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

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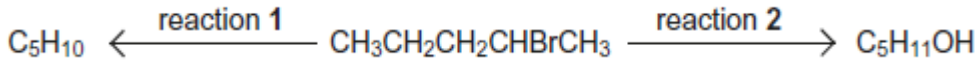
Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Q1.

Two reactions of 2-bromopentane, ($CH_3CH_2CH_2CHBrCH_3$) are shown.



The C_5H_{10} formed in reaction **1** exists as a mixture of three isomers, one of which is pent-1-ene. Two of the isomers are a pair of stereoisomers. All three isomers decolourise bromine.

(a) The same reagent is used in both reactions. The product is determined by the choice of conditions.

State the reagent and the conditions for each of reaction **1** and reaction **2**.

State the role of the reagent in each reaction.

Name and outline the mechanism of reaction **1** for the formation of pent-1-ene.

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(8)

(b) All three isomers of C_5H_{10} contain the same functional group.

Draw the displayed formula of pent-1-ene.

Draw the structures of the pair of stereoisomers and give their full IUPAC names.

Explain the origin of the stereoisomerism shown.

(5)

(c) The rates of hydrolysis of two chloroalkanes can be investigated by adding aqueous silver nitrate to the chloroalkanes. During the hydrolysis reactions, chloride ions are liberated slowly. Precipitates of silver chloride are formed.

Outline a method to compare the rate of hydrolysis of 1-chlorobutane with that of 2-chlorobutane. State how the method would ensure a fair test.

(4)

(Total 17 marks)