



Rewarding Learning

**General Certificate of Secondary Education
2012–2013**

Science: Single Award

Unit 2 (Chemistry)

Higher Tier

[GSS22]

TUESDAY 26 FEBRUARY 2013

9.30 am–10.45 am

**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.

		AVAILABLE MARKS
1	<p>(a) Lycra [1] plus any two: fits tightly reducing air resistance/drag [1] does not shrink [1] is not affected by sweat [1] keeps its colour [1] (max 2 if polyester is chosen) [3]</p> <p>(b) linen not used so much today/ other materials available (any suitable)/made more cheaply elsewhere [1]</p>	4
2	<p>(a) water which does not lather easily [1] with soap [1] [2]</p> <p>(b) (i) B [1]</p> <p>(ii) C [1]</p> <p>(iii) A and D [1]</p> <p>(c) at least 2 A's in the resin [1] only B's in the bottom beaker [1] [2]</p> <p>(d) Calcium carbonate + water + carbon dioxide [3] [1] [1] [1]</p>	10
3	<p>Indicative content</p> <ul style="list-style-type: none"> ● Arch, loop, whorl and composite (any two) ● Carbon powder/aluminium powder/white powder/powder ● Dusting off with brush ● Use of sellotape/clear tape/transfer to card ● Compare to database ● Unique 	

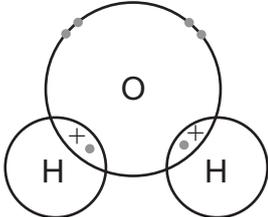
Band	Response	Mark
A	Candidates use 5 or 6 of the points given in the indicative content to explain, using appropriate specialist terms, and in a logical sequence, the method used to take fingerprints from different types of surfaces. They use good spelling, punctuation and grammar and the form and style are of a high standard.	5–6
B	Candidates use 3 or 4 of the points given in the indicative content to explain, using appropriate specialist terms, and in a logical sequence, the method used to take fingerprints from different types of surfaces. They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	3–4
C	Candidates use 1 or 2 of the points given in the indicative content to explain how fingerprints are taken. They use limited spelling, punctuation and grammar and they make little use of specialist terms. The form and style are of a limited standard.	1–2
D	Response not worthy of credit.	0

AVAILABLE
MARKS

6

- 4 (a) all 8 points correctly plotted [2]
6 or 7 points correctly plotted [1]
line through points [1] [3]
- (b) (i) Metal Y increase in temperature with time [1]
level off [1] [2]
- (ii) Metal X increases more sharply or produces a greater temperature rise [1] [1]
- (c) (i) 39 [1]
- (ii) displacement [1] [1]
- (iii) X Y copper [2]
- (d) the temperature rise would be higher [1]
- (e) zinc sulfate [1]
copper [1] [2]

13

		AVAILABLE MARKS
5	(a) (i) red (in water) [1] red in acid/doesn't change colour [1]	[2]
	(ii) universal indicator [1] a good range of colours [1] universal indicator changes colour with the strength of the acid [1]	[3]
	(b) (i) 14	[1]
	(ii) 25 cm ³	[1]
	(iii) burette	[1]
	(iv) HCl [1] NaOH [1]	[2]
		10
6	(a) correct hydrogen atom [1] correct 2,6 arrangement [1]	[2]
	(b) (i)  correct sharing [1] 8 electrons [1]	[2]
	(ii) electrons are shared (pairs)	[1]
7	(a) (i) marble – metamorphic limestone – sedimentary } both needed	[1]
	(ii) heat/pressure	[1]
	(iii) limestone	[1]
	(b) use radioactivity [1] radio isotopes [1] half-life [1] daughter nuclei [1] rocks [1] any 3	[3]
	(c) (i) (tectonic) plates move [1] past/alongside each other [1]	[2]
	(ii) plates come together/slide [1] edge(s) of plate(s) forced upwards [1]	[2]
		10

8 (a) Indicative content

- sodium hydrogencarbonate breaks down
- in the heat – dependent on breakdown
- to produce carbon dioxide/bubbles/gas
- to make the cake lighter/rises
- sodium hydrogencarbonate is alkaline/neutralisation
- acid makes more carbon dioxide

Band	Response	Mark
A	Candidates use 5 or 6 of the points given in the indicative content to explain how cakes are formed from baking soda. They use appropriate specialist terms in a logical sequence. They use good spelling, punctuation and grammar and the form and style are of a high standard.	5–6
B	Candidates use 3 or 4 of the points given in the indicative content to explain how cakes are made from baking powder. They use appropriate specialist terms in a logical sequence. They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	3–4
C	Candidates use 1 or 2 of the points given in the indicative content to explain how cakes are made from baking powder. They use limited spelling, punctuation and grammar and they make little use of specialist terms. The form and style are of a limited standard.	1–2
D	Response not worthy of credit.	0

[6]



[3]

9

9 (a) correct structural formula

[1]



one mark for RHS

one mark for LHS

one mark for correct balancing

[3]

(c) (i) polymerisation

[1]

(ii) correct monomer on LHS [1]

correct single bond structure on RHS [1]

correct position of n [1]

[3]

8

Total

75