AQA GCSE Chemistry

Chemical changes mark scheme · goes with “Chemical changes · Foundation tier” · whiteboardchemistry.com/revision/gcse-chemistry/exam-questions

Mark schemes

Chemical changes · Foundation tier · 5 questions

Q1 · June 2024 · Paper 1 Foundation · Q2 · [10 marks]

02.1

(A) pipette

(B) conical flask

(C) burette

[3 marks]

02.2

methyl orange (solution)

or

phenolphthalein (solution)

allow litmus (solution)

do not accept universal indicator

[1 mark]

02.3

colour change

ignore clear

[1 mark]

02.4

any **two** from:

- swirl
- add the acid drop by drop
- read (burette) at eye level

allow read (burette) at the bottom of the meniscus

- ensure no bubbles in burette
- use a white tile
- repeat **and** take a mean

[2 marks]

02.5

16.6 cm^3

[1 mark]

02.6

trial 2 and trial 3

[1 mark]

02.7

$BaCl_2$

[1 mark]

Q2 · June 2024 · Paper 1 Foundation · Q6 · [10 marks]

06.1

ions can move through the molten substance to the electrodes

[1 mark]

06.2

Molten compound	Product at negative electrode	Product at positive electrode
Lead chloride	**Lead**	Chlorine
Potassium iodide	Potassium	**Iodine**
Zinc bromide	Zinc	Bromine

[3 marks]

06.3

$2Al_2O_3 \rightarrow 4Al + 3O_2$

*allow **1** mark for 4Al*

*allow **1** mark for $3O_2$*

[2 marks]

06.4

(M_r =)

(27 × 2) + (16 × 3)

= 102

[2 marks]

06.5

(by electrolysis)

any **one** from:

- potassium / K
- lithium / Li

allow aluminium / Al

allow sodium / Na

allow calcium / Ca

allow magnesium / Mg

(by carbon reduction)

any **one** from:

- zinc / Zn
- tin / Sn

allow iron / Fe

allow copper / Cu

[2 marks]

Q3 · June 2024 · Paper 1 Foundation · Q8 · Paper 1 Higher · Q1 · [10 marks]

08.1

copper sulfate

allow $CuSO_4$

water

allow H_2O

[2 marks]

08.2

ignore references to colours

solid remains (in the mixture)

allow copper carbonate remains (in the mixture)

or

no more effervescence / bubbles / fizzing

[1 mark]

08.3

to remove copper carbonate

allow to remove excess (copper carbonate)

[1 mark]

08.4

electric heater

or

water bath

ignore Bunsen burner

[1 mark]

08.5

$$92.8 = \frac{\text{mass produced}}{12.5} \times 100$$

allow mass produced =

$$\textit{\% yield} \times \frac{\textit{max theoretical mass}}{\textit{100}}$$

$$\text{(mass produced)} = \frac{92.8}{100} \times 12.5$$

= 11.6 (g)

[3 marks]

08.6

(copper)

does not react with (sulfuric) acid

allow is unreactive

allow will not displace hydrogen

allow is below hydrogen in the reactivity series

ignore is not reactive enough

(sodium)

could explode

or

could get too hot

allow (the reaction is) dangerous

[2 marks]

Q4 · June 2025 · Paper 1 Foundation · Q4 · [10 marks]

04.1

titration

[1 mark]

04.2

indicator

allow any named indicator

[1 mark]

04.3

burette

[1 mark]

04.4

add the acid dropwise (near the end point)

or

swirl the flask

[1 mark]

04.5

use of 8.95, 9.00 and 8.85 **only**

(mean volume =)

(8.95 + 9.00 + 8.85)/(3)

allow (mean volume =) (26.80)/(3)

allow correct use of incorrect values of volume

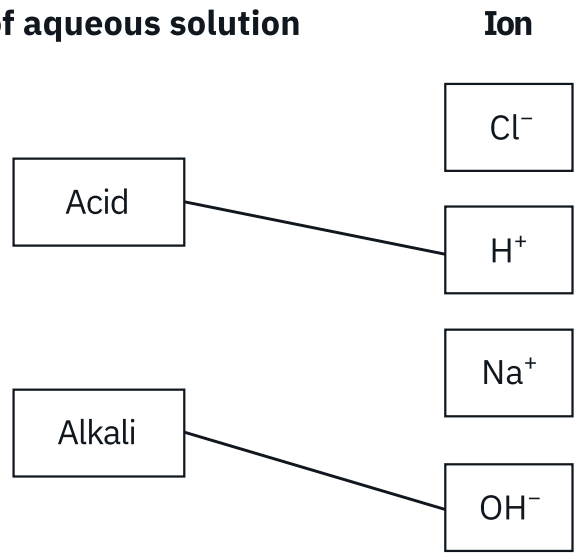
= 8.933333 (cm^3)

= 8.93 (cm^3)

allow an answer correctly rounded to 3 significant figures from an incorrect calculation which uses the values in the question

[4 marks]

04.6



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

[2 marks]

Q5 · June 2025 · Paper 1 Foundation · Q5 · [15 marks]

05.1

molten compound	product at the negative electrode	product at the positive electrode
copper chloride	**copper**	chlorine
potassium bromide	potassium	**bromine**

[2 marks]

05.2

O_2

[1 mark]

05.3

aluminium ions are positive(ly charged)

(so) are attracted to the negative electrode

allow (and) opposite charges attract

[2 marks]

05.4

(the mixture) has a lower melting point (than aluminium oxide)

(so) less energy is required

[2 marks]

05.5

carbon reacts with the oxygen produced

[1 mark]

05.6

3.4 cm^3

[1 mark]

05.7

hydrogen is less reactive than magnesium

[1 mark]

05.8

the volume of hydrogen collected depends on **both** the current and the time

[1 mark]

05.9

(change in volume = 3.8 – 1.9 =)

1.9 (cm^3)

(change in time = 5 – 2.5 =)

2.5 (min)

*allow any correct matching pairs of values of volume and time for **2** marks*

(gradient =) (1.9)/(2.5)

allow correct use of incorrectly determined values of volume and / or time

= 0.76 (cm^3/min)

allow correct use of incorrectly determined values of volume and / or time

[4 marks]

Source: AQA GCSE Chemistry past papers. Reproduced for revision at whiteboardchemistry.com.