

1 What is used in the production of ethanol from ethene?

- A hydrogen and oxygen
- B oxygen only
- C steam
- D yeast

2 Which term describes the formation of ethanol from glucose?

- A cracking
- B distillation
- C fermentation
- D polymerisation

3 Which statement about ethanol is correct?

- A It burns in air to form ethene and water.
- B It is prepared from ethene by fermentation.
- C It is prepared from glucose in an addition reaction.
- D It is the only product when ethene reacts with steam.

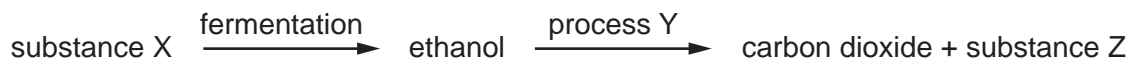
4 Ethanol can be formed by

- 1 fermentation
- 2 reaction between steam and ethene

Which of these processes uses a catalyst?

	1	2
A	✓	✓
B	✓	x
C	x	✓
D	x	x

5 The flow chart shows the preparation of ethanol and some important chemistry of ethanol.



What are X, Y and Z?

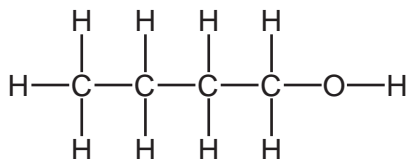
	X	Y	Z
A	ethane	combustion	yeast
B	glucose	combustion	steam
C	water	polymerisation	water
D	yeast	fermentation	glucose

6 By which of the following methods is ethanol formed?

- 1 fractional distillation of petroleum
- 2 fermentation
- 3 catalytic addition of steam to ethene

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

7 An organic compound has the molecular structure shown.



Which type of organic compound is this?

- A** alcohol
B alkane
C alkene
D carboxylic acid

8 Which row correctly describes the production of ethanol and its properties?

	can be made from glucose	can be made from ethene	is used as a fuel	is used as a solvent
A	✓	✓	✓	✓
B	✓	x	✓	✓
C	x	✓	✓	x
D	x	✓	x	✓

9 Which statement about the names of organic compounds is correct?

- A** Compounds containing C=C double bonds are alkanes.
- B** The compound of formula $\text{CH}_3\text{CO}_2\text{H}$ is methanoic acid.
- C** The compound of formula C_2H_4 is ethane.
- D** The compound of formula $\text{C}_2\text{H}_5\text{OH}$ is an alcohol.

10 Ethanol is manufactured from petroleum by reacting ethene with steam.

Which statements about this process are correct?

- 1 Ethene is obtained from the cracking of alkanes.
- 2 The process is carried out in the presence of yeast.
- 3 The reaction is an addition reaction.
- 4 The rate of reaction is increased by a catalyst.

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

11 Ethene reacts with Y to produce ethanol.



What is Y?

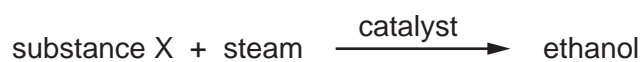
- A hydrogen
- B oxygen
- C steam
- D yeast

12 Ethanol is made by fermentation.

How is ethanol obtained from the fermentation mixture?

- A chromatography
- B crystallisation
- C electrolysis
- D fractional distillation

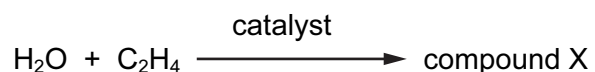
13 Ethanol can be manufactured from substance X.



What is substance X?

- A carbon dioxide
- B ethene
- C hydrogen
- D oxygen

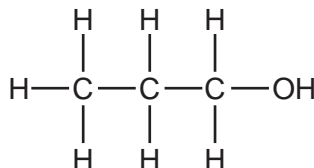
14 The equation shows an industrial process.



What is the name of compound X?

- A** ethane
- B** ethanoic acid
- C** ethanol
- D** methanol

15 Which type of compound is shown?



- A** alcohol
- B** alkane
- C** alkene
- D** carboxylic acid

16 Which statements about ethanol are correct?

- 1 It can be made by fermentation.
- 2 It is an unsaturated compound.
- 3 It burns in air and can be used as a fuel.

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

17 Ethanol is produced from either ethene or sugar.

Which type of chemical reaction is used in each case?

	ethene → ethanol	sugar → ethanol
A	addition	fermentation
B	addition	fractional distillation
C	distillation	fermentation
D	distillation	fractional distillation

18 The table shows the boiling points of four members of the homologous series of alcohols.

compound		boiling point / °C
name	formula	
methanol	CH ₃ OH	65
ethanol	C ₂ H ₅ OH	78
propanol	C ₃ H ₇ OH	X
butanol	C ₄ H ₉ OH	117

What is the value of X?

- A** 55 °C **B** 82 °C **C** 98 °C **D** 115 °C

19 Which of the statements about ethanol are correct?

- 1 Ethanol can be formed by an addition reaction.
- 2 Ethanol can be formed by fermentation.
- 3 When ethanol burns in air, it forms carbon dioxide and water.

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

20 Which process is **not** used during the production of ethanol?

- A addition of steam to ethene
- B fermentation
- C fractional distillation
- D reacting ethane with oxygen

21 Which row is correct for ethanol?

	burns	made by fermentation
A	✓	✓
B	✓	x
C	x	✓
D	x	x

22 Which statement about ethanol is **not** correct?

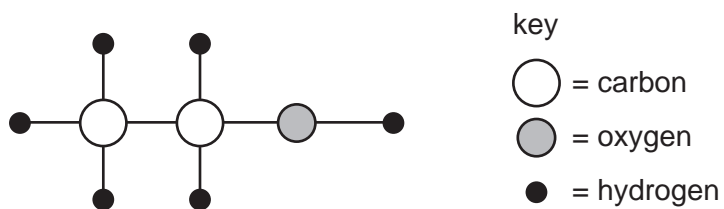
- A It can be used as a fuel.
- B It can be used as a solvent.
- C It is formed by reaction between steam and ethane.
- D Its functional group is -OH .

23 Ethanol is an important chemical produced by the1..... of2..... .

Which words correctly complete gaps 1 and 2?

	1	2
A	combustion	ethane
B	combustion	glucose
C	fermentation	ethane
D	fermentation	glucose

24 The diagram represents the molecule of an organic compound.



What is the name of the compound?

- A** ethane
- B** ethanoic acid
- C** ethanol
- D** ethene

25 When glucose is fermented, ethanol is formed together with

- A** carbon dioxide.
- B** ethene.
- C** methane.
- D** oxygen.

26 Compounds containing five carbon atoms in a molecule may have names beginning with 'pent...'.

What is the name of the compound shown?



key

○ = carbon

● = oxygen

● = hydrogen

- A pentane
- B pentanoic acid
- C pentanol
- D pentene

27 What is **not** essential for the formation of ethanol by fermentation?

- A light
- B sugar
- C yeast
- D water

28 Ethene reacts with Y to produce ethanol.



What is Y?

- A hydrogen
- B oxygen
- C steam
- D yeast