutes
8. Which of the following is not likely to act as Lewis base?
a) BF_3 b) PF_3 c) CO d) F^-
9. How many Faradays of electricity are required for the following reaction to occur $MnO_4^- \rightarrow Mn^{2+}$
a) 5F b) 3F c) 1F d) 7F
10. Hair cream is
a) gel b) emulsion c) solid sol d) sol
11. Williamson synthesis of preparing dimethyl ether is a
a) SN^1 reaction b) SN^2 reaction c) Electrophilic addition d) electrophilic substitution
12. $CH_3Br \xrightarrow{KCN} (A) \xrightarrow{H_2O} (B) \xrightarrow{PCl_5} (C)$ Product (C) is
a) acetyl chloride b) chloro acetic acid c) α - chlorocyno ethanoic acid d) none of these
13. The product formed by the reaction of an aldehyde with primary amine
a) carboxylic acid b) aromatic acid c) Schiff's base d) Ketone
14. The number of sp^2 and sp^3 hybridised carbon in fructose are respectively.
a) 1 and 4 b) 4 and 2 c) 5 and 1 d) 1 and 5
15. Which one of the following is a bio-degradable polymer?
a) HDPE b) PVC c) Nylon 6 d) PHBV

PART - II

Note : Answer any six questions. Question No.24 is compulsory.

6 x 2 = 12

16. Give the uses of zinc.
17. What is inert pair effect?
18. What are interhalogen compounds? Give one example.

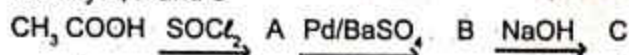
19. Write IUPAC name of the following ligand. a) $C_2O_4^{2-}$ b) H_2O
20. Write two differences between rate and rate constant.
21. Define equivalent conductance.
22. Write a short note on Gattermann reaction.
23. How is terylene prepared?
24. In the reaction $C_2H_5OH \xrightarrow{PCl_3} X \xrightarrow{alc\ KOH} Y$ find X and Y

PART - III

Note : Answer any six questions. Question No.33 compulsory.

6 x 3 = 18

25. Describe a method for refining nickel by Mond Process.
26. How will you prepare bleaching powder?
27. Give the uses of sulphuric acid.
28. What are interstitial compounds.
29. Explain Schottky defect?
30. Calculate pH of 0.001 M HCl solution.
31. Write a note on electro osmosis.
32. Give three differences between DNA and RNA.
33. Identify A, B and C



PART - IV

Note : Answer all the questions.

5 x 5 = 25

34. a) i) Explain zone refining process with an example. 3
 ii) How is potash alum prepared? 2
 (OR)
 b) i) Write a short note on Holmes signal. 23
 ii) Compare the properties of Lanthanides and actinides. 3
35. a) Write the oxidation state, coordination number, nature of ligand, Magnetic property and electronic configuration in octahedral crystal field for the complex $K_4[Mn(CN)_6]$ (OR)
 b) i) Calculate the percentage efficiency of packing in case of body centered cubic crystal. 3
 ii) Write a note on Frenkel defect. 2
36. a) i) Derive an expression for Ostwald's dilution law. 3
 ii) Define solubility product. 2
 (OR)
 b) i) Explain intermediate compound formation theory of catalysis with an example. 3
 ii) Write short note on Tyndall effect. 2
37. a) i) Explain Kolbe's reaction. 2
 ii) What is urotropine? How will you prepare urotrophine? Write the uses of Urotrophine? 3
 b) Write short notes on the following. 2
 i) Gabriel phthalimide synthesis. (2) ii) Carbylamine reaction (2) iii) Gomberg reaction (1) 2
38. a) i) Derive an expression for Nernst equation. 1
 ii) What are hormones? Give examples. 3
 (OR)
 b) i) Write three test to differentiate alcohol and phenols. 3
 ii) Write a note on co-polymers. 2

FIRST REVISION TEST - 2023
CHEMISTRY

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XII - Std

Time : 3.00 Hrs

Marks : 70

SECTION - I

Note: 1) Answer all the questions. 2) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer :- $15 \times 1 = 15$

- Which of the following is used for concentrating ore in metallurgy?
a) Leaching b) Roasting c) Froth floatation d) Both (a) and (c)
- Which one of the following ions has the same number of unpaired electrons as present in V^{3+} ?
a) Ti^{2+} b) Fe^{3+} c) Ni^{2+} d) Cr^{3+}
- Crystal field stabilization energy for high spin d^5 octahedral complex is
a) $-0.6\Delta_o$ b) 0 c) $2(P - \Delta_o)$ d) $2(P + \Delta_o)$
- Assertion :** rate of reaction doubles when the concentration of the reactant is doubles if it is a first order reaction.
Reason : rate constant also doubles
a) Both assertion and reason are true and reason is the correct explanation of assertion.
b) 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.
- Equal volumes of three acid solutions of pH 1, 2 and 3 are mixed in a vessel. What will be the H^+ ion concentration in the mixture?
a) 3.7×10^{-2} b) 10^{-2} c) 0.111 d) none of these
- In calcium fluoride, having the fluorite structure the coordination number of Ca^{2+} ion and F^- ion are
a) 4 and 2 b) 6 and 6 c) 8 and 4 d) 4 and 8
- Which one of the following will react with phenol to give salicylaldehyde after hydrolysis.
a) Dichloro methane b) trichloroethane c) trichloro methane d) CO_2
- The carbonyl compound used in the manufacture of Thermosoftening plastic perspex is
a) Formaldehyde b) Acetaldehyde c) Benzaldehyde d) Acetone
- Match the following:
A) Pure nitrogen. i) Chlorine
B) Haber process. ii) Sulphuric acid
C) Contact process. iii) ammonia
D) Deacons Process. iv) sodium azide (or) Barium azide
Which of the following is the correct option?
a) A-i B-ii C-iii D-iv b) A-ii B-iv C-i D-iii c) A-iii B-iv C-ii D-i d) A-iv B-iii C-ii D-i
- When aniline reacts with acetic anhydride the product formed is
a) o - aminoacetophenone. b) m-aminoacetophenone
c) p - aminoacetophenone d) acetanilide,
- The number of sp^2 and sp^3 hybridised carbon in fructose are respectively
a) 1 and 4. b) 4 and 2 c) 5 and 1 d) 1 and 5
- The medicinal value of drugs is measured in terms of its
a) Deoxy ribose b) Gold number c) Therapeutic Index d) Equilibrium constant
- Laptops have
a) Lead storage battery b) Fuel cell c) Mercury button cell d) Lithium ion battery

14. Sodium salt of tetra boric acid is known as
 a) B_2H_6 b) Na_2BO_3 c) H_3BO_3 d) $Na_2B_4O_7 \cdot 10 H_2O$
15. The correct order of the thermal stability of hydrogen halide is
 a) $HI > HBr > HCl > HF$ b) $HF > HCl > HBr > HI$
 c) $HCl > HF > HBr > HI$ d) $HI > HCl > HF > HBr$

SECTION - II

Answer any six questions and question number 23 is compulsory :-

6 X 2 = 12

16. Give the basic requirement for vapour phase refining.
 17. Write the electronic configuration of Ce^{4+} and Co^{2+} .
 18. Give an example of coordination compound used in medicine an example of biologically important coordination compounds.
 19. Distinguish tetrahedral and octahedral voids.
 20. What do you mean by Buffer solution.
 21. What is called as Brownian movement.
 22. Write Riomer Tiemann reaction.
 23. Account for the following Ethylamine is soluble in water whereas aniline is not
 24. Write a short note on peptide bond

SECTION - III

Answer any six questions and question number 29 is compulsory :-

6 x 3 = 18

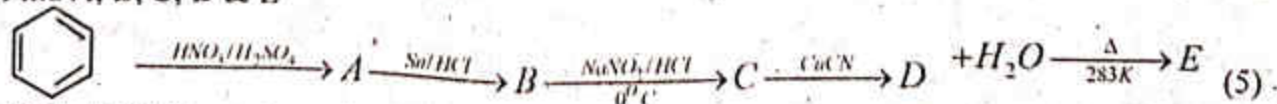
25. How will you identify borate radical?
 26. What are the effects of lanthanide contraction?
 27. In an octahedral crystal field, draw the figure to show splitting of d orbitals.
 28. Show that in case of first order reaction, the time required for 99.9% completion is nearly ten times the time required for half completion of the reaction.
 29. Ionic conductance at infinite dilution of Al^{3+} and SO_4^{2-} are 189 and 160 mho $cm^2 equiv^{-1}$. Calculate the equivalent and molar conductance of the electrolyte $Al_2(SO_4)_3$ at infinite dilution.
 30. Describe some feature of catalysis by Zeolites.
 31. How will you distinguish primary, secondary and tertiary alcohol using Lucas test.
 32. Explain the mechanism of Cannizzaro reaction.
 33. What are food preservatives?

SECTION - D

Answer all the questions :-

5 x 5 = 25

34. (i) Explain the following terms with suitable examples. (i) Gangue (ii) slag (2)
 (ii) Explain zone refining process with an example. (3) (OR)
 (iii) Give the uses of silicones. (2) (iv) Describe the structure of diborane. (3)
 35. (i) What are interhalogen compounds? Give examples. (2)
 (ii) Explain the bleaching action of SO_2 (3) (OR)
 Write the postulates of Werner's theory. (5)
 36. Differentiate crystalline solids and amorphous solids. (5) (OR)
 (iii) Define solubility product (2)
 (iv) Identify the conjugate acid base pair for the following reaction in aqueous solution. (3)
 i) $HS^-(aq) + HF \rightleftharpoons F^-(aq) + H_2S(aq)$
 ii) $NH_4^+CO_3^{2-} \rightleftharpoons NH_3 + HCO_3^-$
 37. (i) Describe the construction of Daniel cell. Write the cell reaction. (3)
 (ii) Is it possible to store copper sulphate in an iron vessel for a long time.
 Given : $E_{Cu^{2+}/Cu}^0 = 0.34V$ and $E_{Fe^{2+}/Fe}^0 = -0.44V$ (OR)
 (iii) Write a note on electro osmosis (2) (iv) Write a note on catalytic poison with an example (3)
 38. Find A, B, C, D & E



- (OR) (i) Write a note on denaturation of proteins (2)
 (ii) How do antiseptics differ from disinfectants? (3)

RM 12 EM Chemistry Page - 2



Standard 12

CHEMISTRY

Part - I

Time: 3.00 Hours

Marks: 70

15 x 1 = 15

Answer All the questions. Choose the correct answer out of the following choices.

- Elements like Zirconium and Titanium are purified by _____ method
a) heating under vacuum b) Van Arkel method
c) Zone refining d) electrolysis
- Carbon atoms in fullerene with formula C_{60} have
a) SP^3 hybridised b) SP hybridised c) SP^2 hybridised
d) partially SP^2 hybridised and partially SP^3 hybridised
- Which one of the following orders is correct for the bond dissociation enthalpy of halogen molecules?
a) $Br_2 > I_2 > F_2 > Cl_2$ b) $F_2 > Cl_2 > Br_2 > I_2$
c) $I_2 > Br_2 > Cl_2 > F_2$ d) $Cl_2 > Br_2 > F_2 > I_2$
- Equivalent weight of $KMnO_4$ in neutral medium is _____
a) 52.67 b) 31.6 c) 158 d) 58.4
- IUPAC name of the complex $K_3[Al(C_2O_4)_3]$ is
a) potassium tri oxalato aluminium (III) b) potassium tri oxalato aluminate (II)
c) potassium tris oxalato aluminate (III) d) potassium tri oxalato aluminate (III)
- The packing fraction of simple cubic unit cell is _____
a) 32% b) 52.31% c) 68% d) 74%
- If 75% of a first order reaction was completed in 60 minutes, 50% of the same reaction under the same conditions would be completed in
a) 20 minutes b) 30 minutes c) 35 minutes d) 75 minutes
- Relationship between the solubility product and molar solubility for $BaSO_4$ is
a) S b) $2S$ c) S^2 d) $2S^2$
- Assertion: Pure iron when heated in dry air is converted with a layer of rust
Reason: Rust has the composition Fe_3O_4
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
- Match the following:
A) Pure nitrogen - (i) Chlorine
B) Haber Process - (ii) Sulphuric acid
C) Contact Process - (iii) Ammonia
D) Deacons Process - (iv) Sodium azide (or) Barium azide
which of the following is the correct option?

	A	B	C	D
a)	(i)	(ii)	(iii)	(iv)
b)	(ii)	(iv)	(i)	(iii)
c)	(iii)	(iv)	(ii)	(i)
d)	(iv)	(iii)	(ii)	(i)
- Which of the following is used as surgical anaesthetic agent in surgery?
a) phenol b) diethyl ether c) anisole d) none of these
- The formation of cyanohydrin from acetone is an example of
a) nucleophilic substitution b) electrophilic substitution
c) electrophilic addition d) nucleophilic addition
- When aniline reacts with acetic anhydride the product formed is
a) o-amino acetophenone b) m-amino acetophenone
c) p-amino acetophenone d) acetanilide
- Which of the following vitamins is water soluble?
a) vitamin E b) vitamin K c) vitamin A d) vitamin B

15) Aspirin is a/an

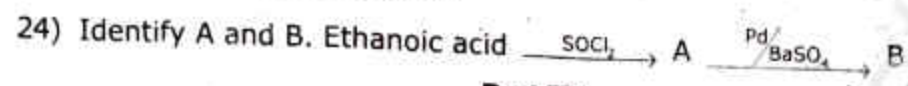
- a) acetyl salicylic acid
b) benzoyl salicylic acid
c) chlorobenzoic acid
d) anthranilic acid

Part - II

Answer any 6 questions Q.no. 24 is compulsory

6 x 2 = 12

- 16) What are the differences between minerals and ores?
- 17) Write a note on zeolites.
- 18) What are transition metals? Give example.
- 19) Give any two characteristics of ionic crystals.
- 20) Define half life period of a reaction.
- 21) What are promoters? Give example.
- 22) Write Schotten-Baumann reaction.
- 23) Write Gattermann reaction.



Part III

Answer any 6 questions Q.No : 33 is compulsory.

6 x 3 = 18

- 25) Give the uses of helium.
- 26) What is lanthanoid contraction and what are the effects of lanthanide contraction?
- 27) In the complex, $[\text{Pt}(\text{NO}_2)(\text{H}_2\text{O})(\text{NH}_3)_2]\text{Br}$, Identify the following
 - i) Central metal atom/ion
 - ii) Ligands
 - iii) Coordination number
- 28) State Ostwald dilution law and derive its mathematical expression.
- 29) Write the rate law for the following reactions
 - a) A reaction that is $3/2$ order in X and zero order in Y.
 - b) A reaction that is second order in NO and first order in Br_2
- 30) Give the Gabriel Phthalimide synthesis of primary amines.
- 31) Give three differences between hormones and vitamins.
- 32) What are drugs? How are they classified?
- 33) Ionic conductance at infinite dilution of Al^{3+} and SO_4^{2-} are 189 and 160 $\text{mho cm}^2 \text{equiv}^{-1}$. Calculate the equivalent and molar conductance of the electrolyte $\text{Al}_2(\text{SO}_4)_3$ at infinite dilution.

Part - IV

Answer all the Questions :

5 x 5 = 25

- 34) a) (i) Write any four refining methods of crude metal. [2]
(ii) Write the uses of Aluminium. [3]
(OR)
b) How potash alum is prepared and give their uses? [5]
- 35) a) (i) What is inert pair effect? [2]
(ii) Write Hume-Rothery rule for alloy formation. [3]
(OR)
b) (i) What are hydrate isomers? Give example. [3]
(ii) What are the limitations of Werner's Theory? [2]
- 36) a) Differentiate crystalline solids and amorphous solids. [5]
(OR)
b) (i) Explain intermediate compound formation theory. [3]
(ii) What is Tyndall effect? [2]
- 37) a) (i) What are Lewis acids and bases? Give two examples for each. [3]
(ii) State Faraday's second law of electrolysis. [2]
(OR)
b) (i) Write the preparation of Acrolein. [2]
(ii) How do you prepare ether by dehydration of alcohols? [3]
- 38) a) Explain aldol condensation mechanism with an example. [5]
(OR)
b) (i) What is chloropicrin? How it is prepared and write its use? [3]
(ii) Write the Zwitter ion structure of alanine. [2]



COMMON FIRST REVISION TEST – 2023

Standard XII

Reg.No. : 012309

CHEMISTRY

Time: 3.00 hrs.

Part - I

Marks: 70

15 x 1 = 15

I. Choose the correct answer:

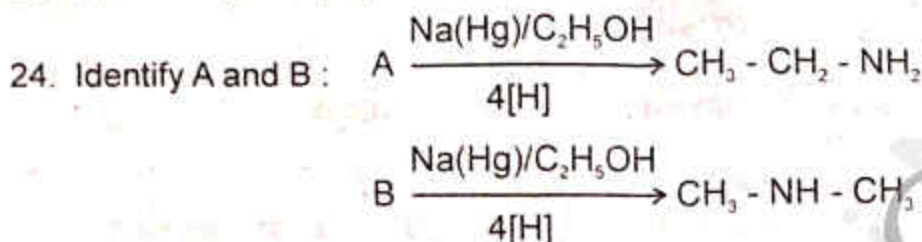
- Wolframite ore is separated from tinstone by the process of
 - smelting
 - calcination
 - roasting
 - electromagnetic separation
- Carbon atoms in fullerene with formula C_{60} have
 - sp^3 hybridised
 - sp hybridised
 - sp^2 hybridised
 - partially sp^2 and partially sp^3 hybridised
- Which of the following is strongest acid among all?
 - HI
 - HF
 - HBr
 - HCl
- The transition element which has only +3 oxidation state is
 - Ni
 - Mn
 - Cr
 - Sc
- IUPAC name of the complex $K_3[Al(C_2O_4)_3]$ is
 - potassium tri oxalato aluminium (III)
 - potassium tri oxalato aluminate (II)
 - potassium tris oxalato aluminate (III)
 - potassium tri oxalato aluminate (III)
- CsCl has bcc arrangement, its unit cell edge length is 400 pm, its inter atomic distance is
 - 400 pm
 - 800 pm
 - $\sqrt{3} \times 100$ pm
 - $\left(\frac{\sqrt{3}}{2}\right) \times 400$ pm
- The rate constant of a reaction is $5.8 \times 10^{-2} s^{-1}$. The order of the reaction is
 - first order
 - zero order
 - second order
 - third order
- The pH of an aqueous solution is zero. The solution is
 - slightly acidic
 - strongly acidic
 - neutral
 - basic
- Laptops have
 - Lead Storage battery
 - Fuel cell
 - Mercury Button cell
 - Lithium ion battery
- Fog is colloidal solution of
 - solid in gas
 - gas in gas
 - liquid in gas
 - gas in liquid
- On reacting with neutral ferric chloride, phenol gives
 - red colour
 - violet colour
 - dark green colour
 - no colouration
- Assertion : 2,2-dimethyl propanoic acid does not give HVZ reaction.
Reason : 2,2-dimethyl propanoic acid does not have α -hydrogen atom
 - if both assertion and reason are true and reason is the correct explanation of assertion
 - if 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 product formed by the reaction an aldehyde with a primary amine
 - carboxylic acid
 - aromatic acid
 - Schiff's base
 - ketone
- Which of the following amino acids are achiral?
 - alanine
 - leucine
 - proline
 - glycine
- The medicinal value of a drug is measured in terms of its
 - deoxyribose
 - gold number
 - therapeutic index
 - equilibrium constant

Part - II

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

6 x 2 = 12

16. What are the limitations of Ellingham diagram?
17. What are the factors responsible for the anomalous behaviour of first element of the p-block?
18. Why transition elements exhibit variable oxidation state?
19. Give any three characteristics of ionic crystals.
20. What are Lewis acid and bases? Give an example for each.
21. Convert glycerol to acrolein.
22. Give the tests for carboxylic acid group.
23. How is terylene prepared?



Part - III

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

6 x 3 = 18

25. Give the uses of helium.
26. What are the difference between double salts and coordination compounds?
27. What is meant by Electro Osmosis?
28. Explain pseudo first order reaction with an example.
29. Explain common ion effect with example.
30. State Faraday's laws of electrolysis.
31. State any three advantages of food additives.
32. What are the difference between DNA and RNA?
33. Differentiate Primary, Secondary and Tertiary alcohols using Lucas test.

Part - IV

IV. Answer all the questions.

5 x 5 = 25

34. a) Explain Froth floatation process. (OR)
- b) i) What is inert pair effect?
- ii) How will you prepare bleaching powder?
35. a) What is Lanthanoid contraction? And what are the consequences of Lanthanoid contraction? (OR)
- b) i) Based on the VB theory, explain why $[Ni(CN)_4]^{2-}$ is diamagnetic.
- ii) What is crystal field splitting energy?
36. a) Write notes on Schottky and Frenkel effect. (OR)
- b) i) Derive an expression for Ostwald's dilution law.
- ii) What are the difference between order and molecularity?
37. a) Derive an expression for Nernst equation. (OR)
- b) What are the characteristics of catalyst?
38. a) Write the mechanism of aldol condensation reaction. (OR)
- b) Write short notes on :
 - i) Mustard oil reaction
 - ii) Gabriel phthalimide synthesis.

TNJ

XII - Std

Time : 3.00 Hrs.

FIRST REVISION TEST - 2023

CHEMISTRY

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Marks : 70

PART - I

15 X 1 = 15

Choose the best answer :-

- Which one of the following ores is best concentrated by Froth - Floatation methods?
a) Magnetite b) Hematite c) Galena d) Cassiterite
- Which of the following is not sp^2 hybridised?
a) Graphite b) Graphene c) Fullerene d) dry ice
- The molarity of given orthophosphoric acid solution is 2M. its normality is
a) 6N b) 4N c) 2N d) None of these
- Which of the following statements is not true?
a) on passing H_2S through acidified $K_2Cr_2O_7$ solution, a milky colour is observed
b) $Na_2Cr_2O_7$ is preferred over $K_2Cr_2O_7$ in volumetric analysis
c) $K_2Cr_2O_7$ solution in acidic medium is orange in colour.
d) $K_2Cr_2O_7$ solution becomes yellow on increasing the pH beyond 7
- Crystal field stabilization energy for high spin d^4 octahedral complex is
a) $-0.6\Delta_o$ b) 0 c) $2(P - \Delta_o)$ d) $2(P + \Delta_o)$
- Assertion : Due to Frenkel defect, density of the crystalline solid decreases.
Reason : in Frenkel defect cation and anion leaves the crystal.
a) Both assertion and reason are true and reason is the correct explanation of assertion.
b) 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
- The half life period of a radioactive element is 140 days. After 560 days, 1 g of element will be reduced to
a) $\left(\frac{1}{2}\right)g$ b) $\left(\frac{1}{4}\right)g$ c) $\left(\frac{1}{8}\right)g$ d) $\left(\frac{1}{16}\right)g$
- The aqueous solutions of sodium formate, anilinium chloride and potassium cyanide are respectively
a) acidic, acidic, basic b) basic, acidic, basic c) basic, neutral, basic d) none of these
- Match the following :-

		A	B	C	D
A) V_2O_5	- i) High density polyethylene	a) (iv)	(i)	(ii)	(iii)
B) Ziegler - Natta	- ii) PAN	b) (i)	(ii)	(iv)	(iii)
C) Peroxide	- iii) NH_3	c) (ii)	(iii)	(iv)	(i)
D) Finely divided Fe	- iv) H_2SO_4	d) (iii)	(iv)	(ii)	(i)
- Which one of the following nitro compounds does not react with nitrous acid
a) $CH_3 - CH_2 - CH_2 - NO_2$ d) $CH_3 - C - CH - NO_2$

b) $(CH_3)_2CH - CH_2NO_2$

$$\begin{array}{c} || \quad | \\ O \quad CH_3 \end{array}$$

c) $(CH_3)_3CNO_2$
- Among the following ethers which one will produce methyl alcohol on treatment with hot HI?
a) $(H_3C)_3C - O - CH_3$ d) $CH_3 - CH_2 - CH - O - CH_3$

b) $(CH_3)_2CH - CH_2 - O - CH_3$

$$\begin{array}{c} | \\ CH_3 \end{array}$$

c) $CH_3(CH_2)_3 - O - CH_3$

12. Which one of the following undergoes reaction with 50% sodium hydroxide solution to give the corresponding alcohol and acid
a) Phenylmethanal b) ethanal c) ethanol d) methanol
13. Which one of the following is most basic?
a) 2, 4 - dichloroaniline b) 2, 4 - dimethyl aniline c) 2, 4 - dinitroaniline d) 2, 4 - dibromoaniline
14. Vitamin B₂ is also known as
a) Riboflavin b) Thiamine c) Nicotinamide d) Pyridoxine
15. Which of the following is an analgesic?
a) Streptomycin b) Chloromycetin c) Aspirin d) Penicillin

PART - II

Answer any six questions. (Q.No. 24 compulsory) :-

6 X 2 = 12

16. Give the limitations of Ellingham diagram.
17. How is pure Phosphine prepared from Phosphorus acid.
18. $K_2[Fe(CN)_6]$ in this complex mention the
(i) ligand (ii) Central metal ion (iii) geometry (iv) hybridization.
19. Differentiate molecularity from Order.
20. From the following reaction identify A and B.



21. Write the preparation of teflon and it's uses?
22. Out of $La(OH)_3$ and $La(OH)_2$, which is more basic and why?
23. State Faraday first law of electrolysis.
24. Convert ethene to ethane - 1, 2 - diol.

PART - III

Answer any six questions. (q. No. 33 compulsory)

6 X 3 = 18

25. Write a note on Fisher Tropsch synthesis?
26. What are interstitial compounds?
27. Aluminum crystallizes in a cubic close packed structure it's a metallic radius is 125pm. Calculate the edge length of unit cell?
28. The compound having molecular formula $C_8H_{12}O_6$ on partial reduction with Na-Hg/ H_2O gives two compound. Name and write a note on it.
29. Write a note on sacrificial protection?
30. Differentiate physisorption and chemisorption?
31. How is phenol prepared from (i) chloro benzene (ii) isopropyl benzene?
32. Write a note on Rosenmund reaction?
33. Calculate the pH of 0.04M HNO_3 solution?

PART - IV

Answer the following questions :-

5 X 5 = 25

34. a) Explain zone refining process with an example? (OR)
b) Differentiate Lanthanides and Actinides.
35. a) (i) What is linkage isomerism explain with an example?
(ii) Write the structure and uses of Urotropine. (OR)
b) (i) Why HF cannot be stored in glass bottles? (ii) Give the uses of silicones.
36. a) Derive an expression for Oswald's dilution law? (OR)
b) Derive the integrated rate law for a first order reaction.
37. a) How will you distinguish the primary, secondary and tertiary alcohols by Victor Meyer's method?
b) (i) Define catalytic poison? Give an example. (ii) State Kohlrausch law?
38. a) Elucidate the structure of glucose? (OR)
b) (i) How is Nylon - 6, 6 prepared? Give it's uses? (ii) Give characteristics of ionic crystals?

TNJ 12 EM Chemistry P-2

09-01-2023

Standard 12
CHEMISTRY

Time: 3.00 hrs

Marks: 70

15×1=15

I. Answer all the questions.

- 1) Wolframite ore is separated from tinstone by the process of
 - a) Smelting
 - b) Calcination
 - c) Roasting
 - d) Electromagnetic Separation
- 2) Phosgene is
 - a) COCl_2
 - b) CNCl
 - c) NOCl
 - d) SOCl_2
- 3) In the industrial preparation of NH_3 , which of the following is used to increase the rate of attainment of equilibrium.
 - a) K_2O and Al_2O_3
 - b) Na_2O_2 and Al_2O_3
 - c) BaO and Fe_2O_3
 - d) Cu_2O and Al_2O_3
- 4) The magnetic moment of Sc^{3+} ion is
 - a) 0
 - b) 1.73
 - c) 2.83
 - d) 3.87
- 5) Which of the following is outer orbital complex
 - a) $[\text{FeF}_6]^{4-}$
 - b) $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$
 - c) $[\text{Fe}(\text{CN})_6]^{4-}$
 - d) $[\text{Fe}(\text{CN})_6]^{3-}$
- 6) Assertion : due to Frenkel defect, density of the crystalline solid decreases
Reason : in Frenkel defect cation and anion leaves the crystal
 - a) Both assertion and reason are true and reason is the correct explanation of assertion
 - b) Both assertion and reason are true and reason is not the correct explanation of assertion
 - c) Assertion is true but reason is false
 - d) Both assertion and reason are false
- 7) If 75% of first order reaction was completed in 60 minutes, 50% of the same reaction under the same conditions would be completed in
 - a) 20 minutes
 - b) 30 minutes
 - c) 35 minutes
 - d) 75 minutes
- 8) Dissociation constant of NH_4OH is 1.8×10^{-5} the hydrolysis constant of NH_4Cl would be
 - a) 1.8×10^{-19}
 - b) 5.55×10^{-10}
 - c) 5.55×10^{-5}
 - d) 1.80×10^{-5}
- 9) Among the following cells
 - I) Leclanche Cell
 - II) Nickel - Cadmium Cell
 - III) Lead Storage battery
 - IV) Mercury CellPrimary cells are
 - a) I and IV
 - b) I and III
 - c) III and IV
 - d) II and III
- 10) Name of the colloid where dispersion medium is solid and dispersed phase is liquid is
 - a) Gel
 - b) emulsion
 - c) Foam
 - d) Solid Sol
- 11) On reacting with neutral ferric chloride, phenol gives
 - a) red colour
 - b) violet colour
 - c) dark green colour
 - d) no colouration
- 12) Which of the following represents the correct order of acidity in the given compounds
 - a) $\text{FCH}_2\text{COOH} > \text{CH}_3\text{COOH} > \text{BrCH}_2\text{COOH} > \text{ClCH}_2\text{COOH}$
 - b) $\text{FCH}_2\text{COOH} > \text{ClCH}_2\text{COOH} > \text{BrCH}_2\text{COOH} > \text{CH}_3\text{COOH}$
 - c) $\text{CH}_3\text{COOH} > \text{ClCH}_2\text{COOH} > \text{FCH}_2\text{COOH} > \text{Br-CH}_2\text{COOH}$
 - d) $\text{ClCH}_2\text{COOH} > \text{CH}_3\text{COOH} > \text{Br-CH}_2\text{COOH} > \text{ICH}_2\text{COOH}$

Tsi12C

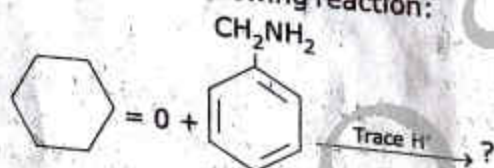
- 13) Nitro benzene on reaction with conc. $\text{HNO}_3/\text{H}_2\text{SO}_4$ at $80-100^\circ\text{C}$ forms which one of the following products?
- a) 1, 4 - dinitro benzene b) 2, 4, 6 trinitro benzene
c) 1, 2 - dinitro benzene d) 1, 3 - dinitro benzene
- 14) In a protein, various amino acids linked 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 × 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 × 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.

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)

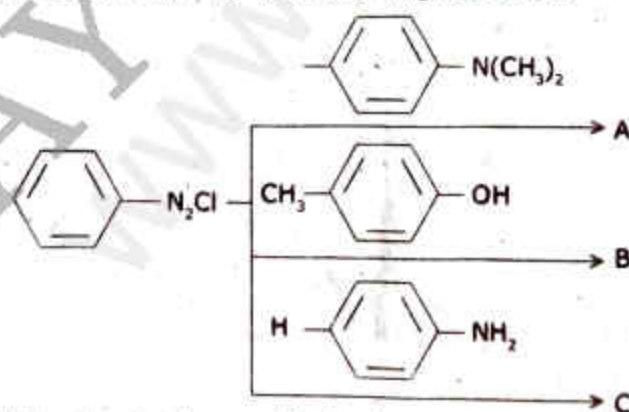
(OR)

- 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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