

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

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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

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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.

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- ✓ 16. Calculate Half-life period for 1st 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 nitration 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.

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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 ?

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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 ? <https://www.jkboseonline.com>

(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

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(7)

Or

Explain the following :

✓ (a) Aldol condensation

✓ (b) Cannizzaro's reaction

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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) No

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Over

4. Primary amines give carbylamine reaction.

(True/False)

5. What is IUPAC name of $[\text{Cu}(\text{NH}_3)_4\text{SO}_4]$?

6. Sunshine Vitamin is :

(A) Vitamin A

(B) Vitamin D

(C) Vitamin E

(D) Vitamin K

7. Ketones have :

(A) $>\text{C}=\text{O}$ group

(B) $-\text{CHO}$ group

(C) $-\text{COOH}$ group

(D) $-\text{OH}$ group

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SECTION-B

2 each

8. State Faraday's 1st 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.

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16. Calculate Half-life period for 1st order reaction.
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Or

What

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

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B-22-Z

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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

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B-22-Z

Over

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

(True/False)

5. Give the IUPAC name of $\text{K}_3[\text{Fe}(\text{CN})_6]$.

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) $>\text{C}=\text{O}$ group

(B) $-\text{CHO}$ group

(C) $-\text{COOH}$ group

(D) -

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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

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16 ✓ Calculate Half-life period for 1st order reaction.

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18 ✓ Explain Zone refining.

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Or

✓ Explain the following :

(a) ✓ Aldol condensation

(b) ✓ Cannizzaro's reaction

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A-2-A

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12thSZARJD22**6002-A****CHEMISTRY**

Time : 2.30 Hours]

[Maximum Marks : 70

Section-A

1 each

(Very Short Answer Type Questions)

1. What happens when a negatively charged colloidal sol is added to a positively charged colloidal sol ?
2. The IUPAC name of $[\text{Co}(\text{en})_3\text{Cl}_3]$ is
3. $\text{CH}_3-\text{CH}=\text{CH}_2 + \text{HBr} \xrightarrow{\text{No peroxide}} \text{CH}_3-\text{CH}_2-\text{CH}_2\text{Br}$,
is the major product. (True/False)
4. Arrange HCl, HBr and HI in the decreasing order of reactivity with alcohols.
5. Write IUPAC name of $\text{OHC}-\text{CH}_2-\underset{\text{CHO}}{\text{CH}}-\text{CHO}$.

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12thSZARJD22
A-2-A

Over

6. Choose the correct answer :

Benzamide on treatment with POCl_3 gives :

- (A) Aniline
- (B) Benzonitrile
- (C) Chlorobenzene
- (D) Benzylamine

7. Give an example of Anomers.

Section-B

2 each

(Short Answer Type Questions-I)

- 8. What do you mean by Frenkel defect ?
- 9. What is Piezoelectricity ? Give one example of such solid.
- 10. What is equivalent conductivity ? Give its units.

Or

What is Secondary Cell ? Give one example.

- 11. What is meant by the terms average and instantaneous rates of reaction ? How are they expressed ?

Or

Define

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12th SZARJD:
A-2-A

(3)

12. Transition metals have ability to form alloys. Give reason.
13. Define Ionisation Isomerism in coordination compounds. Give *one* example.

Section-C

3 each

(Short Answer Type Questions-II)

14. Define Corrosion. Explain electrical protection for protecting iron from corrosion.
15. Define First Order Reaction. Derive rate equation for first order reaction. <https://www.jkboseonline.com>
16. What is Brownian Movement ? What is its cause and significance ?
17. Give a brief account of calcination and roasting.
18. Why does nitrogen differ from rest of the members of group 15 ?
Give *three* points of difference.
19. Explain, why haloarenes are much less reactive than haloalkanes towards nucleophilic substitution ?

12thSZARJD2
A-2-A

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n Over

20. Define and classify Vitamins. What is the role of Vitamin C in our daily life ? Give its sources.
21. What is Lanthanide contraction ? Give its causes.
22. How is phenol obtained from chlorobenzene and benzene diazonium chloride ? How phenol reacts with :
- $\text{CHCl}_3 + \text{NaOH}$ at 340K
 - Conc. H_2SO_4 at 375K ?
- Or*
- How can you prepare ethyl alcohol from :
- Ethene
 - Ethyl bromide ?
- How can you convert ethyl alcohol to :
- Acetaldehyde
 - Diethyl ether ?
23. Why are amines basic ? Compare basic strength of ammonia, ethylamine and diethylamine.

(5)

Or

How will you prepare ethylamine by using Hofmann bromide reaction and how will you convert ethylamine to ethylisocyanide ?

24. Give preparation and uses of Nylon-66 and Terylene.

Or

Explain the term co-polymerisation and give its two examples.

25. What are Tranquilizers ? Give two examples.

Or

What are Antibiotics ? Give two examples.

Section-D

5 each

(Long Answer Type Questions)

26. Define the term Osmotic pressure. Describe how molecular mass of a substance can be determined on the basis of osmotic pressure. 200 cm³ of an aqueous solution of a protein contains 1.26 g of the protein. The osmotic pressure of such solution at 300K is found to be 2.57×10^{-3} bar. Calculate molecular mass of the protein.

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(6)

Or

Define the following :

- (i) Molarity
- (ii) Molality
- (iii) Mole fraction

Concentrated nitric acid in laboratory work is 68% nitric acid by mass in aqueous solution. What should be the molarity of such a sample of the acid if the density of the solution is 1.504 gmL^{-1} ?

27. What are Interhalogen Compounds ? How are they classified ? Give the structure and mention the hybridisation of central atom of the following :

- (a) IF_7
- (b) BrF_3
- (c) BrF_5

Or

Describe the manufacture of sulphuric acid by contact process.

12thSZARJD
A-2-A

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28. Describe the following reactions :

- (a) Aldol condensation
- (b) Cannizzaro reaction
- (c) Rosunmund's reaction

Or

How is acetic acid prepared from :

- (i) Acetylene
- (ii) Ethyl alcohol
- (iii) Acetamide ?

How does acetic acid react with :

- (i) Cl_2 in presence of phosphorus
- (ii) Methanol in presence of H_2SO_4 ?

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A-2-B

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12thSZARJD22**6002-B****CHEMISTRY**

Time : 2.30 Hours]

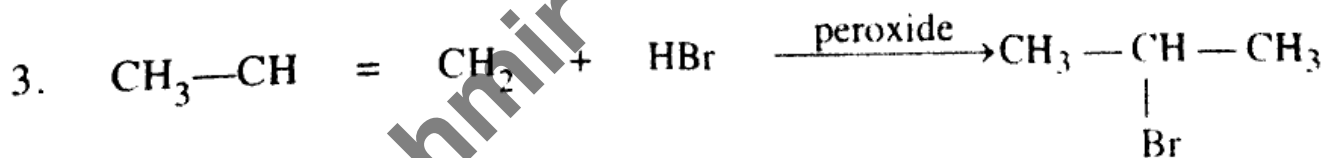
[Maximum Marks : 70

Section-A

1 each

(Very Short Answer Type Questions)

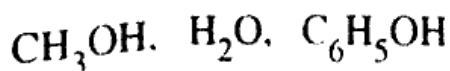
1. What is mathematical form of Freundlich adsorption isotherm ?
2. The IUPAC name of $K_4[Fe(CN)_6]$ is



as a major product.

(True/False)

4. Arrange the following in order of decreasing acidic strength :



5. Write IUPAC name of $\text{HOOC}-\text{CH}_2-\underset{\text{COOH}}{\text{CH}}-\text{COOH}$.

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n Over

12thSZARJ
A-2-E

6. Choose the correct answer :
Acetaldehyde reacts with P_2O_5 to give :

- (A) Methyl cyanide
- (B) Methyl cyanate
- (C) Ethyl cyanide
- (D) None of these

7. What is Glycoside Linkage ?

2 each

Section-B

(Short Answer Type Questions-I)

- 8. What do you mean by Schottky defect ?
- 9. What is Pyroelectricity ? Give *one* example of such solid.
- 10. What is Molar Conductivity ? Give its units.

Or

Write functions of a salt bridge in an electrochemical cell.

11. Define Activation Energy. How is activation energy effected by use of catalyst ?

Or

How does the order of a reaction differ from the molecularity ?

12thSZARJD2
A-2-B

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12. Why transition metals act as catalysts ? Give reason.
13. What is geometrical isomerism in coordination compounds ? Give one example.

3 each

Section-C

(Short Answer Type Questions-II)

14. Define Corrosion. Explain electrical protection for protecting iron from corrosion.
15. Define First Order Reaction. Derive rate equation for first order reaction.
16. What is Brownian Movement ? What is its cause and significance ?
17. Give a brief account of calcination and roasting.
18. Why does nitrogen differ from rest of the members of group 15 ? Give three points of difference.
19. Explain, why haloarenes are much less reactive than haloalkanes towards nucleophilic substitution ?

12th SZARJD2
A-2-B

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A-2-E

(5)

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5 each

(Long Answer Type Questions)

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12th SZARJD:
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12th SZAR
A-2-E

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A-2-C

Roll No.....

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12thSZARJD22

6002-C

CHEMISTRY

Time : 2.30 Hours]

[Maximum Marks : 70

Section-A

1 each

(Very Short Answer Type Questions)

1. What is Collodion ?

2. The IUPAC name of $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4$ is

3. $\text{CH}_3-\text{CH}=\text{CH}_2 + \text{HBr} \xrightarrow{\text{No peroxide}} \text{CH}_3-\underset{\text{Br}}{\text{CH}}-\text{CH}_3,$

as a major product.

(True/False)

4. What is the order of dehydration of primary, secondary and tertiary alcohols ?

5. Write IUPAC name of $\text{HOOC}-\text{CH}-\underset{\text{O}}{\parallel}{\text{C}}-\text{CHO}.$

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n Over

12thSZARJ
A-2-C

6. Choose the correct answer :

When primary amines are treated with chloroform and potash in presence of C_2H_5OH , the product is :

- (A) Cyanide
- (B) Isocyanide
- (C) Secondary amine
- (D) Nitro compound

7. Write Zwitterion structure of glycine.

Section-B

2 each

(Short Answer Type Questions-I)

8. Why Schottky defect lowers the density of the crystal while as Frenkel defect does not ?

9. What is ferromagnetism in solids ? Give two examples of ferromagnetic solids.

10. Write the reactions taking place at anode and cathode of a dry cell.

Or

Define specific conductivity. Give its units.

11. Name the factors effecting rate of a reaction. What is temperature coefficient ?

Or

Define

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12thSZARJD:

A-2-C

12. Transition metals form interstitial compounds. Give reason.
13. What is linkage isomerism in coordination compounds ? Give *one* suitable example of the compound which shows such isomerism.

Section-C

3 each

(Short Answer Type Questions-II)

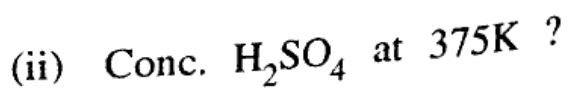
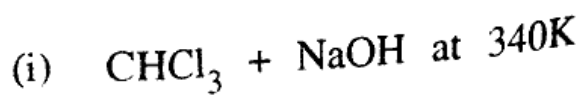
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How can you convert ethyl alcohol to :

(i) Acetaldehyde

(ii) Diethyl ether ?

23. Why are amines basic ? Compare basic strength of ammonia, ethylamine and diethylamine.

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12thSZARJD:
A-2-C

(5)

Or

How will you prepare ethylamine by using Hofmann bromide reaction and how will you convert ethylamine to ethylisocyanide?

24. Give preparation and uses of Nylon-66 and Terylene.

Or

Explain the term co-polymerisation and give its two examples.

25. What are Tranquilizers ? Give two examples.

Or

What are Antibiotics ? Give two examples.

Section-D

5 each

(Long Answer Type Questions)

26. Define the term Osmotic pressure. Describe how molecular mass of a substance can be determined on the basis of osmotic pressure. 200 cm³ of an aqueous solution of a protein contains 1.26 g of the protein. The osmotic pressure of such solution at 300K is found to be 2.57×10^{-3} bar. Calculate molecular mass of the protein.

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12thSZARJD2
A-2-C

Over

(6)

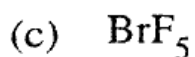
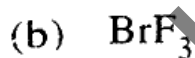
Or

Define the following :

- (i) Molarity
- (ii) Molality
- (iii) Mole fraction

Concentrated nitric acid in laboratory work is 68% nitric acid by mass in aqueous solution. What should be the molarity of such a sample of the acid if the density of the solution is 1.504 gmL^{-1} ?

27. What are Interhalogen Compounds ? How are they classified ? Give the structure and mention the hybridisation of central atom of the following :



Or

Describe the manufacture of sulphuric acid by contact process.

12th SZARJI
A-2-C

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28. Describe the following reactions :

- (a) Aldol condensation
- (b) Cannizzaro reaction
- (c) Rosunmund's reaction

Or

How is acetic acid prepared from :

- (i) Acetylene
- (ii) Ethyl alcohol
- (iii) Acetamide ?

How does acetic acid react with :

- (i) Cl_2 in presence of phosphorus
- (ii) Methanol in presence of H_2SO_4 ?

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12thSZARJD2
A-2-C

B-2-B

Roll No.....

Total No. of Questions : 28]

[Total No. of Printed Pages : 7

XIIKDAR21

5002-B

CHEMISTRY

Time : 3 Hours]

[Maximum Marks : 70

Section-A

(Very Short Answer Type Questions)

1 each

1. If the radius of octahedral void is ' r ' and the radius of the atoms in the close packing is ' R ', what is the relation between ' r ' and ' R ' ?
2. Identify the positively charged sol :
 - (A) Haemoglobin
 - (B) As_2S_3
 - (C) Clay
 - (D) Gold sol
3. Calculate the oxidation number of Co in $[CoBr_2(CN)_2]^+$.

XIIKDAR21-
B-2-B

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Iron Over

4. Give the IUPAC name of $(\text{CH}_3)_3\text{C.OCH}_3$.
5. When a mixture of calcium acetate and calcium formate is distilled, the product formed is :

- (A) Formaldehyde
(B) Acetone
(C) Acetaldehyde
(D) None of these

6. Predict the product of the following reaction :



7. Out of sucrose and maltose, sucrose is a reducing sugar.

(True/False)

Section-B

(Short Answer Type Questions-I)

2 each

8. Define equivalent conductivity and give its S.I. units.
9. Define Activation Energy. How is it related to threshold energy?
10. Give any *two* oxidising reactions of KMnO_4 in acidic medium.

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XIIKDAR21-
B-2-B

(3)

Or

Why do transition metals form interstitial compounds ?

11. Define the terms with examples

- (a) Coordination complex
- (b) Coordination number

Or

Explain hydrate isomerism in coordination compounds with an example.

12. Give any two chemical reactions of chlorobenzene.

13. What are the important uses and environmental effects of D.D.T. ?

Section-C

(Short Answer Type Questions-II)

3 each

14. Define the following properties of solids :

- (a) Paramagnetism
- (b) Diamagnetism
- (c) Ferromagnetism

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XIIKDAR21-

B-2-B

Turn O

15. State and explain Faraday's second law of electrolysis.
16. Discuss the effect of temperature on the rate of reaction.
17. What is Chemical Adsorption ? Discuss the main characteristics of chemical adsorption.
18. Give a brief account of calcination and roasting.
19. Name the elements of group 15 and discuss their oxidation states.
20. What is Lanthanoid Contraction ? Explain the cause of lanthanoid contraction. <https://www.jkboseonline.com>
21. Give the chemical reactions of ethyl alcohol with :
 - (i) Conc. H_2SO_4 at 440K
 - (ii) CH_3COOH
 - (iii) CH_3MgBr
22. What are Amines ? How are they classified ? Give one example of each type.

Or

How is aniline prepared from (i) Nitrobenzene (ii) Benzamide (iii) Phenyl cyanide ?

XIIKDAR2
B-2-E

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(5)

23. What are Carbohydrates ? How are they classified on the basis of hydrolysis products ?

Or

Differentiate between fibrous and globular proteins.

24. Define the following with examples :

(i) Addition polymerisation

(ii) Condensation polymerisation

Or

What is Nylon-66 ? Give its preparation and uses.

25. Name the substance which can act both analgesic and antipyretic as well. How does it help heart patients ? What precautions must be taken while taking it ?

Or

Describe the following with suitable examples :

(i) Artificial sweeteners

(ii) Antioxidants

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B-2-B

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Turn Over

Total No. of Questions : 28]

[Total No. of Printed

XIIKDAR21
5002-C
CHEMISTRY

Time : 3 Hours]

[Maximum Marks : 70

Section-A

(Very Short Answer Type Questions)

1 each

1. What is the number of atoms per unit cell in a body centred cubic structure ?
2. Protective sols are :
(A) Lyophilic
~~(B) Lyophobic~~
(C) Both (A) and (B)
(D) None of these
3. Calculate the oxidation number of Cu in $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4$.

XIIKDAR21-5
B-2-C

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Turn Over

(2)

4. Write the IUPAC name of $\text{CH}_3\text{OCH}_2\text{CH}_2\text{Cl}$.
5. Which of the following will undergo aldol condensation ?
- (A) $\text{CH}_2 = \text{CHCHO}$
- (B) $\text{CH} \equiv \text{C} \cdot \text{CHO}$
- (C) $\text{C}_6\text{H}_5\text{CHO}$
- (D) $\text{CH}_3\text{CH}_2\text{CHO}$
6. Complete the following reaction :
- $$2\text{CONH}_2 + \text{Br}_2 + 4\text{NaOH} \rightarrow \dots\dots\dots$$
7. Out of sucrose and maltose, sucrose is a reducing sugar.

(True/False)

Section-B

(Short Answer Type Questions-I)

2 ea

8. Define molar conductivity and give its S.I. units.
9. What is order of reaction ? Give *one* example each for 1st order and 2nd order reactions.
10. How is

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(3)

Or

Transition metals and their compounds act as good catalysts. Explain.

11. Define the following terms with examples :

- (a) Chelating ligands
- (b) Central metal atom ion

Or

Explain coordination isomerism in coordination compound with an example.

12. Give any two chemical reactions of chlorobenzene.

13. What are the important uses and environmental effects of Carbon tetrachloride ?

Section-C

(Short Answer Type Questions-II)

3 eac

14. Define *n*-type and *p*-type semiconductors with examples.

XIIKDAR21

B-2-C

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Turn Over

15. State and explain Faraday's second law of electrolysis.
16. Discuss the effect of temperature on the rate of reaction.
17. What is Chemical Adsorption ? Discuss the main characteristics of chemical adsorption.
18. Give a brief account of calcination and roasting.
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23. What are Carbohydrates ? How are they classified on the basis of hydrolysis products ?

Or

Differentiate between fibrous and globular proteins.

24. Define the following with examples :

- (i) Addition polymerisation
- (ii) Condensation polymerisation

Or

What is Nylon-66 ? Give its preparation and uses.

25. Name the substance which can act both analgesic and antipyretic as well. How does it help heart patients ? What precautions must be taken while taking it ?

Or

Describe the following with suitable examples :

- (i) Artificial sweeteners
- (ii) Antioxidants

XIIKDAR21
B-2-C

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Section-D

(Long Answer Type Questions)

26. Explain the terms :

- (i) Freezing point of a liquid
- (ii) Depression in freezing point of a solution
- (iii) Molal depression constant

Derive the relationship between the depression in freezing point and molecular mass of a non-volatile solute. <https://www.jkboseonline.com>

Or

What are Non-ideal Solutions ? Show graphically the behaviour of solutions showing positive and negative deviations. Explain the reasons for their positive and negative deviation.

27. Draw the structures of oxoacids of sulphur and write their names.

Or

Give any *two* methods of preparation of chlorine and any *two* chemical reactions. Also give uses of chlorine.

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KLIKDAR21-

R-2-C

28. How can you prepare acetaldehyde from ethanol and acetic acid ?
How does acetaldehyde reacts with (i) Ammoniacal AgNO_3
(ii) NH_2OH (iii) HCN ?

Or

Write the chemical equations when :

- (i) Acetic acid reacts with Br_2 in the presence of phosphorus¹
(ii) Acetic acid reacts with methanol in the presence of H_2SO_4
(iii) Acetic acid reacts with SOCl_2
(iv) Acetic acid reacts with LiAlH_4
(v) When acetic acid reacts with chlorine in the presence of red phosphorous

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B-2-A

Roll No.....

Total No. of Questions : 21]

[Total No. of Printed Pages : 4

**XIISZRJDF20
1102-A
CHEMISTRY**

Time : 3 Hours]

[Maximum Marks : 70

(Long Answer Type Questions)

5 each

1. Explain the terms :

- (i) Molarity
- (ii) Molality
- (iii) Mole fraction
- (iv) Normality
- (v) Parts per million

Or

What are colligative properties ? Derive the relation between the elevation in boiling point and molecular mass of a non-volatile solute in solution.

2. What is Corrosion ? Explain electrochemical theory of rusting.

Or

What is Electrolysis ? State and explain Faraday's laws of electrolysis.

XIISZ
B-2

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Over

(2)

3. Name the elements of nitrogen family. Based on the electronic configuration explain the valence of N and P. Give common oxidation states of nitrogen.

Or

How is sulphuric acid manufactured by contact process ? Why is sulphuric acid syrupy (viscous) ?

4. Write notes on the following :

- (i) Aldol condensation
- (ii) Cannizzaro's reaction
- (iii) Rosenmund reduction

Or

What are Carboxylic Acids ? Give any *four* general methods of preparation of carboxylic acid.

(Short Answer Type Questions)

3 each

- 5. What is difference between 'Schottky defect' and 'Frankel defect' ?
- 6. Show that for the reaction of first order half-life period is independent of initial concentration.
- 7. Explain the following terms in relation to colloidal solution :
 - (i) Brownian movement
 - (ii) Tyndall effect

XIISZRJDF20

B-2-A

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(3)

8. What is meant by unidentate and bidentate ligands ?
9. What are Alcohols ? How are they classified ?
10. Give any *three* oxidising properties of $K_2Cr_2O_7$.
11. What are essential and non-essential amino acids ? Give *one* example of each.
12. How is PCl_3 prepared from white phosphorus ? How does it react with (i) SO_3 , (ii) S_2Cl_2 ?

(Very Short Answer Type Questions)

2 each

13. Define rate of reaction and rate constant.
14. What is Roasting ?
15. Why are transition metals called *d*-block elements ?
16. What is Diazotisation ?
17. How will you convert ethyl bromide into :
 - (i) Ethyl alcohol
 - (ii) Ethyl cyanide ?
18. Discuss Wurtz reaction.
19. What are Antibiotics ? Give example.
20. Distinguish between homopolymer and copolymer.

(Objective Type Questions)

1 each

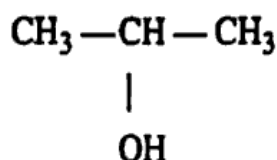
21. (i) The fourteen types of space lattices are collectively called

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XIISRJD
B-2-

(4)

- (ii) Colloidal dispersion of a liquid in a gas is called
- (iii) Carbylamine reaction is given by primary as well as secondary amines. (True/False)
- (iv) In aqueous solution trimethylamine is more basic than methyl amine. (True/False)
- (v) What is Refining ?
- (vi) Give IUPAC name of :



- (vii) What is Vinegar ?
- (viii) Which of the following is not a thermoplastic ?
- (A) Polythene (B) Teflon
(C) Nylon-6,6 (D) Bakelite
- (ix) Which of the following Vitamins is water soluble ?
- (A) Vitamin E (B) Vitamin K
(C) Vitamin A (D) Vitamin B
- (x) Equanil is
- (A) Artificial sweetener (B) Tranquillizer
(C) Antihistamine (D) Antifertility drug

XIISZRJDF2
B-2-A

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D-2-B

Roll No.....

Total No. of Questions : 28]

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XIIARKDN20

2002-B

CHEMISTRY

Time : 3 Hours]

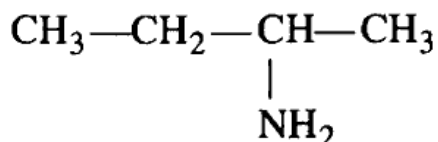
[Maximum Marks : 70

Section-A

1 each

(Very Short Answer Type Questions)

1. What is a 'Semiconductor' ?
2. Colloidal dispersion of a solid in a liquid is called
3. What is IUPAC name of $K_3[Fe(CN)_6]$?
4. When phenol is heated with HI in presence of red phosphorus it give :
(A) ethyl iodide (B) ethane
(C) ethylene (D) ether
5. The IUPAC name of :



is butane-2-amine.

(True/False)

XIIARKDN20
D-2-B

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Over

(2)

6. Vinegar is a dilute solution of

7. Vitamin 'C' is :

(A) Paracetamol

(B) Lactic acid

(C) Citric acid

(D) Ascorbic acid

Section-B

2 each

(Short Answer Type Questions-I)

8. What is a fuel cell ? State two advantages of H_2-O_2 fuel cell over ordinary cell.

9. Derive the equation for a rate constant for a first order reaction.

10. Write down the electronic configuration of :

(i) Cu^+

(ii) Co^{3+}

Or

Why are transition metals called *d*-block elements ?

11. What are ambidentate ligands ? Give examples.

Or

Give an example of ionization isomerism in coordination compounds.

12. Discuss Fittig's reaction.

13. Give uses of Chloroform.

Section-C

3 each

(Short Answer Type Questions-II)

14. Describe Frankel defect in crystals.

15. State and explain Faraday's laws of electrolysis.

16. What is the difference between order of a reaction and its molecularity ?

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XIIARKDN20

D-2-B

17. What do you understand by the terms ?
- Roasting
 - Calcination
 - Smelting
18. What are lyophobic and lyophilic sols ? Give their chief characteristics.
19. What are interhalogen compounds ? How are they classified ?
20. Explain the following :
- Transition metals act as catalysts
 - Transition metals form coloured complexes
21. What are primary, secondary and tertiary amines ? Give *one* example of each.

Or

Explain why aromatic amines are less basic than ammonia and aliphatic amines. <https://www.jkboseonline.com>

22. What are Alcohols ? Give any *two* methods of preparation of alcohols.
23. What are Carbohydrates ? How are they classified ?

Or

Give sources and deficiency diseases of Vitamin A, Vitamin C and Vitamin D.

24. (i) Identify the type of polymer :



- Write the structure of Dacron.
- Define addition polymer.

Or

Give preparation and uses of Nylon 66.

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XIIARKDN:
D-2-B

n Over

25. Describe the following with suitable examples of chemicals :
- Antipyretics
 - Antiseptics

Or

What are Detergents ? Why are detergents preferred over soaps ?

Section-D

5 each

(Long Answer Type Questions)

26. What are colligative properties ? Derive the relationship between the elevation in boiling point and molecular mass of a non-volatile solute in solution.

Or

Define molarity and molality. Calculate molality of 2.5 g of ethanoic acid (CH_3COOH) in 75 g of Benzene.

27. Name the elements of nitrogen family based on the electronic configuration explain the valence of N and P. Give common oxidation states of Nitrogen.

Or

How is sulphuric acid manufactured by contact process ? Why is sulphuric acid syrupy (viscous) ?

28. What are carboxylic acids ? Give any *four* methods of preparations of carboxylic acids.

Or

Explain the following reactions by giving an example :

- Aldol condensation
- Wolf-Kashner reduction
- Rosenmund reduction

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XIIARKDN20
D-2-B

Total No. of Questions : 21]

[Total No. of Printed Pages : 4

XIIKDRO/N19

24802-Z

CHEMISTRY

Time : 3 Hours]

[Maximum Marks : 70

(Long Answer Type Questions)

5 each

1. What are carboxylic acids ? Describe briefly the methods of preparation of carboxylic acids.

Or

How does acetaldehyde react with :

- (i) Hydroxylamine
- (ii) Hydrazine
- (iii) Semicarbazide
- (iv) Hydrogen cyanide
- (v) Sodium bisulphite

2. State Kohlrausch's law for electric conductance of an electrolyte at infinite dilution. Give an example.

Or

Define corrosion. What are the various factors affecting corrosion ? How can it be prevented ?

XIIKDRO/
B-2-Z

Turn Over

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3. Discuss the general properties of transition elements with reference to 3d-transition series.

Or

Give the method of preparation of KMnO_4 . Discuss three oxidising properties of it in acidic medium.

4. Name the important oxides and oxoacids of nitrogen and phosphorus. Give their structures:

Or

What are interhalogen compounds ? Give the structures of IF_7 and ClF_3 .

(Short Answer Type Questions)

3 each

35. What are point defects in crystals ? Describe the Schottky defect in crystals.
36. Give characteristics of physical and chemical adsorption.
37. How will you convert phenol into ?
- (i) Salicylaldehyde
 - (ii) Benzene
 - (iii) Picric acid
38. How is PCl_3 prepared ? Give its reaction with ?
- (i) SO_3
 - (ii) S_2Cl_2
39. Distinguish between ideal and non-ideal solutions.
- 3 10. Give

XIIKDRO/N
B-2-Z

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11. What are the diseases caused due to deficiency of Vitamin A, D and C ?
12. Give at least *three* points of difference between molecularity and order of a reaction. <https://www.jkboseonline.com>

(Very Short Answer Type Questions)

2 each

13. What is meant by the terms ?
- (i) Smelting
 - (ii) Roasting
14. Molality of a solution is 0.1. Elaborate with an example.
15. Give mechanism of diazotisation reaction.
16. Differentiate between rate of reaction and rate constant.
17. What are artificial sweetening agents ?
18. Give one test for distinction of 1°, 2°, and 3° amines.
19. Give the geometry of the following complexes.
- (i) $[\text{Ni}(\text{CO})_4]$
 - (ii) $[\text{Ni}(\text{CN})_4]^{2-}$
20. Define a homopolymer giving an example.

(Objective Type Questions)

21. (i) The coordination number of each sphere in hexagonal close packing is
- (ii) Cast iron is usually extracted from the ore
- (iii) Freon is used as a refrigerant. (True/False)
- (iv) Aldehydes are more easily oxidised than ketones. (True/False)

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XIIKDRO/N1

B-2-Z

- (v) Name the monomer of Nylon-6.
- (vi) What is the directive influence of phenolic group ?
- (vii) What is a monodentate ligand ?
- (viii) Preservative used to protect processed food is :
- (A) Sodium sulphate
 - (B) Saccharin
 - (C) Sodium metabisulphite
 - (D) Sodium benzoate
- (ix) Soap removes grease by :
- (A) Adsorption
 - (B) Emulsification
 - (C) Coagulation
 - (D) None of these
- (x) Amino acids are building blocks of :
- (A) Carbohydrates
 - (B) Vitamins
 - (C) Fats

(D) Submit old papers to receive Rs 20 per paper or equivalent value. Earn money through recycling while contributing to sustainability.

G - 56

Total No of Questions 21)

Roll No.....

[Total No of Printed Pages : 4

**HSE2KROXI
9318 - B
CHEMISTRY**

Time : 3 Hours + 15 Minutes extra to read the question paper]

[Maximum Marks: 70

(Long Answer Type Questions)

1. What are colligative properties ? Name the various colligative properties ? Derive a relation between relative lowering in vapour pressure and mole fraction of the solute ?

Or

Define Normality, Molality, Molarity, Mole fraction and mass fraction.

2. How is sulphuric acid manufactured by contact process ? Name the basic raw material used for it ? With the help of chemical equation explain in brief the principle of this process.

Or

Give the electronic configuration of the elements of group 15. Why nitrogen shows anomalous behaviour ? Explain with examples the various oxidation states of Nitrogen

3. Explain the following

- (a) Why transitional elements form coloured compounds ?
(b) Why transitional elements form complex compounds ?

HSE2KROX

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(2)

Or

Define Lanthanide contraction ? What is its cause and what are its consequences ? What is the most common oxidation state exhibited by lanthanides ?

5

4. How is Acetone prepared from :

- (i) Acid chloride
- (ii) Alkynes
- (iii) Calcium acetate

What happens when acetone is treated with

- (i) Sodium bisulphite
- (ii) Grignards reagent.

Or

Starting from Acetaldehyde how will you get .

- (i) 1, 1 -Dichloroethane
- (ii) Acetal
- (iii) Actal diamine
- (iv) Ethane
- (v) Acetal oxime

5

(Short Answer Type Questions)

- 5 What is meant by Hexagonal close packing in three dimensions? 3
- 6 Explain Kohlrausch's Law 3
- 7 What is Arrhenius equation? What is its importance? 3
- 8 Explain Electrophoresis. 3
- 9 Define Geometrical Isomerism? Explain it with reference to square planar complexes of M_2A_2BC type. 3

HSE2KRC

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(3)

10. How chloroalkanes are prepared from Alcohols and Thionyl chloride? What is the function of anhydrous $ZnCl_2$? 3

11. Describe the secondary structure of proteins 3

12. What are Bio-degradable polymers ? Write the structural formulae of a biodegradable polymer 3

(Very Short Answer Type Questions)

13. What is a fuel cell ? Write the equation which occurs at the electrode in a fuel cell that uses H_2 and O_2 to produce electricity. 2

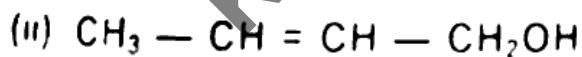
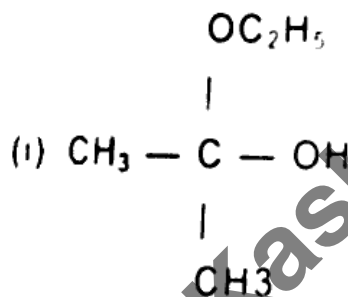
14. Give the units of First and Zero order reaction 2

15. Give the various reactions which take place in the blast furnace during the extraction of Iron 2

16. Explain why fluorine shows an anomalous behaviour 2

17. What are antihistamines ? Give an example 2

18. Give the I. U. P. A. C. names of



19. Give a method with reactions by which all the three types of alcohol can be prepared 2

20. How is methyl amine prepared from Hofmann's Bromide reaction ? Give its reaction with Grignard's reagent 2

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Over

(4)

(Objective Type Questions)

21. (a) Fill in the blanks:
- (i) The co-ordination number of each sphere in a body centred close packed structure is 1
 - (ii) Acid chlorides are reduced to aldehydes by reaction. 1
- (b) Tick mark the True/False statement given below :
- (i) Benedicts solution is used to determine glucose in Blood. (True/False) 1
 - (ii) Oxygen shows an oxidation state of +4 and +6 like sulphur. (True/False) 1
- (c) Give one word substitution to the following
- (i) The substance which do not help in the formation of Froth in Froth floatation process is called 1
 - (ii) The sweetner which is 600 times sweeter than sucrose is known as 1
- (d) (i) Name the most common refrigerant and give its formula. 1
- (ii) Write the structure of N-Methyl propan-2-amine. 1
- (e) Choose the correct/most appropriate answer given below against each and write it in your answer-book
- (i) Which type of property is Brownian moment in a colloidal solution ? 1
 - (a) Electrical
 - (b) Optical
 - (c) Mechanical
 - (d) Colligative - (ii) Reaction of $C_6H_5N_2Cl$ with $CuCl$ gives : 1
 - (a) C_6H_5Cl
 - (b) C_6H_6
 - (c) Glycine
 - (d) Acetamide

HSE2KRO)

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D-2-X

Roll No.....

Total No. of Questions : 21]

[Total No. of Printed Pages : 4

12thRKDO18

20302-X

CHEMISTRY

[Maximum Marks : 70

Time : 3 Hours]

(Long Answer Type Questions)

5 each

1. What is depression in freezing point ? Derive the relationship between depression in freezing point and molar mass of solute.

Or

What is Van't Hoff factor ? How is it related to degree of dissociation of the electrolyte in the solution ? What is its value when solute undergoes association ?

2. What is a fuel cell ? Give the construction and working of a fuel cell.

Or

What is Corrosion ? Explain electrochemical theory of rusting.

3. How is nitric acid prepared by Ostwalds process ? Briefly express the various steps involved in it. Give its reaction with zinc.

Or

Write the electronic configurations of the elements of Group-17. Why fluorine shows anomalous behaviour ? Discuss the oxidation states of the elements of Group-17.

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12thRKDO1
D-2-X

in Over

4. Give two methods of preparation of Acetic acid. How does it react with :

- (i) Cl_2 in presence of red phosphorus
- (ii) PCl_5
- (iii) $\text{C}_2\text{H}_5\text{OH}$?

Or

How acetone is prepared from :

- (i) Acid chloride
- (ii) Alkynes
- (iii) Calcium acetate ?

What happens when acetone is treated with :

- (i) Sodium bisulphite
- (ii) Grignard's reagent ?

(Short Answer Type Questions)

- 5. Explain Schottky defect in ionic crystals.
- 6. Differentiate between homogeneous and heterogeneous catalysis with *one* example of each.
- 7. Define the following terms with examples :
 - (i) Coordination complex
 - (ii) Bidentate ligand.
- 8. Define half-life period. Show that half-life period for 1st order reaction is independent of the initial concentration of the reactants.

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12thRKD

D-2-

9. What are Alcohols ? Explain primary, secondary and tertiary alcohols with examples.
10. What are transition elements ? Why are they called *d*-block elements ? Write the electronic configuration of the first and last member of 3*d* transition series. <https://www.jkbosonline.com>
11. What are Carbohydrates ? How are they classified ?
12. What is Allotropy ? Write the various allotropic forms of sulphur.

(Very Short Answer Type Questions)

2 each

13. Define order and molecularity of a reaction.
14. What is difference between mineral and ore ?
15. What do you mean by Lanthanide contraction ?
16. What is Fittig Reaction ?
17. How will you convert ethyl bromide into :
 - (i) Ethyl nitrite
 - (ii) Ethyl carbylamine
18. What is Diazotisation ? Give an example.
19. What are Antibiotics ? Name one broad spectrum antibiotic.
20. What are Polymers ? How are they classified on the basis of their source or origin ?

(Objective Type Questions)

1 each

21. (i) Total number of atoms per unit cell in fcc is
- (ii) The adsorption of gases on the surface of metals is called

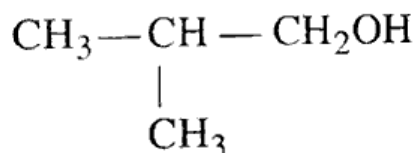
12thRKDO
D-2-

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(iii) Benzene diazonium chloride reacts with to give benzene.

(iv) What is Roasting ?

(v) Write IUPAC name of :



(vi) Cannizzaro's reaction can be given by acetaldehyde.

(True/False)

(vii) Alkyldiazonium salts are very unstable. (True/False)

(viii) Which of the following is an example of aldohexose ?

- (a) Ribose (b) Fructose
(c) Sucrose (d) Glucose

(ix) Aspirin is an :

- (a) Antimalarial
(b) Analgesic
(c) Antipyretic
(d) Both analgesic and antipyretic

(x) Which of the following is a copolymer ?

- (a) Buna-S (b) PVC
(c) Orlon (d) Neoprene

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HSETIRKON17

15319-A

CHEMISTRY

(Long Answer Type Questions)

1. What are galvanic cells ? Describe the construction of Daniell cell and the reactions involved. How is it represented ?

Or

State Kohlrausch's law for electric conductance of an electrolyte at infinite dilution. Give an example.

2. How is ammonia manufactured industrially ? Draw flow chart for manufacture of ammonia. Give any two uses of ammonia

Or

Discuss the gradation in the following properties of the elements of group 17:

- (a) Ionisation Potential (b) Electronegativity
(c) Oxidising power (d) Bond energy (e) Atomic radius

3. What is Lanthanide Contraction ? What is its cause and what consequences?

Or

Discuss the general properties of transition elements with reference to 3d-series elements.

4. Describe briefly the mechanism of nucleophilic addition reaction. Explain the relative reactivities of aldehydes and ketones toward these reactions.

Or

What are Carboxylic acids ? Describe briefly the general methods preparation of carboxylic acids.

(Short Answer Type Questions)

5. Briefly describe the redox reaction.

6. Give charac

7. What are Ph

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8. What are Interhalogens ? How are they formed? Give structure a IF ?
9. Distinguish between ideal and non-ideal solutions
10. Give three physical and chemical properties of haloalkanes.
11. What are carbohydrates? How are they classified ?
12. Give at least three points of difference between molecularity and order of reactions.

(Very Short Answer Types Question)

13. What is the actual reducing agent of hematite in the blow flurance?
14. What do you mean by saying that the molality of a solution is O.I? Give an example.
15. How are Carby lamines formed?
16. The reaction $A + B \rightarrow C$ has zero order. What is the rate equation for such a reaction?
17. Name a broad spectrum antibiotic and state two discause For which it is prescribed.
18. What is an ambident group? Give two examples
19. Give IUPAC names for :

$K_4[Fe(CN)_6]$ and $[CoCl_2(NH_3)_4]$

20. Write the information asked for the polymer.

- (a) Bakelite : materials used for its preparation
- (b) Synthetic rubber : monomer unit

(Objective Type Questions)

21. (i) What is the coordination number of CS^+ and Cl^- ions in the $CaCl$ structure?
- (ii) What is annealing?
- (iii) The well known refrigerant Freon has the formula.....
- (iv) What type of aldehydes and ketones undergo aldol condensation?
- (v) Nylon is a Vinyl polymer,
- (vi) Phenols fo
- (vii) Porphyrin
- (viii) Which is

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- (a) Sodium sulphate
 - (b) Saccharin
 - (c) BHT
 - (d) Sodium metabisulphite.
- (ix) Action of a catalyst depends :
- (a) Mass
 - (b) Solubility
 - (c) Particle size
 - (d) None of the above
- (x) Amino acids are building blocks of :
- (a) Carbohydrates
 - (b) Vitamins
 - (c) Fats
 - (d) Proteins

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XIIRKN16

11020-X

CHEMISTRY

(Long Answer Type Questions)

1. What are Colligative Properties? Explain any two of them.

Or

Explain the following term:

(a) Molarity (b) Molality (c) Mole-fraction (d) Normality (e) PPM

2. Define Corrosion. What are various factors affecting corrosion? How can it be prevented?

Or

Explain the construction and working of a Galvanic cell.

3. Explain the manufacture of sulphuric acid by contact process. Give its two important properties. <https://www.jkboseonline.com>

Or

Give the electronic configuration of group 16 elements. Why oxygen shows anomalous behaviour?

4. How will you convert ethanol into:

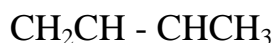
- (i) Ethyl alcohol
- (ii) alcohol
- (iii) Cyanolhydrin
- (iv) Ethanal oxime
- (v) α -Hydroxybutanal

Or

How will you]

(i) $\text{CH}_2\text{CH}_2\text{OEt}$

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(Short Answer Type Questions)

5. Explain Frankel defect in crystals
6. What are the factors on which the rate of a reaction depends?
7. Discuss electrophoresis
8. Explain lanthanide contraction
9. What are the diseases caused due to deficiency of vitamin A, D, and C?
10. What is meant by unidentate and bidentate ligands Give examples.
11. Draw the structures of three Oxo-acids of phosphorus
12. What is an esterification reaction?

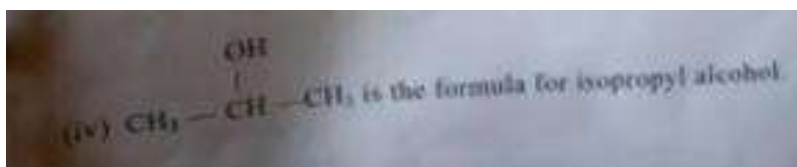
(Very Short Answer Type Questions)

13. Define half life period.
14. Give the mechanism of reactions in haloalkanes.
15. Define calcination and roasting.
16. Why do d-block elements form coloured ions?
17. What are the effects caused by Freons on the environment?
18. Give an example for 1° , 2° , 3° , amines.
19. Why are artificial sweetening agents needed? Give two examples.
20. What is natural rubber?

(Objective Type Questions)

21. (i) No. of atoms per unit cell for cubic unit cell is.....
- (ii) The Phenomenon of osmosis was reported by.....
- (iii) Sulphide c

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(True / False)

(v) Give the reaction of Aniline with cone, H_2SO_4 .

(vi) Give the reaction of a ketone with NH_2OH .

(vii) The human body does not produce:

- (a) Enzymes (b) DNA
(c) Vitamins (d) Hormones

(viii) Ethyl amine reacts with nitrosyl chloride to give :

- (a) Ethyl chloride (b) Ethyl nitrite
(c) Ethyl alcohol (d) Nitro-ethane

Choose the correct option:

(ix) Penicillin is:

- (a) Hormone (b) Antiseptic (c) Antibiotic (d) Lipid

(x) PVC is a polymer of:

- (a) Ethene (b) Isoprene (c) Vinylchloride (d) Neoprene

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D-17-Z

Total No. of Questions : 21]

[Total No. of Printed Pages : 4

HSEIRKN15

6417-Z

CHEMISTRY

Time : 3 Hours]

[Maximum Marks : 70

(Long Answer Type Questions)

5 each

1. What is Vant Hoff factor ? How does it help in determining the degree of dissociation and association of a solute in solutions ?

Or

State and explain Roult's Law. Why does a solution of Ethanol and Cyclohexane show positive deviation from ideal behaviour ?

2. How is Nitric acid prepared by Ostwald's Process ? Briefly express the various steps involved in it. Give its reaction with Zinc.

Or

Give the electronic configuration of the elements of Group 15. Why Nitrogen shows anomalous behaviour ? Explain with examples the various oxidation states of Nitrogen.

3. Explain the following :

- (a) Why transitional elements form coloured compounds ?
(b) Why transitional elements form complex compounds ?

Or

Define lanthanide contraction. What is its cause and what are its consequences ?

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HSEIRKN15
D-17-Z

4. How Acetone is prepared from :

- (i) Acid chloride
- (ii) Alkynes
- (iii) Calcium acetate ?

What happens when acetone is treated with (i) Sodium bisulphite
(ii) Grignards reagent ?

Or

How will you convert :

- (i) Benzoic acid into Benzoyl alcohol
- (ii) Benzoic acid into Benzoic anhydride
- (iii) Acetic acid into Propanoic acid
- (iv) Benzoic acid into Methyl benzoate
- (v) Formic acid into Oxalic acid ?

(Short Answer Type Questions)

3 each

- 5. Explain Frankel defect in ionic crystals.
- 6. State Kohlrausch's law.
- 7. What is Arrhenius Equation ? What is its importance ?
- 8. Give the points of difference between Absorption and Adsorption.
- 9. Define the following terms with examples :
 - (i) Coordination complex
 - (ii) Bidentate ligand
- 10. How chloroalkanes are prepared from alcohols and thionyl chloride ?
- 11. Describe the secondary structure of proteins.
- 12. How is Bakelite prepared ? Give its uses.

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HSEIIRKN15
D-17-Z

(Very Short Answer Type Questions)

2 each

13. What is a Fuel Cell ? Write the equation which occur at the electrode in a fuel cell.
14. How is activation energy affected by rise in temperature ?
15. How Blister Copper is obtained by Bessemerisation Process ?
16. Name any two oxo-acids of halogens and draw their structures.
17. How is phenol converted into 2-hydroxy benzaldehyde ?
18. Write the IUPAC names of the following compounds :
- (i) $\text{CH}_2 = \underset{\text{OH}}{\text{C}} - \text{CH}(\text{CH}_3)_2$
- (ii) $\text{CH}_3 - \underset{\text{CH}_2 - \text{OH}}{\text{C}} - \text{CH} = \text{CH}_2$
19. Write short note on Hofmann bromamide reaction.
20. What are antifertility drugs ? Give an example.

(Objective Type Questions)

1 each

21. (i) In bcc unit cell the total number of atoms per unit cell is <https://www.jkboseonline.com>
- (ii) Iron is mainly extracted from
- (iii) Acetamide on reduction in presence of LiAlH_4 it form

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HSEIIRKN1
D-17-

Turn Over

- (iv) Detergent has a nonpolar organic part and a polar group. (True/False)
- (v) In nucleic acid the nucleotides are linked with one another through peptide bond. (True/False)
- (vi) Formaldehyde when heated with caustic alkalies it form methyl alcohol and sodium formate. (True/False)
- (vii) Ammonia can be dried by :
- (a) Conc. H_2SO_4 (b) P_4O_{10}
(c) Anhydrous $CaCl_2$ (d) CaO
- (viii) Which will give carbylamine reaction ?
- (a) CH_3NH_2
(b) $C_2H_5NO_2$
(c) CH_3CONH_2
(d) $(CH_3)_2NH$
- (ix) The least basic among the following is :
- (a) NH_3
(b) $C_6H_5NH_2$
(c) $(C_6H_5)_2NH$
(d) $(C_6H_5)_3N$
- (x) Gold number is minimum in case of :
- (a) Gelatin
(b) Egg albumin
(c) Gum arabic
(d) Starch

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HSEIHKROXII

45018-A

CHEMISTRY

(Long Answer Type Questions)

1. Define osmotic pressure. Explain, how the molecular mass of a non-volatile solute is determined from it?

Or

Discuss Association and Dissociation.

2. How ozone is prepared? Give its three oxidising properties.

Or

Discuss how H_2SO_4 is manufactured by contact process.

3. Explain catalytic properties and formation of coloured ions by d-block elements.

Or

How $K_2Cr_2O_7$ is prepared ? Give its three oxidising properties

4. Give five methods of preparation of Aldehydes.

Or

Give five chemical properties of Carboxylic acids

(Short Answer Type Questions)

5. Explain electrical properties of solids.

6. How corrosion is prevented ?

7. Discuss the effect of temperature on rate of reaction

8. Explain zone refining.

9. Give three points of difference between Physical Adsorption and Chemical Adsorption

10. How carbon

11. Give the pr

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12. Give three chemical properties of HCl

(Very Short Answer Type Questions)

13. State Faraday's second law of electrolysis

14. Define Rate of chemical reaction.

15. Define Ionisation Isomerism Give an example

16. Give two chemical properties of chlorobenzene.

17. Why phenols are acidic ?

18. How amines are classified ?

19. Give two chemical properties of ethers

20. Name two Antihistamines

(Objective Type Questions)

21. (a) Fill in the blanks:

(i) The Insulators have conductivity.

(ii) Two types is Geometric Isomerism in co-ordination compounds are Cis and..... isomers. <https://www.jkboseonline.com>

(b) Tick marks the True/False statements given below:

(i) The formula of Iodoform is CHBr_3 . (True/False)

(ii) Chlorobenzene is an Arythylide.

(c) Give one word substitution to the following:

(i) In the manufacture of NH_3 Iron acts as.....

(ii) The chemical which is used to prevent the formation of Acid in the stomach is called as.....

(d) (i) Write the structure of pentan-2-one

(ii) Write the s

(e) Choose the answer-book.

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(i) The formula of Aniline is.

(a) CH_3NH_2 (b) $\text{C}_4\text{H}_5\text{NH}_2$ (c) $\text{C}_5\text{H}_5\text{NHNH}_2$ (d) $\text{C}_2\text{H}_5\text{CONH}_2$

(ii) Ethyl amine is:

(a) Primary amine

(b) Secondary amine

(c) Tertiary amine

(d) None of above

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HSE2KROXI

9318 - A

CHEMISTRY

(Long Answer Type Questions)

1. What is Vant Hoff factor? How does it help in determining the degree of dissociation and association of a solute in Solution ?

Or

State and explain Raoult's law. Why does a solution of ethanol and cyclohexane show positive deviation from ideal behaviour?

2. How is chlorine prepared from HCl? What happens when chlorine is treated with:

(i) Sulphur (ii) Slaked lime (iii) Hot alkalies (iv) Turpentine oil.

Or

Name the elements of group 16. Why are they called as chalogens? Explain why oxygen exhibits an oxidation state of -2 while the other members of this family show oxidation of +2, +4 and +6.

3. Name the elements of 3d series. Give their electronic Configuration. Explain, why transitional elements form variable oxidation states?

Or

How is $K_2Cr_2O_7$ obtained from chromite ore? What happens when $K_2Cr_2O_7$ reacts with: (i) Stannous chloride

(ii) Sodium sulphite

(iii) A chloride and conc H_2SO_4

How is acetic acid prepared from ethyl alcohol?

(i) Primary alcohol

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(ii) From nitriles

(iii) By the carbonation of Grignard's reagent.

4. Give the reaction of acetic acid with PCl_2 and chlorine in presence of phosphoric acid.

Or

Write short notes on:

(i) Perkins reaction

(ii) Canizzaro's reaction

(iii) Claisen reaction

(Short Answer Type Questions)

5. Explain with examples the dielectric properties of solids

6. Explain the mechanism of corrosion

7. Define rate of a reaction: Give its unit. What is the effect of catalyst on reaction rate?

8. Define Adsorption. Give the main characteristic of physical adsorption

9. Define the following terms with examples:

(i) Co-ordination complex

(ii) Bidentate ligand

10. starting from Bromoethane how will you get:

(a) Ethyl nitrite (b) Ethanamine (c) Ethane thiol

11. What are Vitamins ? Name the source and disease caused by vitamin B_6 .

12. Name the monomers of nylon-6. How nylon-6 is prepared?

(Very Short Answer Type Questions)

13. What is the

14. How is act

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15. Define the following terms (any two)

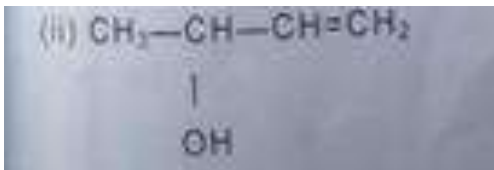
(i) Polling (i) Liqutation (ii) Leaching

16. How Xenon Hexa-fluoride is prepared ? Give its reaction with H₂O.

17. Define Tranquillizer? Give the structure of any tranquillizer

18. Give the I.U.P.A.C. names of:

(i) CH₃O-CH₂-CH₂-OCH₃



19. Starting from phenol how phenophthalein is obtained.

20. Give the Hinsbera's test by which three main types of amine can be identified.

21. (a) Fill in the blanks

(i) in h c.p. the co-ordination number is

(ii) Addition of HCN to a carbonyl compound is example of.....

(b) Tick mark the True/False statement given below:

(i) in nucleic acid the sequence is base-phosphate. Sugar. (True/False)

(ii) The Poisonous gas which can be prepared from chlorine gas is mustard gas.

(True/False)

(c) Give one word substitution to the following:

(i) Name the reagent which is used during leaching in order to dissolve the ore particles in Bauxite ore. <https://www.jkboseonline.com>

(ii) Name the sweetener which is 2000 times sweeter than sucrose

(d) (i) Write the structure of D.D.T

(ii) Write the s

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(e) Choose the correct/most appropriate answer given below against each and write it in your answer-book

(i) Milk can be preserved by adding a few drops of:

- (a) Formic acid solution
- (b) Formaldehyde solution
- (c) Acetic acid solution
- (d) Acetaldehyde solution

(ii) Which one of the following gives secondary amine on reduction?

- (a) Nitrobenzene
- (b) Methyl cyanide
- (c) Methylisocyanide
- (d) Nitroethane

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