

New
Specification



Rewarding Learning

**General Certificate of Secondary Education
2011–2012**

Double Award Science: Chemistry

Unit C1


Foundation Tier

[GSD21]

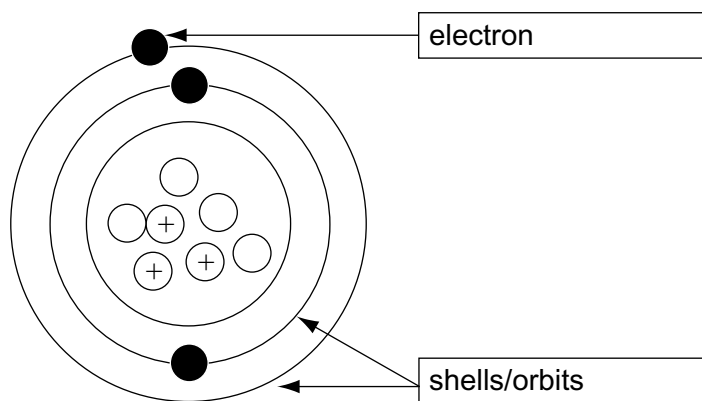
WEDNESDAY 9 NOVEMBER 2011

9.15 am–10.15 am

**MARK
SCHEME**

		AVAILABLE MARKS															
1	<p>(a) Candidates circle hazard symbols [1]</p> <p>(b) Any two from idea of warning of danger idea of international recognition idea of eye catching idea of recognition without ability to read [2]</p> <p>(c) Irritant/harmful [1]</p> <p>(d)  [1]</p>	5															
2	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Element</th> <th style="width: 33%;">Compound</th> <th style="width: 33%;">Mixture</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td style="text-align: center;">✓</td> </tr> <tr> <td></td> <td style="text-align: center;">✓</td> <td></td> </tr> <tr> <td style="text-align: center;">✓</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">✓</td> </tr> </tbody> </table> <p style="text-align: right;">[4]</p>	Element	Compound	Mixture			✓		✓		✓					✓	4
Element	Compound	Mixture															
		✓															
	✓																
✓																	
		✓															
3	<p>(a) Mixture [1]</p> <p>(b) Any two from Light/low density idea of resistance to corrosion idea that Al alloys are malleable idea that Al alloys are longlasting [2]</p>	3															
4	<p>(a) idea that the salt dissolves [1] the sand does not dissolve [1] [2]</p> <p>(b) retort/stand [1] filter funnel [1] [2]</p> <p>(c) filtrate [1] solution [1] [2]</p> <p>(d) evaporate (the water from the solution) [1] using a Bunsen burner/suitable container e.g. evaporating basin [1] accept idea of heat [2]</p>	8															

5 (a)



[2]

(b) (i) Proton

[1]

(ii) 3

[1]

4

6 (a) Change (of state) from a solid to a gas [2]
vice versa [1]

max. [2]

Indicative content

Candidates may use the apparatus in the picture or can choose other appropriate apparatus:

- Place the solid iodine in a beaker
- Place an evaporating dish on top of the beaker
- Place cold water in the evaporating dish
- Heat (gently) (with a Bunsen burner)
- 1–3 appropriate safety precautions including using a fume cupboard

[6]

8

Maximum 3 safety points must include use of fume cupboard

(b)

Response	Mark
Candidates must use appropriate specialist terms throughout to describe fully, using 5–6 of the terms shown in the indicative content, the demonstration of the sublimation of solid iodine in the laboratory in a logical sequence. They use good spelling, punctuation and grammar and the form and style are of a high standard.	5–6
Candidates using 3–4 of the points shown in the indicative content partially describe the demonstration of the sublimation of solid iodine in the laboratory in a logical sequence. They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	3–4
Candidates make reference to 1–2 of the main points shown above using limited spelling, punctuation and grammar. The form and style is of limited standard and they have made little use of specialist terms.	1–2
Candidates make no reference to the main points below and offer no other suitable response.	0

- 7 (a) (i) Any **two** from
Stirring/adding warm water/heating the mixture/adding more water [2]
- (ii) idea of no solid left at the bottom of the watering can/idea of completely disappearing [1]
- (b) (i) sulfuric acid accept completely correct formula H_2SO_4 [1]
- (ii) Neutralisation [1]
- (iii) H_2O [1]
- (iv) the fertiliser contains copper sulfate (which is blue) [1]

(v)

Formula	Number of atoms	
	sulfur	oxygen
$CuSO_4$	1	4
$Fe_2(SO_4)_3$	3	12

[3]

10

- 8 (a) (i) Candidates tick
contains water of crystallisation [1]
- (ii) Candidates circle
maximum [1]
temperature [1] [2]
- (b) (i) idea of as the temperature of the water increases the solubility increases [1]
- (ii) 55 (g/100g water) ± 1 [1]

(iii)

Solution			Saturated/ unsaturated
Mass of $CuSO_4$ (g)	Mass of water (g)	Temperature $^{\circ}C$	
45	100	60	saturated
20	100	30	unsaturated

[2]

7

			AVAILABLE MARKS
9	(a) (i) D	[1]	6
	(ii) A	[1]	
	(b) Under oil	[1]	
	(c) (i) Candidates shade in all of the block to the right of block B	[1]	
	(ii) In bridges, in structures or other suitable	[1]	
(d) Mendeleev/Newlands	[1]		
10	(a) cathode electrolyte	[2]	5
	(b) Idea of decomposition	[1]	
	(c) Candidates tick graphite is a conductor of electricity graphite does not react with the molten compound	[2]	

- 11 (a) Candidates draw diagrams to show the electronic structures
 Na 2, 8, 1 [1]
 Cl 2, 8, 7 [1]

Indicative content

- Transfer
- Correct direction of transfer
- Correct number of electrons transferred
- Correct electronic structure for sodium ion
- Correct charge on either ion
- Correct electronic structure for chloride ion
- Reference to how the ions are held together [6]

Response	Mark
Candidates must use appropriate specialist terms throughout to describe fully, using 5–7 of the points shown in the indicative content, how the atoms of sodium and chlorine bond to form sodium chloride in a logical sequence. They use good spelling, punctuation and grammar and the form and style are of a high standard.	5–6
Candidates use using 3–4 of the points shown in the indicative content partially describe how the atoms of sodium and chlorine bond to form sodium chloride in a logical sequence. They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	3–4
Candidates make reference to 1–2 of the main points shown above using limited spelling, punctuation and grammar. The form and style is of limited standard and they have made little use of specialist terms.	1–2
Candidates make no reference to the main points below and offer no other suitable response. Response not worthy of credit	0

- (c) Any **two** from
 Hard/brittle/does not conduct electricity as a solid/soluble (in water)
 conducts electricity when molten or dissolved in water [2]

Total

**AVAILABLE
MARKS**

10

70