



**General Certificate of Secondary Education
2025**

Double Award Science: Chemistry

Unit C2

Foundation Tier

[GDW51]

FRIDAY 13 JUNE, MORNING

**MARK
SCHEME**

General Marking Instructions

Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of students in schools and colleges.

The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes, therefore, are regarded as part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

Where one response is required to gain a mark, candidates will not gain credit if a correct response is given alongside one or more incorrect responses. This is referred to as listing.

1 (a) (i)

Metal	Observation when heated in air
iron	orange sparks [1]
magnesium	bright white light [1]
copper	glows red [1]

[3]

(ii) magnesium oxide [1] hydrogen [1]

[2]

(b) (i) provides source of steam

[1]

(ii) insoluble

[1]

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2 (a) hydrated [1] iron(III) oxide [1]

[2]

(b) (i) B [1]
C [1]
A [1]

[3]

(ii) exothermic

[1]

(c) (i) loss of oxygen

[1]

(ii) $\text{Fe}_2\text{O}_3 + 3[1] \text{CO} \longrightarrow 2 \text{Fe} + 3[1] \text{CO}_2$

[2]

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AVAILABLE
MARKS

3 (a) Indicative points

The name of the ore which contains aluminium oxide

- bauxite

Explain why aluminium oxide needs to be molten

- ions
- (free to) move and carry charge

Explain why cryolite is added

- lowers melting point/operating temperature
- improves (electrical) conductivity

Explain why the graphite anodes need replaced periodically

- reacts with oxygen
- forms carbon dioxide
- burns/corrodes away

Band	Response	Marks
A	Candidates must use appropriate specialist terms including a minimum of 5 points of indicative content. They use good spelling, punctuation and grammar and the form and style are of a high standard.	[5]–[6]
B	Candidates must use appropriate specialist terms including a minimum of 3 points of indicative content. They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	[3]–[4]
C	Candidates brief and partial response includes a minimum of 2 points of indicative content. They use limited spelling, punctuation and grammar and they have made little use of specialist terms. The form and style are of a limited standard.	[1]–[2]
D	Response not worthy of credit.	[0]

[6]

- (b)** conducts [1]
decomposed [1]

[2]

AVAILABLE
MARKS

8

4 (a) (i)

Features of a homologous series	Use a tick(✓) to select the correct feature
same general formula	✓
different chemical properties	
successive members differ by CH ₃	
show gradation in their physical properties	✓
have similar chemical properties	✓

[3]

(ii) alkenes

[1]

(iii) C₁₂H₂₆

[1]

(b) (i) (a compound/molecule which) consists of only [1]
carbon and hydrogen (atoms) [1]

[2]

(ii) CO₂ [1] H₂O [1]

[2]

(iii) carbon monoxide/CO

[1]

(c) (i) carbon to carbon double bond circled

[1]

(ii) propene

[1]

(d) Polyethene/polythene

[1]

13

5 (a) hydrated [1]
crystallisation [1]
anhydrous [1]

[3]

(b) 126

[1]

(c) tripod [1]
gauze (on top of tripod) [1]
evaporating dish (on top of gauze) [1]
bunsen burner (underneath gauze/tripod) [1]

[4]

8

6 (a) (i)

Gas	Formula	Use
nitrogen	N₂ [1]	food packaging
hydrogen [1]	H ₂	weather balloons / hardening of oil / clean fuel [1]
carbon dioxide	CO₂ [1]	fire extinguisher

[4]

(ii) 78%

[1]

(b) (i) thistle funnel

[1]

(ii) magnesium

[1]

(iii) $2\text{H}_2 + \text{O}_2 \longrightarrow 2\text{H}_2\text{O}$

reactants [1]

```
product [1]
```

balancing [1]

[3]

(iv) `lit splint [1] pop [1]`

[2]

12

7 (a) (i) rate = $1/19$ [1]
= 0.053 [1]

[2]

(ii) QSRP

[1]

- (iii) graph starts at 0,0 [1]

graph is less steep [1]

levelling off at 8 g (when time is 76 s) [1]

[3]

(b) transition metals

[1]

7

8 (a) reversible [1]
product [1]
reactants [1]

[3]

(b) Any **two** from:
temperature
pressure
concentration

[2]

(c) acidic

[1]

6

Total

70