



CHEMISTRY ONLINE
— **TUITION** —

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CHEMISTRY

ORGANIC CHEMISTRY

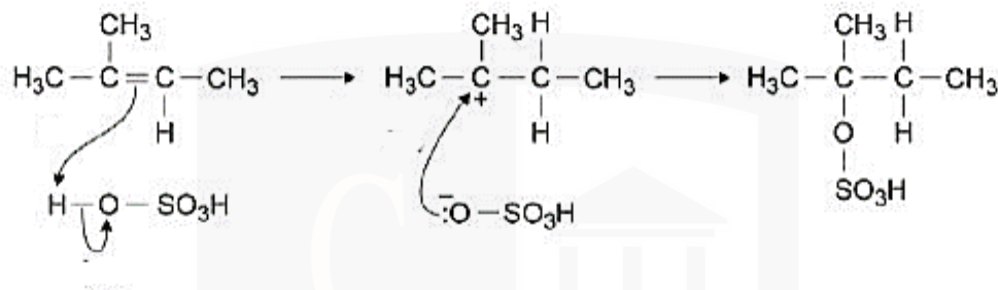
Level & Board	AQA (A-LEVEL)
TOPIC:	ALKENES
PAPER TYPE:	SOLUTION - 2
TOTAL QUESTIONS	10
TOTAL MARKS	35

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Alkenes - 2

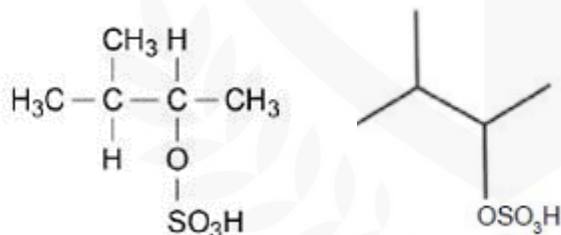
1.

(a)

Mechanism:

(4)

(b)

Minor product:

(1)

(c)

Explanation: (for the two products formation in different amounts)

The formation of different amounts of products in a chemical reaction is due to the stability of carbocation intermediates.

The major product forms through a tertiary carbocation, which is more stable with three alkyl groups.

The minor product forms via a less stable secondary carbocation with two alkyl groups.

Stability of carbocations determines the pathway, leading to the observed difference in product amounts.

(2)

2. D

(1)

3.

(a)

Reagent: Hydrochloric acid (HCl)

Observations:

Aqueous Silver Nitrate (AgNO₃):

- Add hydrochloric acid (HCl) to AgNO₃.
- **Observation:** A white precipitate of silver chloride (AgCl) will form.
- **Equation:** $\text{AgNO}_3 + \text{HCl} \rightarrow \text{AgCl} \downarrow + \text{HNO}_3$

Aqueous Sodium Nitrate (NaNO₃):

- Add hydrochloric acid (HCl) to NaNO₃.
- **Observation:** No precipitate is formed.

(3)

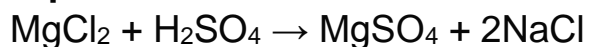
(b)

Reagent: soluble sulfate /dilute sulfuric acid

Observations:

Aqueous Magnesium Chloride (MgCl₂):

- Add any soluble sulfate or dilute sulfuric acid to MgCl₂.
- **Observation:** Remains clear or no observed change.
- **Equation:**

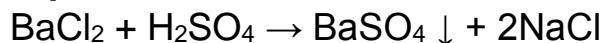


Aqueous Barium Chloride (BaCl₂):

- Add any soluble sulfate or dilute sulfuric acid to BaCl₂.

- **Observation:** White precipitate or white suspension forms.

- **Equation:**



(3)

4. D

(1)

5.

(a)

The conversion of chloroethene into poly(chloroethene) can be represented as:



(3)

(b)

Observation:

No reaction; bromine water remains yellow-orange.

Explanation:

The polymer is saturated, indicating the absence of double bonds.

(2)

(c)

Molecular formula: $\text{C}_{24}\text{H}_{38}\text{O}_4$

A plasticiser is added to PVC because **plasticiser makes it more flexible.**

(2)

6. D

(1)

7.

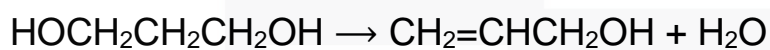
(a)

Name of the mechanism: Nucleophilic substitution

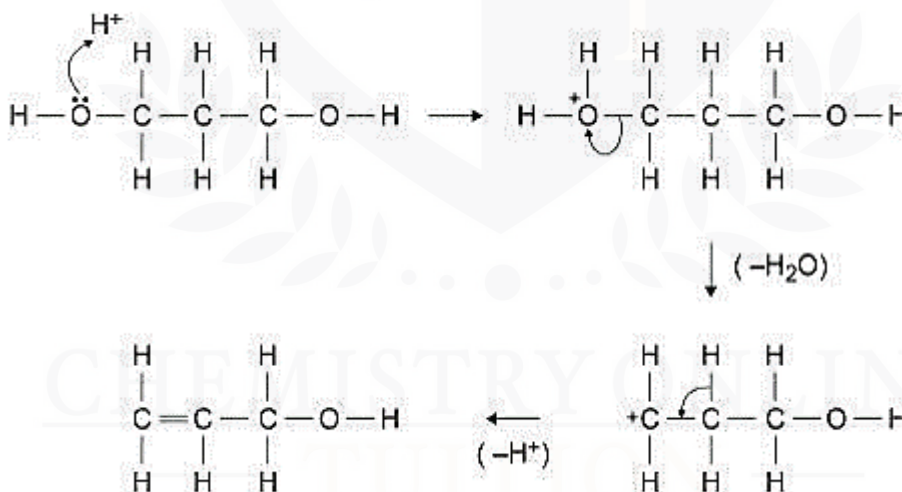
(1)

(b)

Name: Elimination



Mechanism:

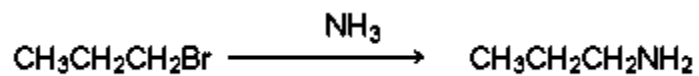
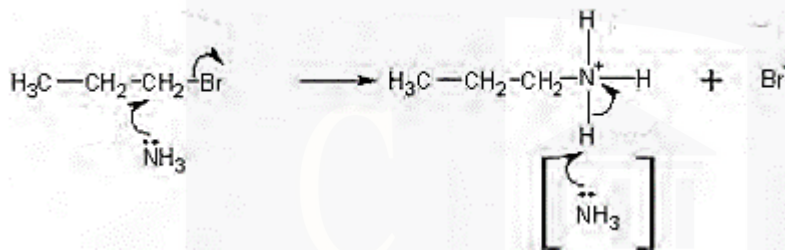


(4)

8. B

(1)

9.

**Name:** Nucleophilic substitution ($\text{S}_{\text{N}}1$)**Mechanism:**

(5)

10. A

(1)

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I am Sorry !!!!!



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- Founder & CEO of Chemistry Online Tuition Ltd.
- Completed Medicine (M.B.B.S) in 2007
- Tutoring students in UK and worldwide since 2008
- CIE & EDEXCEL Examiner since 2015
- Chemistry, Physics, Math's and Biology Tutor

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