

20.1 Types of Organic Reactions

Question Paper

Course	DPIB Chemistry
Section	20. Organic Chemistry (HL only)
Topic	20.1 Types of Organic Reactions
Difficulty	Hard

Time allowed: 10
Score: /5
Percentage: /100

Question 1

Which molecule can react with both sodium borohydride, NaBH_4 , and warm acidified potassium dichromate(VI)?

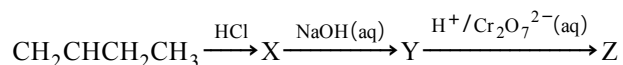
- A. $\text{CH}_3\text{CHOHCH}_3$
- B. $\text{CH}_3\text{C}(\text{CH}_3)_2\text{CHO}$
- C. $(\text{CH}_3)_3\text{COH}$
- D. $\text{CH}_3\text{C}(\text{CH}_3)_2\text{CH}_2\text{OH}$

[1 mark]

Question 2

But-1-ene is reacted first with hydrogen chloride to produce X, which is then reacted with aqueous sodium hydroxide to give Y.

Finally, Y is reacted with excess acidified potassium dichromate solution.



What is the major product, Z?

- A. $\text{CH}_3(\text{CH}_2)_2\text{CH}_2\text{OH}$
- B. $\text{CH}_3\text{COCH}_2\text{CH}_3$
- C. $\text{CHOCH}_2\text{CH}_2\text{CH}_3$
- D. $\text{CH}_3(\text{CH}_2)_3\text{COOH}$

[1 mark]

Question 3

Which halogenoalkane will react fastest with a 0.1 mol dm^{-3} solution of aqueous sodium hydroxide?

- A. 2-bromo-2-methylpropane
- B. 2-iodo-2-methylpropane
- C. 1-bromobutane
- D. 1-iodobutane

[1 mark]

Question 4

Which statement is correct about the major reaction between 1-bromobutane, $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{Br}$, and dilute sodium hydroxide solution, $\text{NaOH}(\text{aq})$?

- A. The rate equation is second order.
- B. The hydroxide ion acts as a Brønsted-Lowry acid.
- C. The reaction has two distinct steps.
- D. Water is a product.

[1 mark]

Question 5

Which of the following would not be a product of the reaction of pent-1-ene with HCl ?

- A. $\text{CH}_2\text{ClCHClCH}_2\text{CH}_2\text{CH}_3$
- B. $\text{CHClCH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
- C. $\text{CH}_3\text{CH}_2\text{CHClCH}_2\text{CH}_3$
- D. $\text{CH}_3(\text{CH}_2)_2\text{CHClCH}_3$

[1 mark]