

# Alcohols

## Question Paper

Level	O Level
Subject	Chemistry
Exam Board	Cambridge International Examinations
Topic	Organic Chemistry
Sub-Topic	Alcohols
Booklet	Question Paper

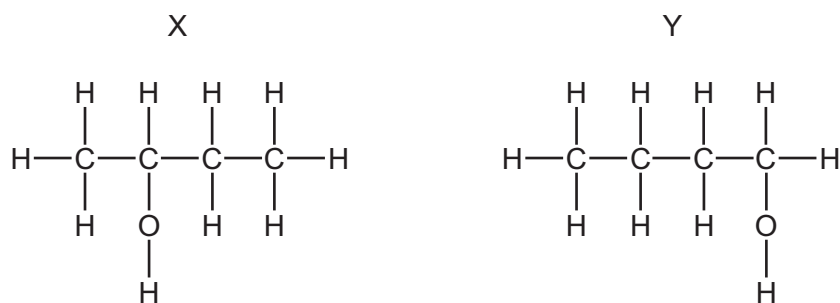
**Time Allowed:** 17 minutes

**Score:** /14

**Percentage:** /100

1 Which statements about alcohols are correct?

- 1 All alcohols contain the hydroxide ion,  $\text{OH}^-$ .
- 2 Ethanol can be formed from ethene using a reaction catalysed by yeast.
- 3 Methanol can be oxidised to methanoic acid.
- 4 The alcohols X and Y shown are isomers.

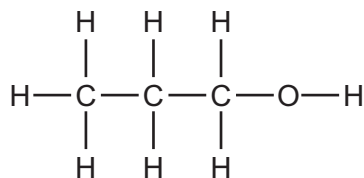


- A** 1 and 2      **B** 1 and 3      **C** 2 and 4      **D** 3 and 4

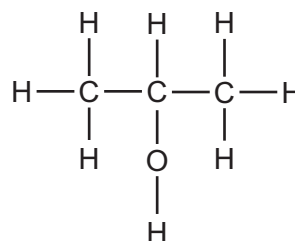
2 Which alcohol will, on oxidation, produce  $\text{CH}_3\text{CH}_2\text{CO}_2\text{H}$ ?

- A**  $\text{CH}_3\text{OH}$   
**B**  $\text{CH}_3\text{CH}_2\text{OH}$   
**C**  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$   
**D**  $\text{HOCH}_2\text{CH}_2\text{CH}_2\text{OH}$

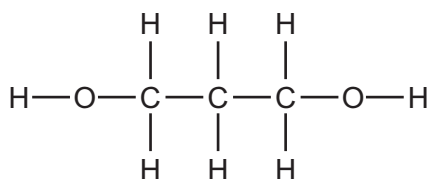
3 The structural formulae of some organic compounds are shown below.



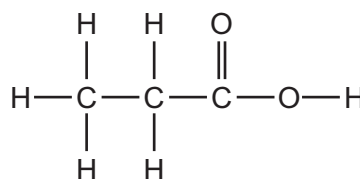
1



2



3



4

Which compounds are alcohols?

- A 1 only
- B 1 and 2 only
- C 1, 2 and 3 only
- D 4

4 Which information is correct regarding the formation of ethanol by the process of fermentation?

	substances fermented	gas evolved during fermentation
A	carbohydrates	carbon dioxide
B	carbohydrates	carbon monoxide
C	hydrocarbons	carbon dioxide
D	hydrocarbons	carbon monoxide

5 The boiling points of the alcohols increase as their relative molecular mass increases.

Which alcohol has the highest boiling point?

- A butanol
- B ethanol
- C methanol
- D propanol

6 The list shows three chemical reactions.

- 1 combustion of ethanol
- 2 fermentation of glucose
- 3 reaction of ethanol with ethanoic acid to give an ester

In which reactions is water a product?

- A 1 and 2 only    B 1 and 3 only    C 2 and 3 only    D 1, 2 and 3

7 Which substances will burn in air and give carbon dioxide amongst the combustion products?

- 1 calcium carbonate
- 2 ethane
- 3 ethanol
- 4 methanol

- A 1 and 2 only    B 2 and 3 only    C 1, 2 and 3 only    D 2, 3 and 4 only

8 An organic compound has an empirical formula  $C_2H_4O$ .

What is the compound?

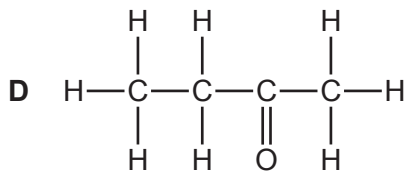
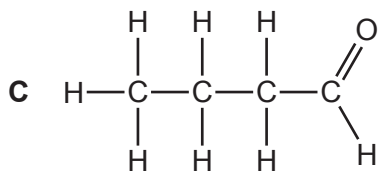
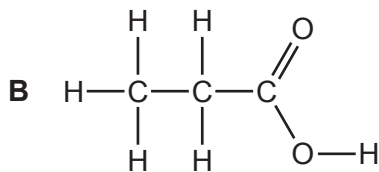
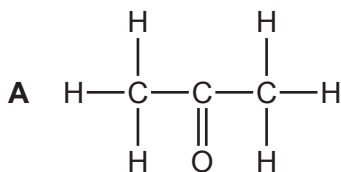
- A butanoic acid
- B butanol
- C ethanoic acid
- D ethanol

9 Which statement about ethanol is correct?

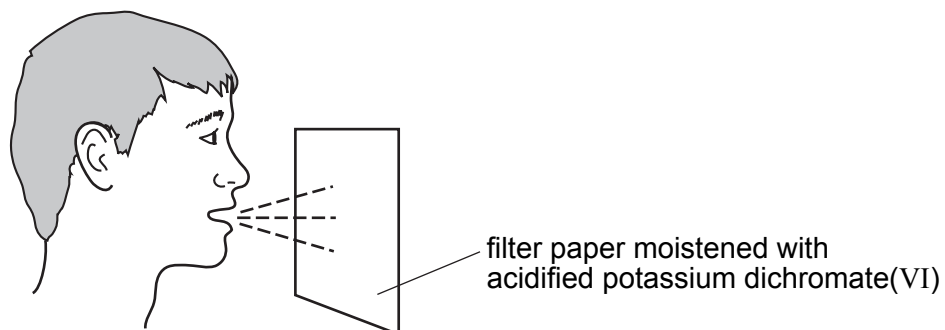
- A It is an unsaturated compound.
- B It is formed by the catalytic addition of steam to ethene.
- C It is formed by the oxidation of ethanoic acid.
- D It reacts with ethyl ethanoate to form an acid.

10 Alcohols can be oxidised to form another homologous series of compounds.

What would be the product of the oxidation of propanol?



- 11 Acidified potassium dichromate(VI) can be used to detect the presence of ethanol vapour in the breath of a person who has consumed an ethanol-containing drink.



A colour change from orange to green is observed if ethanol is present.

This shows that ethanol is

- A an alkali.
  - B an indicator.
  - C an oxidising agent.
  - D a reducing agent.
- 12 Which compound is obtained by the oxidation of ethanol,  $C_2H_5OH$ ?

- A  $HCO_2CH_3$
- B  $C_2H_5CO_2H$
- C  $CH_3OH$
- D  $CH_3CO_2H$

- 13 A compound, **X**, has a molecular formula  $C_4H_8O_2$  and can be prepared by the reactions shown.



What is the structural formula of **X**?

- A  $HCO_2CH_2CH_2CH_3$
- B  $CH_3CO_2CH_2CH_3$
- C  $CH_3CH_2CO_2CH_3$
- D  $CH_3CH_2CH_2CO_2H$

14 The list shows reactions in which ethanol is either a reactant or a product.

1	combustion of ethanol
2	conversion of ethene to ethanol
3	fermentation of glucose
4	oxidation of ethanol to ethanoic acid

In which reactions is water also either a reactant or a product?

- A** 1, 3 and 4 only
- B** 2, 3 and 4 only
- C** 1, 2 and 4 only
- D** 3 only