



Indian School Al Wadi Al Kabir

Unit Test (2026-2027)

Sub: CHEMISTRY (043)

Class: XII

Date: 17/05/2026

SET I

Max. Marks: 30

Time: 1 Hour

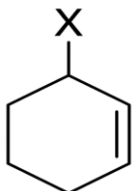
General Instructions

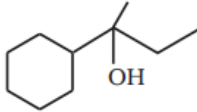
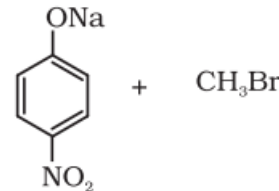
Read the following instructions carefully:

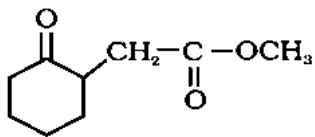
1. There are 15 questions in this question paper with internal choice.
2. SECTION A consists of 6 multiple-choice questions and 2 assertion and reasoning questions carrying 1 mark each.
3. SECTION B consists of 2 very short answer questions carrying 2 marks each.
4. SECTION C consists of 3 short-answer questions carrying 3 marks each.
5. SECTION D consists of 1 case-based question carrying 4 marks.
6. SECTION E consists of 1 long answer question carrying 5 marks.
7. All questions are compulsory.
8. Use of log tables and calculators is not allowed

Section-A

Question 1 to 8 are multiple-choice questions. Only one of the choices is correct. Select and write the correct choice as well as the answer to these questions.

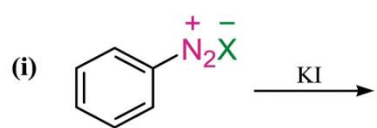
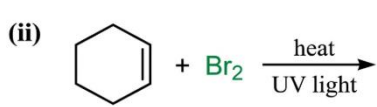
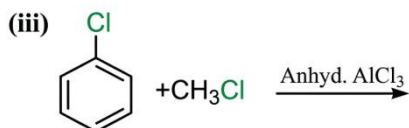
1	<p>Which of the following best describes the type of halide represented by the molecule where X is a halogen atom?</p>  <p>A) Vinylic halide B) Allylic halide C) Benzylic halide D) Aryl halide</p>	1
2	<p>Freon-12 (CCl_2F_2), a widely used industrial refrigerant, is manufactured from tetrachloromethane (CCl_4) through which of the following processes?</p>	1

	A) Swarts Reaction B) Finkelstein Reaction C) Wurtz Reaction D) Sandmeyer Reaction	
3	What is the correct IUPAC name for the organic compound shown? $\begin{array}{ccccccc} & & & \text{CH}_2\text{OH} & & & \\ & & & & & & \\ \text{CH}_3 & - & \text{CH}_2 & - & \text{CH} & - & \text{CH} & - & \text{CH} & - & \text{CH}_3 \\ & & & & & & \\ & & & \text{CH}_2\text{Cl} & & \text{CH}_3 & \end{array}$ A) 2-Isopropyl-3-(chloromethyl)pentan-1-ol B) 3-(Chloromethyl)-2-isopropylpentan-1-ol C) 2-Ethyl-3-(chloromethyl)-4-methylpentan-1-ol D) 4-Chloro-3-ethyl-2-(1-methylethyl)-butan-1-ol	1
4	How many possible alkenes can be formed by the acid-catalyzed dehydration (β -elimination) of the compound shown?  A) 2 B) 3 C) 4 D) 5	1
5	What is the IUPAC name of the major organic product formed?  A) 1-Methoxy-4-nitrobenzene B) 1-methyloxy-4-nitrobenzene C) 4-Nitrobenzoic acid D) Methoxynitrobenzene	1
6	Predict the products of the following reaction: $(\text{CH}_3)_3\text{C} - \text{OC}_2\text{H}_5 \xrightarrow{\text{HI}} \text{A} + \text{B}$	1

	<p>A) 2-Iodo-2-methylpropane and Iodoethane B) 2-Iodo-2-methylpropane and Ethanol C) 1-Iodobutane and Ethanol D) 2-Methylpropan-2-ol and Iodoethane</p>	
7	<p>Assertion(A): The boiling point of o-nitrophenol is significantly lower than that of its isomer, p-nitrophenol. Reason(R): o-Nitrophenol molecules are linked together by strong intermolecular hydrogen bonding, requiring more energy to separate them. Select the most appropriate answer from the options given below: A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, and R is not the correct explanation of A. C. A is true, but R is false. D. A is false, but R is true</p>	1
8	<p>Assertion(A): Para-isomers have a higher melting point compared to the ortho and meta isomers of Dihalobenzenes. Reason(R): Para-isomers have greater symmetry, which allows them to fit better into the crystal lattice compared to ortho- and meta-isomers. Select the most appropriate answer from the options given below: A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, and R is not the correct explanation of A. C. A is true, but R is false. D. A is false, but R is true</p>	1
Section-B		
Question No. 9 to 10 are very short answer questions carrying 2 marks each.		
9	Explain the steps involved in the S _N 1 mechanism.	2
10	<p>a. Explain the variation in Methanol, Phenol and Methoxymethane based on (i) Bond angle, (ii) Hybridisation OR b. Complete the following:</p> <p>(i)  $\xrightarrow{\text{NaBH}_4}$</p> <p>(ii) $\text{CH}_3-\text{CH}_2-\underset{\text{CH}_3}{\text{CH}}-\text{CHO} \xrightarrow{\text{NaBH}_4}$</p>	2

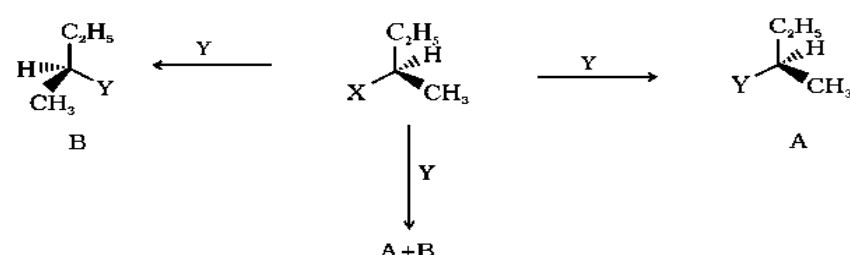
Section-C

Question No. 11 to 13 are short-answer questions, carrying 3 marks each.

11	<p>Complete the following reactions.</p> <p>(i)  (ii)  (iii) </p>	3
12	<p>Explain the mechanism involved in the formation of Ethoxyethane from Ethanol in the presence of conc. Sulphuric acid at 413K.</p> <p style="text-align: center;">OR</p> <p>Explain the mechanism involved in the dehydration of Ethanol to form Ethene in the presence of conc. Sulphuric acid at 443K.</p>	3
13	<p>Convert the following.</p> <p>(i) 1-Bromopropane to 2-bromopropane (ii) 2-Chlorobutane to 3, 4-dimethylhexane (iii) Toluene to benzyl alcohol</p>	3

Section D

Question No. 14 is a case-based/data -based question carrying 4 marks.

14	<p>Case Study: Stereochemical Pathways in Nucleophilic Substitution</p> <p>A student is investigating the reaction of a chiral secondary alkyl halide with a nucleophile Y. Depending on the reaction conditions (solvent, concentration, and temperature), the student observes three distinct stereochemical outcomes labelled as A, B, and A+B, as shown in the image below:</p> <div style="text-align: center; margin: 10px 0;">  </div>	4
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	<p>a. What type of stereochemical outcome is observed during the formation of product A?</p> <p>b. What type of stereochemical outcome is observed during the formation of product B?</p> <p>c. In an experiment carried out using a polar protic solvent, the student obtains a 50:50 mixture of products A and B. What is this process called, and what is the name of the mixture formed?</p> <p>d. Define the term asymmetric carbon.</p>	
Section-E		
Question No. 15 is a long-answer type question carrying 5 marks.		
15	<p>a. Perform the following conversions</p> <p>(i) Phenol to Picric acid</p> <p>(ii) Phenol to Benzene</p> <p>(iii) Phenol to Benzoquinone</p> <p>b. Write short notes on Kolbe's reaction.</p> <p style="text-align: center;">OR</p> <p>A. (i) Friedel-Crafts reaction – alkylation of anisole. (ii) Nitration of anisole. (iii) Bromination of anisole in ethanoic acid medium.</p> <p>B. Write short notes on Acetylation of salicylic acid to produce aspirin. Support the answer with a suitable chemical equation.</p>	5

All the best