



Class: XII

Time Allowed: 20 minutes

Q1:

SECTION "A"

Marks: 16

Note: Attempt all questions from this section. Each question carries **ONE** mark.

- Which of the following alcohols has the highest boiling point?
A. Ethyl B. N-pentyl C. Iso-pentyl D. Neo-pentyl
- The main objective of green chemistry is to:
A. Maximize industrial production B. Minimize waste generation
C. Reduce energy consumption D. Develop environmentally friendly chemicals
- Catechol and resorcinol are examples of:
A. Chain isomers B. Position isomers C. Metamers D. Functional group isomers
- The region of the atmosphere that extends from 11 km to 50 km above the Earth's surface is known as:
A. Troposphere B. Stratosphere C. Mesosphere D. Thermosphere
- All elements corrode except:
A. Iron B. Copper C. Zinc D. Gold
- The IUPAC name of isopropyl alcohol is:
A. 1-Propanol B. 2-Propanol C. 1-Butanol D. 2-Butanol
- Alkanes are also known as:
A. Olefins B. Paraffins C. Proteins D. Acetylene
- The chemical commonly used in fireworks is:
A. Sodium bicarbonate B. Bleaching powder C. Potassium nitrate D. Potash alum
- The pH of acid rain is:
A. Between 7 and 8 B. Between 6 and 7 C. Below 5 D. Above 8
- The meta-directing group among the following is:
A. -OH B. -NH₂ C. -CH₃ D. -NO₂
- Which of the following is a trihydric phenol?
A. Resorcinol B. Cresol C. Pyrogallol D. Catechol
- The number of five-membered and six-membered rings in a C₆₀ Buckyball is:
A. 12 and 12 B. 5 and 15 C. 12 and 20 D. 40 and 20
- The number of alpha amino acids is:
A. 19 B. 22 C. 25 D. 28
- The chief constituent of natural gas is:
A. CH₄ B. C₂H₆ C. C₃H₈ D. C₄H₁₀
- The oxidation of manganese in air results in the following oxide:
A. MnO B. MnO₃ C. Mn₂O₃ D. Mn₃O₄
- The most reactive molecule towards nucleophilic addition among the following is:
A. Formaldehyde B. Acetaldehyde C. Diethyl ketone D. Acetophenone
- What is the general formula of an ether?
A. R-OH B. R-COOH C. R-O-R' D. R-NH₂

(Practical Based Assessment)

Marks: 16

Q2: Attempt **ALL** questions.

- The oxide of which element acts as an acidic oxide?
A. Sodium oxide (Na₂O) B. Magnesium oxide (MgO) C. Sulfur dioxide (SO₂) D. Calcium oxide (CaO)
- The flame colour produced by potassium salts during a flame test is:
A. Red B. Yellow C. Lilac (light purple) D. Green
- Which of the following transition metals is commonly used as a catalyst in the Haber process?
A. Iron (Fe) B. Copper (Cu) C. Zinc (Zn) D. Silver (Ag)
- Which of the following hydrocarbons is saturated?
A. Ethene (C₂H₄) B. Ethyne (C₂H₂) C. Ethane (C₂H₆) D. Benzene (C₆H₆)
- What type of bond is formed between the nitrogen and hydrogen atoms in an amine?
A. Ionic bond B. Covalent bond C. Hydrogen bond D. Metallic bond
- Which reagent is commonly used to test for the presence of aldehydes?
A. Tollen's reagent B. Fehling's solution C. Both A and B D. Bromine water
- What is the product when an aldehyde is oxidized?
A. Alcohol B. Carboxylic acid C. Ketone D. Alkane
- Which of the following is an example of a secondary amine?
A. Methylamine (CH₃NH₂) B. Dimethylamine ((CH₃)₂NH) C. Trimethylamine ((CH₃)₃N) D. Ammonia (NH₃)
- What type of reaction occurs when a carboxylic acid reacts with an alcohol in the presence of an acid catalyst?
A. Esterification B. Hydrolysis C. Reduction D. Substitution

27. Which reagent is commonly used to test the acidic nature of carboxylic acids?
A. Sodium bicarbonate (NaHCO_3) B. Sodium hydroxide (NaOH) C. Tollen's reagent D. Bromine water
28. What is the product when ethanol undergoes combustion?
A. Water and carbon dioxide B. Water and carbon monoxide C. Carbon and hydrogen D. Ethene and water
29. Which reagent is commonly used to oxidize primary alcohols to aldehydes?
A. PCC (Pyridinium chlorochromate) B. NaBH_4 C. LiAlH_4 D. Tollen's reagent
30. Which biomolecule is the main source of energy in living organisms?
A. Proteins B. Carbohydrates C. Lipids D. Nucleic acids
31. What type of bond links amino acids in a protein?
A. Hydrogen bond B. Peptide bond C. Ionic bond D. Glycosidic bond
32. Which vitamin is essential for blood clotting?
A. Vitamin A B. Vitamin C C. Vitamin K D. Vitamin D

END OF SECTION A



Class: XII

Time: 2 hours 40 minutes

MODEL PAPER EXAMINATION 2026

SUBJECT: CHEMISTRY SECTION "B" AND SECTION "C"

SECTION "B" SHORT ANSWER QUESTIONS

Total Marks 68

36 Marks

Q3:
Note: Answer and **NINE** Part question. Select **FOUR**-part question from inorganic-General Chemistry and Five questions from Organic Chemistry. All question Carry equal marks.

INORGANIC – GENERAL CHEMISTRY

- i. Discuss the group trend of ionization energy in Group IIIA of the periodic table.
- ii. Explain why:
 - a. the boiling points of halogens increase as you move down the group in the periodic table.
 - b. the binding energy of zinc is the least in the 3d series.
 - c. the acidity of hydrogen halides increases from HF to HI.
 - d. transition elements exhibit variable oxidation states.
- iii. Explain the four fundamental methods for testing wastewater.
- iv. What is a flame test? Mention the flame colors of alkali metals.
- v. Write the balanced equations for the following reactions:
 - a. Reaction of dichromate with ferrous sulfate
 - b. Reaction of sodium hydroxide with chlorine
 - c. Reaction involving bleaching powder
- vi. Write down any three physical properties of bleaching powder.
- vii. What is meant by the diagonal relationship? Mention three pairs of representative elements that exhibit this relationship.

ORGANIC CHEMISTRY

- viii. Convert the following:

A. Methyl magnesium bromide into acetone	C. Ethyl chloride into ethyl amine
B. Ethyl chloride into ethyl alcohol	D. Ethylamine into imine
- ix. Write four essential functions of proteins in the body.
- x. What is vital force theory? Why was it disapproved?
- xi. Define the molecular orbital structure of benzene.
- xii. Write down the basic rules for IUPAC naming of organic compounds.
- xiii. Mention four functions of lipids.
- xiv. Define the following terms:

A. Catenation	B. Isomerism
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SECTION "C" DETAILED ANSWER QUESTIONS

32 Marks

Note: Attempt and Two questions, one question from Inorganic – General Chemistry and the other from Organic Chemistry. Both questions carry equal marks. Your answer should not exceed 30 - 40 lines.

INORGANIC – GENERAL CHEMISTRY

- Q4.**
- a) Discuss the group trends of atomic radii, ionization energy, and electronegativity for alkali metals.
 - b) Analyze the chemical reactions caused by the presence of nitrogen and sulfur oxides in the troposphere.
- Q5.**
- a) Describe the process of obtaining 99.99% pure copper from chalcopyrite ore.
 - b) Define binding energy. Explain the trend of binding energy across the 3d series of transition elements.

ORGANIC CHEMISTRY

- Q6.**
- a) What are organometallic compounds? How is Grignard reagent prepared?
 - b) Outline the structure of each of the following:

i) 3,3-Dimethyl-1,4-pentadiyne	ii) α, β -dimethyl butyric acid	iii) Picric acid	iv) Butanoyl iodide
v) 3-Buten-1-ol	vi) α -Methylbutyraldehyde	vii) 2,3,5-Trimethylhexane	viii) Methylphenol

- Q7.**
- a) Describe the molecular orbital structure of benzene.
 - b) Write the equations for the following possible conversions:

i) Ethyl alcohol to diethyl ether	ii) Phenol to benzoquinone	iii) Ethyl bromide to ethanol
iv) 2°- alcohol to carboxylic acid		

END OF PAPER