



*Rewarding Learning*

**General Certificate of Secondary Education  
2013–2014**

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**Science: Single Award**

Unit 2 (Chemistry)

Foundation Tier

**[GSS21]**

**THURSDAY 14 NOVEMBER 2013, MORNING**

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**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	(a) Toxic	[1]	2
	(b) Correct drawing for flammable	[1]	
2	(a) Low density [1] strong [1]	[2]	4
	(b) Obtained from living things/do not need to be processed by chemical methods	[1]	
	(c) Composite	[1]	
3	(a) (i) Whorl	[1]	
	(ii) Loop	[1]	
	(b) Carbon (black)	[1]	
	(c) Fingerprints are unique [1] they can be collected from crime scene/compared to suspect/ compared to a database [1]	[2]	
	(d) <b>Any three from:</b>		
	<ul style="list-style-type: none"> <li>• quality of paper/does not fluoresce under UV light</li> <li>• watermarks</li> <li>• metal strip</li> <li>• bar-coding/number coding</li> <li>• holograms</li> <li>• special ink</li> </ul>	[3]	
	(e) Lilac	[1]	9
4	(a)		
	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; width: 200px; text-align: center;">ethanoic acid</div> <div style="border: 1px solid black; padding: 5px; width: 200px; text-align: center;">lemon juice</div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 200px; text-align: center;">citric acid</div> <div style="border: 1px solid black; padding: 5px; width: 200px; text-align: center;">drain cleaner</div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 200px; text-align: center;">sodium hydroxide</div> <div style="border: 1px solid black; padding: 5px; width: 200px; text-align: center;">vinegar</div> </div>	[2]	
	[1/2 correct = 1 mark, 3 correct = 2 marks]		

		AVAILABLE MARKS
(b) (i)	Cabbage	[1]
(ii)	Beetroot	[1]
(iii)	C [1] pH of field is in range 5.5–6.5 [1]	[2]
(iv)	Field is acidic/Lime is an alkali [1] pH needs to increase/lime will make it neutral [1]	[2]
(v)	Neutral	[1]
(c)	Nitrogen [1] oxygen [1]      either order	[2]
5	(a) Same amount soap/water/shaken for same time (Same is essential)	[1]
	(b) Measuring cylinder/pipette/burette or other suitable	[1]
	(c) Sample 1	[1]
	(d) Calcium sulfate	[1]
6	(a) $16\,500 \times 0.5$ [1] 8250 [1]	[2]
	(b) Saves energy/raw materials/reduces landfill sites	[1]
	(c) 5 bars correct [3 or 4 bars correct = 1]	[2]
7	(a) Alkali metals [1] halogens [1] noble gases [1]	[3]
	(b) (Dmitri) Mendeleev	[1]
	(c) Decreases	[1]
		11
		4
		5
		5

8 (a)	71	[1]	AVAILABLE MARKS
(b)	Tin	[1]	
(c) (i)	Iron sulfate [1] copper [1] either order	[2]	
(ii)	Displacement	[1]	
(d)	Silver is unreactive	[1]	
(e) (i)	3	[1]	
(ii)	6	[1]	8

**9 Indicative Content:**

- indigestion is caused by excess stomach acid
- stomach acid is hydrochloric acid
- indigestion tablets contain an alkali/base
- alkali neutralises the acid/neutralisation reaction
- sodium chloride
- water
- carbon dioxide

Band	Response	Mark
A	Candidates must use appropriate specialist terms throughout to describe indigestion using <b>five to seven</b> of the points above, 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 some appropriate specialist terms to describe indigestion using <b>three to four</b> of the points above, 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 describe indigestion using <b>one or two</b> of the points above. However, these are not presented in a logical sequence. They use limited spelling, punctuation and grammar and have made limited use of specialist terms. The form and style are of a limited standard.	[1–2]
D	Not worthy of credit.	[0]

6

- 10 (a) A, B and C [1]  
A compound has two or more elements chemically joined [1] [2]
- (b) E [1]
- (c) C [1]
- (d) B [1]  
3 atoms, 2 smaller than the other [1] [2]

**Total**

AVAILABLE  
MARKS

6

**60**