AQA GCSE Chemistry

Organic chemistry mark scheme · goes with “Organic chemistry · Higher tier” · whiteboardchemistry.com/revision/gcse-chemistry/exam-questions

Mark schemes

Organic chemistry · Higher tier · 5 questions

Q1 · June 2023 · Paper 2 Foundation · Q9 · Paper 2 Higher · Q2 · [11 marks]

09.1

(mass =)

$\frac{39.8}{29.6}$ (× 1)

= 1.34 (g)

allow 1.34459459 (g) correctly rounded to at least 2 significant figures

[2 marks]

09.2

all six points plotted correctly

allow a tolerance of ± ½ a small square

*allow **1** mark for four or five points plotted correctly*

[2 marks]

09.3

40.6 (kJ)

allow a value in the range 40.4 – 40.8 (kJ)

allow a value consistent with the plotted points

[1 mark]

09.4

calcium hydroxide

[1 mark]

09.5

(limewater turns) milky / cloudy

allow white precipitate (formed)

allow calcium carbonate is produced

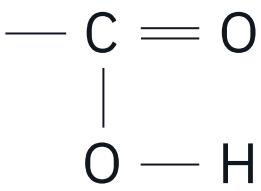
[1 mark]

09.6

an oxidising agent

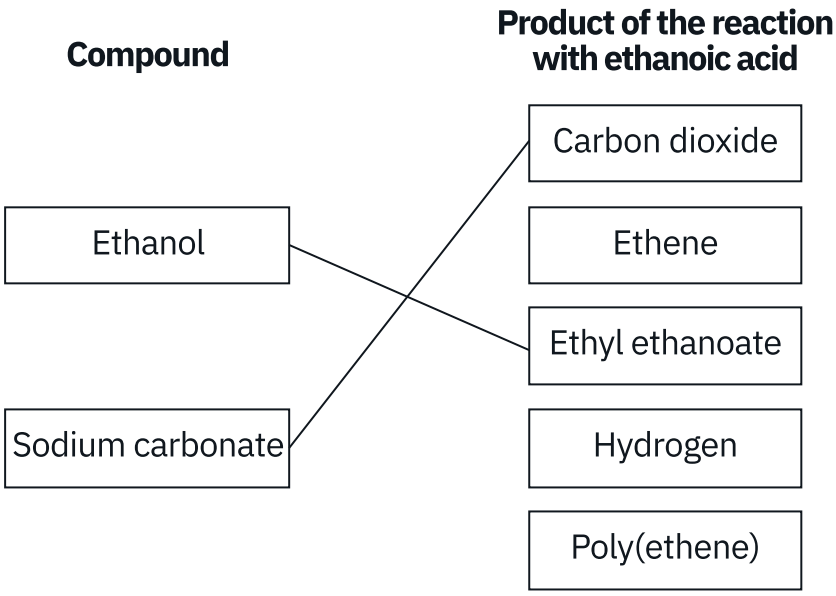
[1 mark]

09.7



[1 mark]

09.8

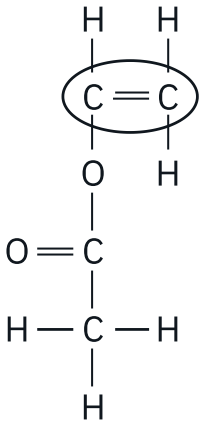


do not accept more than one line from a box on the left

[2 marks]

Q2 · June 2024 · Paper 2 Higher · Q8 · [13 marks]

08.1



[1 mark]

08.2

orange (bromine water)

allow yellow / brown

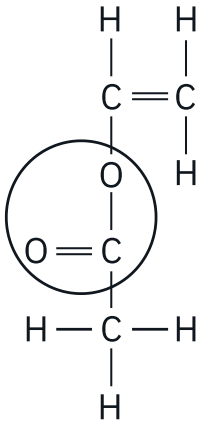
turns colourless

allow is decolourised

ignore clear

[2 marks]

08.3



[1 mark]

08.4

$2C_4H_6O_2 + 9O_2 \rightarrow 8CO_2 + 6H_2O$

allow multiples

*allow **1** mark for*

$C_4H_6O_2 + O_2 \rightarrow$

with incorrect / no multipliers

*allow **1** mark for*

$\rightarrow CO_2 + H_2O$

with incorrect / no multipliers

ignore state symbols

[3 marks]

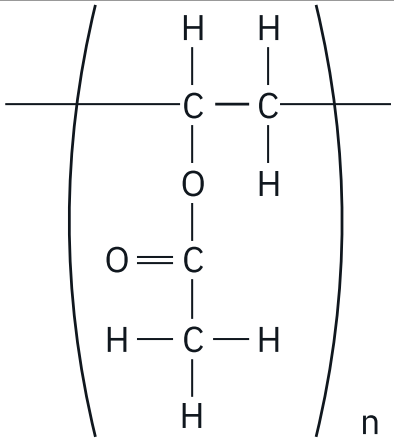
08.5

single C-C bond in polymer repeating unit

do not accept extra atoms added to trailing bonds

n after polymer repeating unit

an answer of



scores 2 marks

[2 marks]

08.6

addition polymer

[1 mark]

08.7

thermosoftening

allow thermoplastic

[1 mark]

08.8

cross-links between (polymer) chains

allow covalent bonds between (polymer) chains

(so) too much energy needed to overcome the cross-links

allow (so) too much energy needed to overcome the covalent bonds between (polymer) chains

[2 marks]

Q3 · June 2025 · Paper 2 Foundation · Q9 · Paper 2 Higher · Q2 · [9 marks]

09.1

fractional distillation

[1 mark]

09.2

(heater)

evaporation

allow liquid to gas

allow boiling

(column)

condensation

allow gas to liquid

[2 marks]

09.3

petrol

[1 mark]

09.4

heavy fuel oil → diesel oil → kerosene

[1 mark]

09.5

C_4H_{10}

[1 mark]

09.6

but<u>a</u>ne

[1 mark]

09.7

$C_3H_8 + 5O_2 \rightarrow \mathbf{3}CO_2 + \mathbf{4}H_2O$

*allow **1** mark for **3** CO_2*

*allow **1** mark for **4** H_2O*

[2 marks]

Q4 · June 2025 · Paper 2 Higher · Q5 · [12 marks]

05.1

– 6 (°C)

allow a value in the range

(+)4 to –16 (°C)

[1 mark]

05.2

ethanol

allow C_2H_5OH

[1 mark]

05.3

(test)

damp litmus paper

(result)

litmus paper is bleached

or

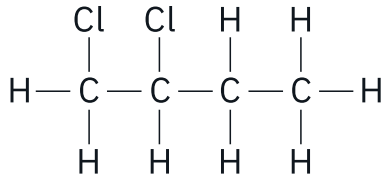
litmus paper turns white

ignore litmus paper turns red

ignore litmus paper turns red

[2 marks]

05.4



[1 mark]

05.5

propene

[1 mark]

05.6

(because of) incomplete combustion

ignore insufficient oxygen

[1 mark]

05.7

(conversion 24 dm^3 =)

24 000 cm^3

allow conversion of volume anywhere in method

(M_r = (3 × 12) + (6 × 1) =)

42

(moles = (2.1)/(42) =)0.05

allow correct use of an incorrectly determined M_r

(volume =) 24 000 × 0.05

allow correct use of an incorrectly determined number of moles

allow correct use of an incorrect / no conversion of volume

= 1200 (cm^3)

alternative approach

(conversion 24 dm^3 =)

24 000 cm^3 (1)

allow conversion of volume anywhere in method

(M_r = (3 × 12) + (6 × 1) =)

42 (1)

(ratio of mass = (42)/(2.1) =) 20 (1)

allow correct use of an incorrectly determined M_r

(volume =) (24 000)/(20) (1)

allow correct use of an incorrect / no conversion of volume

= 1200 (cm^3) (1)

[5 marks]

Q5 · June 2025 · Paper 2 Higher · Q7 · [12 marks]

07.1

(A)

ethanediol

(B)

hexanedioic acid

[2 marks]

07.2

polyester

[1 mark]

07.3

water

allow H_2O

[1 mark]

07.4

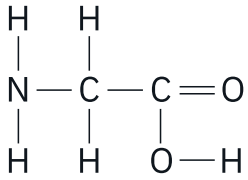
polypeptide

allow polyamide

ignore protein

[1 mark]

07.5



[1 mark]

07.6

protein

[1 mark]

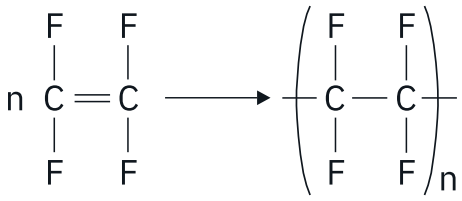
07.7

4 × C-F **and** 1 × C-C bonds

2 × single bonds extending through brackets

n after polymer repeating unit

an answer of



scores 3 marks

[3 marks]

07.8

long chain molecules

allow long chains of monomers

with covalent bonds between the chains

allow with cross links between the chains

ignore intermolecular forces

[2 marks]

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