Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Optical isomerism

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Name of the Student:_____
Max. Marks : 21 Marks **Time : 21 Minutes**

Q1.

This question is about isomerism.

(a) How many isomers are represented by the formula C_5H_{12}?

Tick (✓) **one** box.

2 ☐ 3 ☐ 4 ☐ 5 ☐

(1)

(b) Name the type of structural isomerism shown by the isomers of C_5H_{12}

_____

(1)

(c) 2-Hydroxypropanenitrile displays optical isomerism.

Draw three-dimensional representations of the two enantiomers of 2-hydroxypropanenitrile, showing how the two structures are related to each other.

(2)

(d) Describe how separate samples of each of these enantiomers could be distinguished.

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(2)

(e) Butan-2-ol reacts with concentrated sulfuric acid to produce three isomeric alkenes.

Name and outline a mechanism to show how any **one** of the alkenes is formed.

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Explain how this reaction can lead to the formation of each of these **three** alkenes.

Name of mechanism _____

Mechanism

Explanation _____

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(8)

(Total 14 marks)

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Q2.

Butanone is reduced in a two-step reaction using $NaBH_4$ followed by dilute hydrochloric acid.

(a) Write an overall equation for the reduction of butanone using [H] to represent the reductant.

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(1)

(b) By considering the mechanism of the reaction, explain why the product has **no** effect on plane polarised light.

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(6)

(Total 7 marks)

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