



EXAMINATION MATERIAL OF ZUEB 2021-2022

GRADE: XII

SUBJECT: CHEMISTRY

SECTION # B SHORT ANSWER QUESTIONS

(INORGANIC CHEMISTRY)

CHAPTER # 01 PERIODICITY OF ELEMENT

TOPICS:	1.8 Types of elements based on electronic configuration
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1. Explain briefly the types of element on the basis of their valence shell electronic configuration.
2. Write the valence shell electronic configuration of the following groups:
 - Transition element
 - Representative element
3. Name the group, period and block of the following element by using electronic configuration.
 - $29X$
 - $30X^+$
 - $42X$
 - $38X^{+2}$

CHAPTER # 02 HYDROGEN

TOPICS:	2.4 Atomic hydrogen
	2.6 Isotopes of hydrogen

1. Write a short note on atomic hydrogen.
2. Define isotopes. Write the name of isotopes of hydrogen.

CHAPTER # 03 S – BLOCK ELEMENT

TOPICS:	3.1 Introduction
	3.2 Group trends in alkali and alkaline earth metals
	3.3 Chemical properties of s-block elements

1. Explain briefly the group trends of s-block element.
2. Write a short note on the chemical properties of S-block element.
3. Define the following
 - Ionization energy
 - Electronegativity
 - Hydration energy
 - Ionic radius
4. Give the scientific reason of the following
 - Alkali metals have largest covalent radii.
 - Sodium ion (Na^+) is smaller than sodium atom (Na).
 - Alkali metals are highly reactive.
 - Ionization energy decreases from **Li** to **Cs**.

CHAPTER # 04 P – BLOCK ELEMENT

TOPICS:	3.5 Introduction
	4.3 Metallurgy of metal
	4.10 Chlorine

1. Write the group trend of p-block element.
2. Write the name and chemical formula of any 5 ores of aluminum.
3. How bauxite purify into alumina if it contain Fe_2O_3 and SiO_2 as a major impurities.
4. How bauxite can be change into alumina by Bayer's **OR** Serpeck's process.
5. How chlorine can be prepared by Nelson's cell.
6. What is Thermite process? Explain briefly with the help of an equation.
7. Define Auto oxidation-reduction reaction with the equation of chlorine.

8. Refer the following table and answer the question that follows.

A	B	C	D
Al_2O_3	$\text{Al}(\text{OH})_3$	Hypochlorous	Aqua regia

- Give the chemical formula of ore by which **A** can be form.
- What happened when **B** heated at about 1500C° ?
- Write a chemical equation for the formation of **C**.
- What is the use of **D**.

9. What is aqua Regia? How gold can be dissolved in aqua regia?

10. Give equations for any **four** of the following.

- Action of Nitric acid on Benzene
- Reaction of aluminum with alkali metals.
- Thermal decomposition of aluminum hydroxide $\text{Al}(\text{OH})_3$.
- Aluminium is reacted with sodium hydroxide
- Nitric acid is treated with sodium hydroxide.

11. Give the refining of Aluminum by Hope's Electrolytic method.

CHAPTER # 05 D – BLOCK ELEMENT

TOPICS:	5.1 Introduction
	5.6 Copper Sulphate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$)
	5.7 Potassium Chromate (K_2CrO_4)
	5.10 Corrosion and its prevention
	5.12 Silvering of Mirrors
	5.13 Tin plating

- Write a short note on any one of the following.
 - copper sulphate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$)
 - Potassium chromate (K_2CrO_4)
 - Corrosion and its prevention
 - Silvering of mirror
 - Tin plating.
- Define ligand. Explain the classification of ligands.
- Make the structure of EDTA ligand.
- Write the IUPAC name of the following complex compound.
 - $[\text{Cu}(\text{H}_2\text{O})_2(\text{CN})_2]$
 - $\text{K}_2[\text{Cr}(\text{Cl})_6]$
 - $\text{K}_3[\text{Fe}(\text{CN})_6]$
 - $[\text{Cr}(\text{e.n.})_2 \text{H}_2\text{O Cl}] \text{SO}_4$
 - $[\text{Pt}(\text{NH}_3)_2 \text{Cl}_4]$
 - $[\text{Cu}(\text{C}_2\text{O}_4)_2]^{2-}$
 - $[\text{Co}(\text{NH}_3)_5 \text{SO}_4] \text{Br}$
 - $[\text{Co}(\text{en})_3] \text{Cl}_3$
 - $[\text{Fe}(\text{CN})_2 (\text{NH}_3)_2]$
- Write the name of any **four** ores of copper.

(ORGANIC CHEMISTRY)

CHAPTER # 06 INTRODUCTION TO ORGANIC CHEMISTRY

TOPICS:	6.1 Natural sources of organic compound
	6.4 Polymerization
	6.5 Classification of organic compounds or Types of organic compounds
	6.6 Homologous series
	6.8 Nomenclature

1. Write the classification of Organic compounds with examples.
2. Define natural sources of organic compound.
3. Write a short note on homologous series.
4. Define Polymerization. How many types of Polymerizations are there? Give the preparation of following
 - PVC
 - Bakelite
5. Write the structural formulas of the following.
 - 3-methyl hexane
 - 2,3,4-trimethyl heptane
 - 3-Heptene
 - 1,3-Pentadiyne
 - 2-methyl-1-butene
 - 3-ethyl-2-methyl pentane
6. Name the following compounds according to IUPAC systems.
 - $\text{CH}_2=\text{CH}-\text{C}\equiv\text{C}-\text{CH}=\text{CH}_2$
 - $(\text{C}_2\text{H}_5)_3\text{CBr}$
 - $\text{CH}_2=\text{CH}-\text{CHCl}-\text{CH}_2-\text{CH}(\text{CH}_3)-\text{C}\equiv\text{CH}$
 - $\text{CH}_2=\text{CH}-\text{C}\equiv\text{C}-\text{CH}=\text{CH}_2$
 - $\text{CH}_3-\text{CH}(\text{Br})-\text{CH}=\text{CH}_2$
 - $\text{CH}_2-(\text{CH}_2)_3-\text{CH}_2-\text{C}(\text{CH}_3)_3$

CHAPTER # 07 CHEMISTRY OF HYDROCARBONS

TOPICS:	7.1 Open chain and closed chain hydrocarbons
	7.3 Chemistry of Ethane
	7.4 Chemistry of Ethene
	7.5 Chemistry of Ethyne

1. Draw the orbital structure of Ethylene and give equations for the formation of the following from Ethene:
 - Mustard gas
 - Glycol
2. Draw and explain the orbital structure of Acetylene. Give two methods of its preparation.
3. Acetylene shows acidic properties? Give two reaction to justify this statement.
4. Draw and explain the orbital structure of Ethene.
5. Give equations for the following reactions:
 - Water with Ethyne
 - Ethanol with Grignard Reagent
 - Ethene with water
 - Methyl iodide with sodium metal
6. Differentiate between any **two** of the following:
 - Saturated **and** Unsaturated hydrocarbons.
 - Aliphatic hydrocarbon **and** Aromatic hydrocarbon
7. Write the oxidation reaction of the following
 - Ethene
 - Ethyne
 - Benzene

CHAPTER # 08 ALKYL HALIDES

TOPICS:	8.1 Classification of Alkyl Halides
	8.2 Nomenclature

1. Why do 1^o Alkyl halides give SN² mechanism while 3^o Alkyl halides give SN¹ mechanism?
2. Write the structural formulas of the following.
 - Isobutyl iodide
 - 2-bromo-3-methylbutane
 - 1-chloro-2-methylpentane
 - Ter-butyl iodide

CHAPTER # 09 OXYGEN CONTAINING FUNCTIONAL GROUP

TOPICS:	9.1 Alcohols
	9.2 Phenols
	9.3 Aldehydes and Ketones
	9.4 Carboxylic Acids

1. What are Mono-hydric alcohols? How they are classified?
2. Give two preparation of dimethyl ketone?
3. What are Phenols? Write it's any two preparation.
4. Define alcohol. Write its classification with an examples.
5. Define wood spirit. Describe its industrial preparation.
6. What happened when,
 - Ethanol gas react with sodium metal
 - Ethanol react with thionyl chloride
 - Phenol with conc. nitric acid
 - Phenol with conc. sulphuric acid at 15C°.
 - Phenol with Zn dust
7. Name the following compounds according to IUPAC systems.
 - CH₃-CH(OH)-CH=CH₂
 - CH₃-CH₂-CH(OH)-CH₂-COOH
 - CH₃-CH₂-CHO-CH₂-COOH
 - CH₃-C(CH₃)₂-COCH(CH₃)₂
 - CH₃-CO-CCl₃
 - C₂H₅-(CH₂)₃-COCH(CH₃)₂

CHAPTER # 10 CHEMISTRY OF LIFE

TOPICS:	9.5 Definition and Introduction
	10.7 Enzymes

1. What are Enzymes? Explain the various factors which influence the rate of enzymes action.
2. Write the basic introduction of biochemistry.

CHAPTER # 11 CHEMICAL INDUSTRY

TOPICS:	11.1 Fertilizer
	11.3 Glass
	11.5 Plastics

1. What is Fertilizer? Give its types. Explain phosphatic fertilizers.
2. What is Fertilizer? Name two nitrogenous and one phosphates fertilizer along with their methods of preparation.
3. Write a short note on anyone of the following.
 - Glass
 - Plastics