Rewarding Learning

General Certificate of Secondary Education
2015–2016

Science: Single Award

Unit 2 (Chemistry)

Foundation Tier

[GSS21]

THURSDAY 19 MAY 2016, 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.

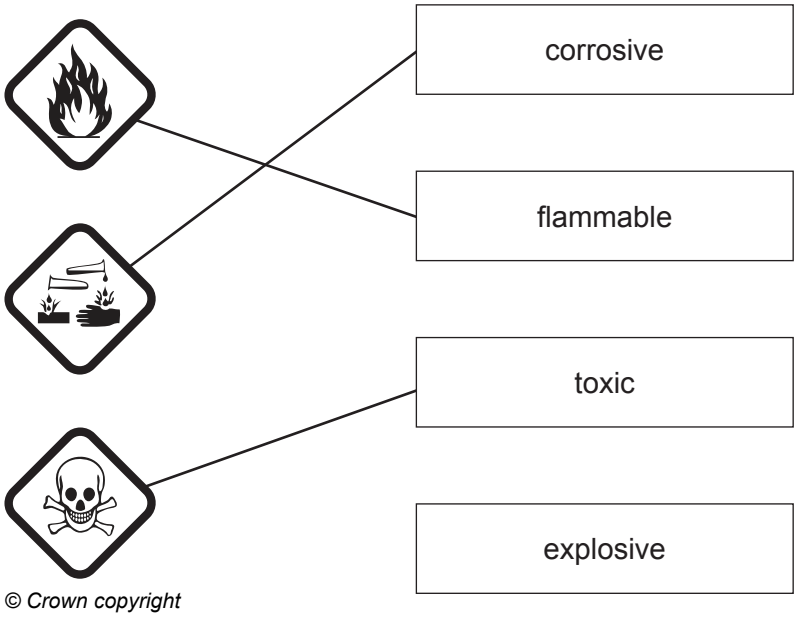
The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

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.

			AVAILABLE MARKS
1	**(a)**	**Symbol** / **Name**	



[2]

(b)

Household substance	Chemical name
cleaning products	ammonia
oven cleaner	sodium hydroxide [1]
vinegar	ethanoic acid [1]

[2] 4

2 **(a)** Mixture [1]
carbon [1]
hydrogen [1] } either order
[3]

(b) Petrol, paraffin, bitumen
(all correct [2], two or one correct [1]) [2]

(c) Boiling point [1] 6

3 **(a)** All bars correct [2]
(only one error award [1]) [2]

(b) R [1]

(c) Any **two** from:
- same mass of ball } use same ball
- same metal for ball
- same thickness of material

any other appropriate response [2] 5

				AVAILABLE MARKS
4	**(a)**	A [1] C [1]	[2]	
	(b)	X Y W Z (Any two in correct order [1])	[2]	
	(c)	<table><tr><th>Metal ion</th><th>Flame colour</th></tr><tr><td>copper</td><td>blue-green</td></tr><tr><td>potassium</td><td>lilac [1]</td></tr><tr><td>sodium [1]</td><td>orange/yellow</td></tr></table>	[2]	6
5	**(a)**	A [1] It has good water resistance [1]	[2]	
	(b)	C [1] tough/not flexible/light and **resistant to chemicals** [1]	[2]	
	(c)	E	[1]	5
6	**(a)**	X placed in any position in Group 2	[1]	
	(b)	B [1] E [1] C [1]	[3]	
	(c)	Decreases	[1]	5

AVAILABLE MARKS

7 Indicative content:

- **tectonic plate** (theory)
- earthquakes happen at plate **boundaries**
- earthquakes are caused by a **build-up** of pressure
- earthquakes are caused by **sudden** movement of plates
- earthquakes can happen as plates move past each other/collide
- the **Richter scale** (measures the size of earthquakes)
- the larger the Richter scale value the more intense the earthquake is

Band	Response	Mark
A	Candidates must use appropriate specialist terms throughout to describe earthquakes using **six or seven** of the points above, in a logical sequence including the term plate tectonics. 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 earthquakes using **four or five** 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 earthquakes using **one, two or three** of the above points. 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	Response not worthy of credit.	[0]

[6] 6

8 (a) A and C [1]
they only contain one **type of atom** [1] [2]

(b) D [1] 3

9 (a) (i) 5100 [1]

(ii) 52 [1]

(iii) As the number of carbon atoms increases the boiling point increases [1]

(b) Oxygen [1] 4

			AVAILABLE MARKS
10	**(a)**	Purple [1] yellow [1] [2]	
	(b)	**(i)** Neutralisation [1]	
		(ii) None of the indicators **change colour at pH7**/point of neutralisation [1] they remain the same colour in **pH8 and pH7** [1] [2]	
	(c)	(Cut up the cabbage) and **add water** [1] **boil/heat** until (water changes colour) [1] (filter/decant) the **coloured solution to use as the indicator** [1] [3]	8
11	**(a)**	Smooth curve drawn, ignoring anomalous point [1]	
	(b)	At the start the **mass** of the flask and contents decreased with time [1] from 5.5 minutes the mass of the flask and contents remained constant [1] [2]	
	(c)	Calcium chloride [1] water [1] (either order) [2]	
	(d)	**(i)** Limewater [1]	
		(ii) Turns from **colourless** [1] to **cloudy/milky** [1] [2]	8
		Total	**60**