ZIAUDDIN UNIVERSITY EXAMINATION BOARD

Total Time 3 hours
Total Marks: 100

Class: XII **MODEL PAPER EXAMINATION 2026**
Time Allowed: 20 minutes **SUBJECT: CHEMISTRY**
Q1: **SECTION "A"** **Marks: 16**

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

1. Which of the following alcohols has the highest boiling point?
   A. Ethyl B. N-pentyl C. Iso-pentyl D. Neo-pentyl
2. 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
3. Catechol and resorcinol are examples of:
   A. Chain isomers B. Position isomers C. Metamers D. Functional group isomers
4. 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
5. All elements corrode except:
   A. Iron B. Copper C. Zinc D. Gold
6. The IUPAC name of isopropyl alcohol is:
   A. 1-Propanol B. 2-Propanol C. 1-Butanol D. 2-Butanol
7. Alkanes are also known as:
   A. Olefins B. Paraffins C. Proteins D. Acetylene
8. The chemical commonly used in fireworks is:
   A. Sodium bicarbonate B. Bleaching powder C. Potassium nitrate D. Potash alum
9. The pH of acid rain is:
   A. Between 7 and 8 B. Between 6 and 7 C. Below 5 D. Above 8
10. The meta-directing group among the following is:
    A. -OH B. -NH2 C. -CH3 D. -NO2
11. Which of the following is a trihydric phenol?
    A. Resorcinol B. Cresol C. Pyrogallol D. Catechol
12. 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
13. The number of alpha amino acids is:
    A. 19 B. 22 C. 25 D. 28
14. The chief constituent of natural gas is:
    A. CH_4 B. C_2H_6 C. C_3H_8 D. C_4H_{10}
15. The oxidation of manganese in air results in the following oxide:
    A. MnO B. MnO_3 C. Mn_2O_3 D. Mn_3O_4
16. The most reactive molecule towards nucleophilic addition among the following is:
    A. Formaldehyde B. Acetaldehyde C. Diethyl ketone D. Acetophenone

(Practical Based Assessment) **Marks: 16**

Q2: Attempt **ALL** questions.

1. Hira is comparing the reactivity of halogens in her chemistry notebook. She finds that chlorine can displace bromine and iodine from their respective salts, but iodine cannot displace chlorine or bromine.
   A. Arrange Cl_2, Br_2, and I_2 in order of oxidizing strength. [1 mark]
   B. Explain why halogens act as oxidizing agents. [2 marks]
   C. Why is iodine a weaker oxidizing agent than chlorine? [2 marks]
2. Amaan's father is a mechanic who explains the benefits of using alloys. He mentions brass, stainless steel, and duralumin.
   A. Name the constituent metals of any two of the above alloys. [2 marks]
   B. State one use of each alloy in daily life. [2 marks]
   C. Explain any two advantages of using alloys over pure metals. [2 marks]
3. In a water testing lab, a student uses Mohr's method to test chloride levels in tap water using silver nitrate and potassium chromate.

A. Write the balanced chemical reaction between chloride ions and silver nitrate. [1 mark]
B. What color change indicates the endpoint of this titration? [1 mark]
C. If 25 mL of tap water requires 20 mL of 0.1 M $AgNO_3$, calculate the concentration of Cl^- ions in the sample. [3 marks]

END OF SECTION A

ZIAUDDIN UNIVERSITY
EXAMINATION BOARD

Class: XII **MODEL PAPER EXAMINATION 2026**
Time: 2 hours 40 minutes **SUBJECT: CHEMISTRY SECTION "B" AND SECTION "C"** **Total Marks 68**
SECTION "B" SHORT ANSWER QUESTIONS **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
   C. 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

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 – GENRAL 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