B–22–X

Roll No. .....

Total No. of Questions : 28] [Total No. of Printed Pages : 7

XIIARJKUT23
9122–X
CHEMISTRY

Time : 3 Hours] [Maximum Marks : 70

SECTION–A

1 each

1. Define Crystal Lattice.

2. Tyndal effect is due to ..... of light.

3. The functional group in alcohols is :

(A) —O—

(B) —OH—

(C) >C=O

(D) —CHO

4. Amines are :

(A) Acidic

(B) Basic

(C) Neutral

(D) None of these

5. What is IUPAC name of $K_4[Fe(CN)_6]$?

6. Citrus fruits have :

(A) Vitamin A

(B) Vitamin B

(C) Vitamin D

(D) Vitamin C

7. Aldehydes have :

(A) >C—O group

(B) —CHO group

(C) —OH group

(D) —O— group

SECTION–B

2 each

8. State Faraday's 2nd law of Electrolysis.

9. Define Molecularity of Reaction.

10. How *d*-Block elements form coloured ions ?

Or

Why *d*-Block elements show catalytic properties ?

11. Define Co-ordination Number.

Or

Explain Ionization Isomerism.

12. Define Haloarenes.

13. Give harmful effects of DDT.

SECTION–C

3 each

14. Explain Schottky defect.

15. Draw a labelled diagram of Galvanic cell.

16. Calculate Half-life period for Ist order reaction.

17. Explain Tyndal effect.

18. Explain Zone refining.

19. Give the electronic configuration of group 15 elements.

20. Give *three* oxidising properties of $K_2Cr_2O_7$.

21. Discuss the nutrition of phenol with conc. HNO_3 in presence of conc. H_2SO_4.

22. How Benzene diazonium chloride is prepared?

Or

What are Amines ? Give their classification.

23. Define Carbohydrates and give their classification.

Or

What are Enzymes ? Give their importance.

24. What are Polymers ? How are they classified on the basis of structure ?

Or

Give the preparation and two uses of polythene.

25. Define Analgesics, Antiseptics and Antibiotics.

Or

Why detergents are preferred over soaps ?

SECTION–D 5 each

26. Define elevation in B.P. How can you calculate the molecular mass of a non-volatile solute with it ?

Or

Define Osmotic Pressure. How is it determined by Berkeley-Hartley method ?

27. Discuss the oxidation states of group 16 elements.

Or

Discuss the manufacture of NH_3 by Haber's process.

28. (a) Show how each of the following compounds can be converted into benzoic acid ?

(i) Ethyl benzene

(ii) Acetophenone

(iii) Bromobenzene

(b) Account for the following :

(i) Electrophilic substitution in benzoic acid takes place at meta position

(ii) Chloroacetic acid is stronger than acetic acid

Or

Explain the following :

(a) Aldol condensation

(b) Cannizzaro's reaction

B–22–Y

Roll No. .....

Total No. of Questions : **28**] [Total No. of Printed Pages : **7**

XIIARJKUT23

9122–Y

CHEMISTRY

Time : 3 Hours] **[Maximum Marks : 70**

SECTION–A

1 each

1. Define Unit Cell.

2. Colloidal solution has ..... two ..... phases.

3. Phenols are :

(A) Basic

(B) Acidic

(C) Neutral

(D) None of these

4. Primary amines give carbylamine reaction. (True/False)

5. What is IUPAC name of $[Cu(NH_3)_4SO_4]$?

6. Sunshine Vitamin is :

(A) Vitamin A

(B) Vitamin D

(C) Vitamin E

(D) Vitamin K

7. Ketones have :

(A) >C=O group

(B) —CHO group

(C) —COOH group

(D) —OH group

SECTION–B

2 each

8. State Faraday's Ist law of Electrolysis.

9. Define order of Reaction.

10. Define *d*-Block elements.

Or

Why *d*-Block elements form complexes ?

11. Define Ligand. Name its types.

Or

What is Linkage Isomerism ? Give an example.

12. Define Haloalkanes.

13. Give *two* uses of Chloroform.

SECTION–C

3 each

14. Explain Frankel defect.

15. Draw a labelled diagram of Galvanic cell.

16. Calculate Half-life period for Ist order reaction.

17. Explain Tyndal effect.

18. Explain Zone refining.

19. Give the electronic configuration of group 15 elements.

20. Give *three* oxidising properties of $K_2Cr_2O_7$.

21. Discuss the nutrition of phenol with conc. HNO_3 in presence of conc. H_2SO_4.

22. How Benzene diazonium chloride is prepared ?

Or

What are Amines ? Give their classification.

23. Define Carbohydrates and give their classification.

Or

What are Enzymes ? Give their importance.

24. What are Polymers ? How are they classified on the basis of structure ?

Or

Give the preparation and two uses of polythene.

25. Define Analgesics, Antiseptics and Antibiotics.

Or

Why detergents are preferred over soaps ?

SECTION–D 5 each

26. Define elevation in B.P. How can you calculate the molecular mass of a non-volatile solute with it ?

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(iii) Bromobenzene

(b) Account for the following :

(i) Electrophilic substitution in benzoic acid takes place at meta position

(ii) Chloroacetic acid is stronger than acetic acid

Or

Explain the following :

(a) Aldol condensation

(b) Cannizzaro's reaction

B-22-Z

Roll No.

Total No. of Questions : 28] [Total No. of Printed Pages : 7

XIIARJKUT23

9122-Z

CHEMISTRY

Time : 3 Hours] **[Maximum Marks : 70**

SECTION-A 1 each

1. Define Tetrahedral Void.

2. Colloids show ..... motion.

3. Alcohols have :

(A) —OH group

(B) $—NO_2$ group

(C) —CHO group

(D) >C=O group

4. Primary amines react with HNO_2 to give primary alcohol.

(True/False)

5. Give the IUPAC name of $K_3[Fe(CN)_6]$.

6. Which of the following Vitamins is fat soluble ?

(A) Vitamin B complex

(B) Vitamin D

(C) Vitamin A

(D) Vitamin E

7. Ketones have :

(A) >C=O group

(B) —CHO group

(C) —COOH group

(D) —OH group

SECTION–B

2 each

8. State Kohlrausch's law.

9. Discuss the effect of concentration on rate of reaction.

10. Explain variable oxidation states in transition metals.

Or

What are inner transition elements ?

11. Give *two* applications of co-ordinate compounds.

Or

Define co-ordination sphere.

12. Give *two* chemical reactions of Haloalkanes.

13. Give *two* harmful effects of Freon.

SECTION–C

3 each

14. Discuss electrical properties of solids.

15. Draw a labelled diagram of Galvanic cell.

16. Calculate Half-life period for Ist order reaction.

17. Explain Tyndal effect.

18. Explain Zone refining.

19. Give the electronic configuration of group 15 elements.

20. Give *three* oxidising properties of $K_2Cr_2O_7$.

21. Discuss the nutrition of phenol with conc. HNO_3 in presence of conc. H_2SO_4.

22. How Benzene diazonium chloride is prepared ?

Or

What are Amines ? Give their classification.

23. Define Carbohydrates and give their classification.

Or

What are Enzymes ? Give their importance.

24. What are Polymers ? How are they classified on the basis of structure ?

Or

Give the preparation and two uses of polythene.

25. Define Analgesics, Antiseptics and Antibiotics.

Or

Why detergents are preferred over soaps ?

SECTION–D 5 each

26. Define elevation in B.P. How can you calculate the molecular mass of a non-volatile solute with it ?

Or

Define Osmotic Pressure. How is it determined by Berkeley-Hartley method ?

27. Discuss the oxidation states of group 16 elements.

Or

Discuss the manufacture of NH_3 by Haber's process.

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(iii) Bromobenzene

(b) Account for the following :

(i) Electrophilic substitution in benzoic acid takes place at meta position

(ii) Chloroacetic acid is stronger than acetic acid

Or

Explain the following :

(a) Aldol condensation

(b) Cannizzaro's reaction

D–15–C

Roll No. .....

Total No. of Questions : 28]

[Total No. of Printed Pages : 4

12th ARJKLK23

9615–C

CHEMISTRY

Time : 3 Hours]

[Maximum Marks : 70

SECTION–A

1 each

(VERY–VERY SHORT ANSWER TYPE QUESTIONS)

1. Define Unit Cell.

2. A colloidal sol consists of ...../..... phases.

3. What is the co-ordination number of Fe in $[Fe(CN)_6]^{4-}$.

4. Luca's test is shown by :

   (A) Alcohols

   (B) Aldehydes

   (C) Ketones

   (D) Carboxylic acid

5. Complete the following reaction :

$CH_3NH_2 + CHCl_3 + KOH \rightarrow$ .....

6. The formula of Glucose is ..... .

7. Give the formula of Acetone.

SECTION–B

2 each

(VERY SHORT ANSWER TYPE QUESTIONS)

8. Define EMF of a cell.

9. Define Molecularity of a Reaction.

10. Give a method of preparation of $K_2Cr_2O_7$.

11. Define Ligand and name its types.

Or

Explain Linkage Isomerism.

12. Give *two* methods of preparation of Haloalkanes.

13. Give *two* uses of Chloroform.

SECTION–C

(SHORT ANSWER TYPE QUESTIONS)

3 each

14. Explain Magnetic Properties of Solids.

15. State and explain Faraday's Ist Law of Electrolysis.

16. Discuss the effect of concentration on rate of reaction.

17. Explain Tyndal Effect.

18. Explain Zone Refining.

19. Give the oxidation states of group 16th elements.

20. Explain Lanthanide Contraction.

21. Give the reaction of phenol with Bromine water.

22. What are Amines ? How are they classified ?

Or

Discuss the nutrition of Aniline with conc. HNO_3/H_2SO_4.

23. What are Carbohydrates ? How are they classified ?

Or

Give *three* sources of Vitamin C and D each.

24. Define Polymerisation and give its types

Or

Give the preparation of Polythene and its *two* uses.

25. Explain Antibiotics.

Or

Why are detergents preferred over soaps ?

SECTION–D

5 each

(LONG ANSWER TYPE QUESTIONS)

26. State and explain Raoult's law in case of volatile solute.

Or

Define Osmotic pressure. How is it determined by Berkeley-Hartley's method ?

27. Explain Haber's process for the manufacture of NH_3.

Or

What are Interhalogens ? Give their methods of preparation.

28. Give *five* methods of preparation of Carboxylic Acids.

Or

Write short notes on the following :

(a) Aldol Condensation

(b) Cannizzaro's Reaction

E–2–A

Roll No. .....

Total No. of Questions : **28**]

[Total No. of Printed Pages : **7**

XIIAPBIAJKLK23

9802–A

CHEMISTRY

Time : 3 Hours]

[Maximum Marks : 70

Section–A

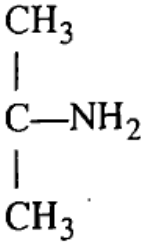
1 each

(Very Short Answer Type Questions)

1. What is body centred cubic ?

2. The zig-zag motion of colloidal particles is called .....

3. $CH_3–CH_2–OH \xrightarrow{Cu/573K}$ CH_3CHO + H_2

4.  is a primary amine. (True/False)

5. Write IUPAC name of $K_3[Fe(C_2O_4)_3]$.

6. The disaccharide present in milk is :

(A) Sucrose

(B) Maltose

(C) Lactose

(D) Cellobiose

7. Silver mirror is a test for :

(A) Aldehydes

(B) Thioalcohols

(C) Acids

(D) Ethers

Section–B

2 each

(Short Answer Type Questions–I)

8. What is Salt Bridge ? What is it used for ?

9. Calculate half life of a first\order reaction where the specific rate constant is :

(a) 200 s^{-1}

(b) 2 min^{-1}

10. What are Transition Metals ? Which *d*-block elements are not considered as transition metals ? Why ?

Or

Transition metals have high melting and boiling points. Explain.

11. Define with one example the following :

(A) Complex ion

(B) Ligand

(C) Coordination number

(D) Oxidation State

Or

Define cis and trans isomers. Draw the cis and trans isomers of $[Co(NH_3)_4Cl_2]^+$ ion.

12. Explain as to why haloarenes are much less reactive than haloalkanes towards nucleophilic substitution reactions ?

13. Write short note along with reaction on Friedel-Crafts reaction.

Section–C

3 each

(Short Answer Type Questions–II)

14. What are Stoichiometric defects in solids ? Explain Frenkel defect in ionic solids. What are the consequences of this defect in solids ?

15. Draw a neat and well labelled diagram of a dry cell. Is it really dry ? Give reactions taking place at anode and cathode.

16. Briefly explain the effect of temperature on the rate constant of a reaction.

17. Define Gold number. How is it related to protective power of a colloid ?

18. Give a brief account of calcination and roasting.

19. Explain why acidic strength of oxo acids of halogens decreases while increasing the atomic number of elements.

20. What is lanthanide contraction ? What are its causes and consequences ?

21. What happens when : (Give reactions only)

(i) Phenol is heated with excess of concentrated nitric acid in presence of concentrated H_2SO_4

(ii) Phenol reacts with bromine in aqueous medium

22. Illustrate the following reactions giving suitable examples in each case :

(i) Diazotisation reactions

(ii) Coupling reactions

Or

How is aniline prepared from nitrobenzene ? How will you convert aniline into (i) Benzonitrile (ii) Acetanilide ?

23. State the significance of primary and secondary structures of proteins.

Or

What are Vitamins ? Give three examples which vitamins are fat soluble and which are water soluble ? What is the importance of vitamin A and D ?

24. What are Polymers ? How are they classified on the basis of structure ?

Or

How is Bakelite prepared ? What are its major uses ?

25. What are Antibiotics ? Name *two* antibiotics which are specific for certain diseases.

Or

Explain Cleansing action of soap.

Section–D 5 each

(Long Answer Type Questions)

26. Illustrate with the help of diagrams different types of non-ideal solutions. Explain the reasons for negative and positive deviations.

Or

What do you mean by abnormal molecular mass ? Explain the factors with suitable examples which bring about the abnormality.

27. Discuss the process of manufacture of ammonia by Habers process. Draw the flow chart diagram for the process.

Or

Briefly describe the various allotropic forms of phosphorous. Also give method of preparation of phosphine.

28. How is acetaldehyde prepared from (i) Ethanol (ii) Acetic acid (iii) Acetylene ? Give reactions of acetaldehyde with :

(a) $NaHSO_3$

(b) HCN

(c) CH_3MgBr

Or

Describe the following reactions :

(a) Aldol condensation

(b) Cannizzaro reaction

(c) Rosenmuds reaction

E–2–B

Roll No. .....

Total No. of Questions : **28**] [Total No. of Printed Pages : **7**

XIIAPBIAJKLK23

9802–B

CHEMISTRY

Time : 3 Hours] **[Maximum Marks : 70**

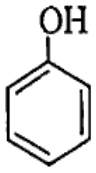
Section–A

1 each

(Very Short Answer Type Questions)

1. What is face centred cubic ?

2. The liquid-liquid colloidal dispersion is called ..... .

3.  + $3H_2$ $\xrightarrow{Ni/325\ K}$ .....

4. $CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-NH_2$ is a secondary amine. (True/False)

5. Write IUPAC name of $K_2[Pd\,Cl_4]$.

6. Which of the following is a disaccharide ?

   (A) Lactose

   (B) Starch

   (C) Cellulose

   (D) Fructose

7. Tollens reagent is :

   (A) Ammonical cuprous chloride

   (B) Ammonical cuprous oxide

   (C) Ammonical silver bromide

   (D) Ammonical silver nitrate

Section–B

2 each

(Short Answer Type Questions–I)

8. What is Cell Constant ? How is it determined ?

9. The rate constant for first order reaction is 0.0005 min^{-1}. Calculate its half life period.

10. What are *f*-block elements ? Why are these known as inner transition elements ?

Or

Why do transition metals have tendency to exhibit variable oxidation states ?

11. Define and explain the following terms :

(a) Coordination number

(b) Coordination sphere

(c) Bidentate ligand

Or

Explain with suitable example, the geometrical isomerism exhibited by coordination compounds.

12. What is nucleophilic substitution reaction ? Explain the mechanism of S_N1 reaction.

13. Write short notes along with reactions :

(a) Wurtz reaction

(b) Wurtz-Fittig reaction

Section–C

3 each

(Short Answer Type Questions–II)

14. What are Stoichiometric defects in solids ? Explain Schottky defects in ionic solids. What are the consequences of Schottky defects in crystals ?

15. Draw a neat and well labelled diagram of a dry cell. Is it really dry ? Give reactions taking place at anode and cathode.

16. Briefly explain the effect of temperature on the rate constant of a reaction.

17. Define Gold number. How is it related to protective power of a colloid ?

18. Give a brief account of calcination and roasting.

19. Explain why acidic strength of oxo acids of halogens decreases while increasing the atomic number of elements.

20. What is lanthanide contraction ? What are its causes and consequences ?

21. What happens when : (Give reactions only)

(i) Phenol is heated with excess of concentrated nitric acid in presence of concentrated H_2SO_4

(ii) Phenol reacts with bromine in aqueous medium

22. Illustrate the following reactions giving suitable examples in each case :

(i) Diazotisation reactions

(ii) Coupling reactions

Or

How is aniline prepared from nitrobenzene ? How will you convert aniline into (i) Benzonitrile (ii) Acetanilide ?

23. State the significance of primary and secondary structures of proteins.

Or

What are Vitamins ? Give three examples which vitamins are fat soluble and which are water soluble ? What is the importance of vitamin A and D ?

24. What are Polymers ? How are they classified on the basis of structure ?

Or

How is Bakelite prepared ? What are its major uses

25. What are Antibiotics ? Name *two* antibiotics which are specific for certain diseases.

Or

Explain Cleansing action of soap.

Section–D 5 each

(Long Answer Type Questions)

26. Illustrate with the help of diagrams different types of non-ideal solutions. Explain the reasons for negative and positive deviations.

Or

What do you mean by abnormal molecular mass ? Explain the factors with suitable examples which bring about the abnormality.

27. Discuss the process of manufacture of ammonia by Habers process. Draw the flow chart diagram for the process.

Or

Briefly describe the various allotropic forms of phosphorous. Also give method of preparation of phosphine.

28. How is acetaldehyde prepared from (i) Ethanol (ii) Acetic acid (iii) Acetylene ? Give reactions of acetaldehyde with :

(a) $NaHSO_3$

(b) HCN

(c) CH_3MgBr

Or

Describe the following reactions :

(a) Aldol condensation

(b) Cannizzaro reaction

(c) Rosenmuds reaction

E–2–C

Roll No. .....

Total No. of Questions : **28**] [Total No. of Printed Pages : **7**

XIIAPBIAJKLK23

9802–C

CHEMISTRY

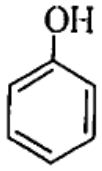
Time : 3 Hours] **[Maximum Marks : 70**

Section–A 1 each

(Very Short Answer Type Questions)

1. What is tetrahedral void ?

2. The colloidal dispersion of liquid in solid medium is called .....

3.  + Zn $\xrightarrow{\text{heat}}$ ..... + ...ZnO..

4. $CH_3—NH—CH_2—CH_3$ is a primary amine. (True/False)

5. Write IUPAC name of $[Co(en)_3]Cl_3$.

6. The monomeric units of starch is/are :

(A) Glucose

(B) Fructose

(C) Glucose and Fructose

(D) Mannose

7. When acetaldehyde is heated with Fehlings solution, it gives :

(A) Cu

(B) CuO

(C) Cu_2O

(D) Cu + CuO + Cu_2O

Section–B

2 each

(Short Answer Type Questions–I)

8. Write the symbolic representation of the electrochemical cell reaction :

$$Zn(s) + 2Ag^{+}(aq) \rightarrow Zn^{2+}(aq) + 2Ag(s)$$

9. The half life period of a first order reaction is 30 minutes. What is its rate constant ?

10. How is $KMnO_4$ prepared from pyrolusite ore ?

Or

Give reason for the complex forming tendency of transition metals.

11. How is double salt distinguished from a complex compound ? Explain taking suitable examples.

Or

Explain with suitable example each of the following :

(a) Linkage isomerism

(b) Ionisation isomerism

12. How is bromoethane converted into (i) ethanol (ii) ethene ?

13. How is D.D.T. prepared from chlorobenzene ? Give chemical equation only.

Section–C 3 each

(Short Answer Type Questions–II)

14. What are Stoichiometric defects in solids ? How does Schottky defects differ from Frenkel defects in ionic solids ?

15. Draw a neat and well labelled diagram of a dry cell. Is it really dry ? Give reactions taking place at anode and cathode.

16. Briefly explain the effect of temperature on the rate constant of a reaction.

17. Define Gold number. How is it related to protective power of a colloid ?

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How is Bakelite prepared ? What are its major uses ?

25. What are Antibiotics ? Name *two* antibiotics which are specific for certain diseases.

Or

Explain Cleansing action of soap.

Section–D 5 each

(Long Answer Type Questions)

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Describe the following reactions

(a) Aldol condensation

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(c) Rosenmuds reaction