Revision Sheet

IGCSE Chemistry · Unit 11 Organic chemistry

17 vocabulary items · 22 marks of exam questions (12 questions)

Part 1 · Vocabulary review (17 items). The terms this unit is examined on most. Mark it yourself from the answer key.

Section A · Chinese to English

Write the English word.

1. _____ [1]

2. _____ [1]

3. _____ [1]

4. _____ [1]

5. _____ [1]

6. _____ [1]

7. _____ [1]

8. _____ [1]

9. _____ [1]

10. _____ [1]

11. _____ [1]

12. _____ [1]

13. _____ [1]

14. _____ [1]

15. _____ [1]

16. _____ [1]

17. _____ [1]

Part 2 · Exam questions (22 marks, 12 questions) begins on the next page. They are ordered easy to difficult and none of them has been set before.

18 The table shows two methods used to make ethanol.

method	type of process	conditions			source of raw material
		temperature / °C	pressure / atm	catalyst	
fermentation	batch	35	1	yeast	sugar cane
adding steam to ethene	continuous	300	60	acid	petroleum

Which statement gives an advantage of preparing ethanol by fermentation rather than by adding steam to ethene?

A Fermentation takes several days to complete.

B Little energy is used in the fermentation process.

C The fermentation of glucose from sugar cane produces pure ethanol.

D Fermentation uses a non-renewable raw material.

19 Which equation represents an addition reaction?

A $CH_3CHO + HCN \rightarrow CH_3CH(OH)CN$

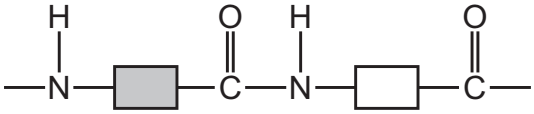
B $C_6H_6 + Br_2 \rightarrow C_6H_5Br + HBr$

C $NH_4Br \rightarrow NH_3 + HBr$

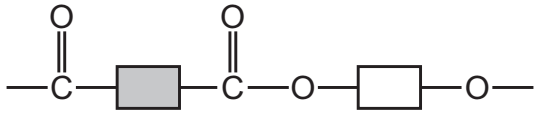
D $C_{14}H_{30} \rightarrow C_2H_4 + C_8H_{18} + C_4H_8$

20 Which structure represents part of a protein?

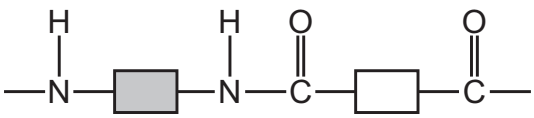
A



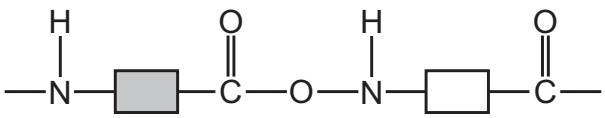
B



C



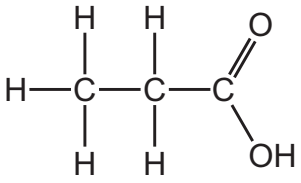
D

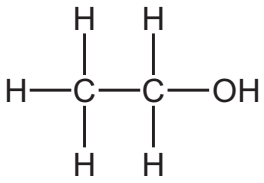


21 Which formula represents an alkene?

A CH_4 **B** C_2H_4 **C** C_2H_6 **D** C_2H_5OH

22 The structures of two compounds used to make an ester are shown.





What is the name of the ester?

A ethyl propanoate

B propyl ethanoate

C ethyl ethanoate

D propyl propanoate

23 Which statement about a homologous series is correct?

A All members have the same general formula.

B All members have the same molecular formula.

C All members have similar physical properties.

D Members show a trend in their chemical properties.

24 Which statements about aqueous ethanoic acid are correct?

1 It contains the functional group –COOH.

2 It reacts with carbonates to produce hydrogen.

3 It turns universal indicator paper blue.

4 It has a pH lower than pH 7.

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

25 Alkenes react with steam in an addition reaction.

Some alkenes produce only one alcohol product.
Some alkenes produce two different alcohols which are structural isomers.

Which row gives the number of alcohol isomers formed when ethene reacts with steam and when propene reacts with steam?

	number of alcohol isomers formed	
	ethene + steam	propene + steam
A	1	1
B	1	2
C	2	1
D	2	2

26 Methane burns in excess oxygen.

The equation is shown.

$$CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(g)$$

Bond energies are shown.

bond	bond energy in kJ / mol
C=O	805
C–H	410
O=O	496
O–H	460

What is the energy change for the reaction?

A $(4 \times 410 + 2 \times 496) - (2 \times 805 + 4 \times 460)$

B $(2 \times 805 + 4 \times 460) - (4 \times 410 + 2 \times 496)$

C $(410 + 2 \times 496) - (805 + 2 \times 460)$

D $(410 + 496) - (805 + 460)$

27 The hydrocarbon C_4H_8 has two structural isomers, but-1-ene and but-2-ene.

Which statement is correct?

A But-2-ene has the structural formula $CH_3CH=CHCH_3$ and the same general formula as butane.

B But-2-ene has the structural formula $CH_3CH=CHCH_3$ and the same empirical formula as ethene.

C But-1-ene has the structural formula $CH_3CH_2CH=CH_2$ and the same general formula as butane.

D But-1-ene has the structural formula $CH_3CHCH_2=CH$ and the same empirical formula as ethene.

28 Alkanes undergo substitution reactions in the presence of UV light.

Which equation represents a substitution reaction of ethane?

A $C_2H_6 + Cl_2 \rightarrow C_2H_4 + 2HCl$

B $C_2H_6 + Cl_2 \rightarrow C_2H_5Cl + HCl$

C $C_2H_6 + Cl_2 \rightarrow C_2H_4Cl_2 + H_2$

D $C_2H_6 + HCl \rightarrow C_2H_5Cl + H_2$

29 Alkenes are manufactured by cracking larger alkane molecules.

(a) State the source of the large alkane molecules used in cracking.

..... [1]

(b) State **two** conditions needed for cracking large alkane molecules.

1 .....

2 .....
[2]

(c) When one molecule of dodecane, $C_{12}H_{26}$, is cracked, three molecules of but-1-ene and one other product are formed.

(i) Use molecular formulae to complete the symbol equation for this reaction.

$C_{12}H_{26} \rightarrow$ ..... + ...
[2]

(ii) Suggest the type of chemical reaction which happens during cracking.

..... [1]

(d) Propene will undergo polymerisation.

(i) Suggest the name of the polymer formed from propene.

..... [1]

(ii) Draw part of this polymer molecule to show **three** repeat units.

[3]

(iii) State the type of polymerisation propene undergoes.

..... [1]

[Total: 11]

Question 6 starts on the next page.