Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Aldehydes & ketones

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Name of the Student:_____
Max. Marks :25 Marks **Time :25 Minutes**

Q1.

Chemists have to design synthetic routes to convert one organic compound into another.

Propanone can be converted into 2-bromopropane by a three-step synthesis.

Step 1: propanone is reduced to compound **L**.
Step 2: compound **L** is converted into compound **M**.
Step 3: compound **M** reacts to form 2-bromopropane.

Deduce the structure of compounds **L** and **M**.

For each of the three steps, suggest a reagent that could be used and name the mechanism.

Equations and curly arrow mechanisms are **not** required.

(Total 8 marks)

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Q2.

Each of the following conversions involves reduction of the starting material.

(a) Consider the following conversion.



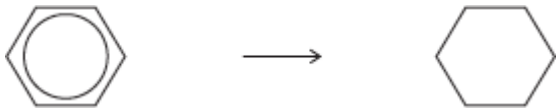
Identify a reducing agent for this conversion.

Write a balanced equation for the reaction using molecular formulae for the nitrogen-containing compounds and [H] for the reducing agent.

Draw the repeating unit of the polymer formed by the product of this reaction with benzene-1,4-dicarboxylic acid.

(5)

(b) Consider the following conversion.



Identify a reducing agent for this conversion.

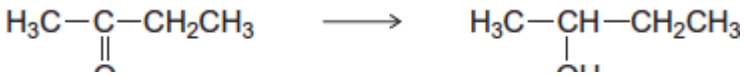
State the empirical formula of the product.

State the bond angle between the carbon atoms in the starting material and the bond angle between the carbon atoms in the product.

(4)

(c) The reducing agent in the following conversion is $NaBH_4$

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(i) Name and outline a mechanism for the reaction.

Name of mechanism _____

Mechanism

(5)

(ii) By considering the mechanism of this reaction, explain why the product formed is optically inactive.

_____

_____

_____

_____

_____

_____

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_____

(3)

(Total 17 marks)

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