GCSE Science A Chemistry 1

Foundation Tier

Chemistry 1F

SPECIMEN MARK SCHEME

Version 1.0

Quality of Written Communication and levels marking

In Question 8(c) candidates are required to produce extended written material in English, and will be assessed on the quality of their written communication as well as the standard of the scientific response.

Candidates will be required to:

- use good English
- organise information clearly
- use specialist vocabulary where appropriate.

The following general criteria should be used to assign marks to a level:

Level 1: basic

- Knowledge of basic information
- Simple understanding
- The answer is poorly organised, with almost no specialist terms and their use demonstrating a general lack of understanding of their meaning, little or no detail
- The spelling, punctuation and grammar are very weak.

Level 2: clear

- Knowledge of accurate information
- Clear understanding
- The answer has some structure and organisation, use of specialist terms has been attempted but not always accurately, some detail is given
- There is reasonable accuracy in spelling, punctuation and grammar, although there may still be some errors.

Level 3: detailed

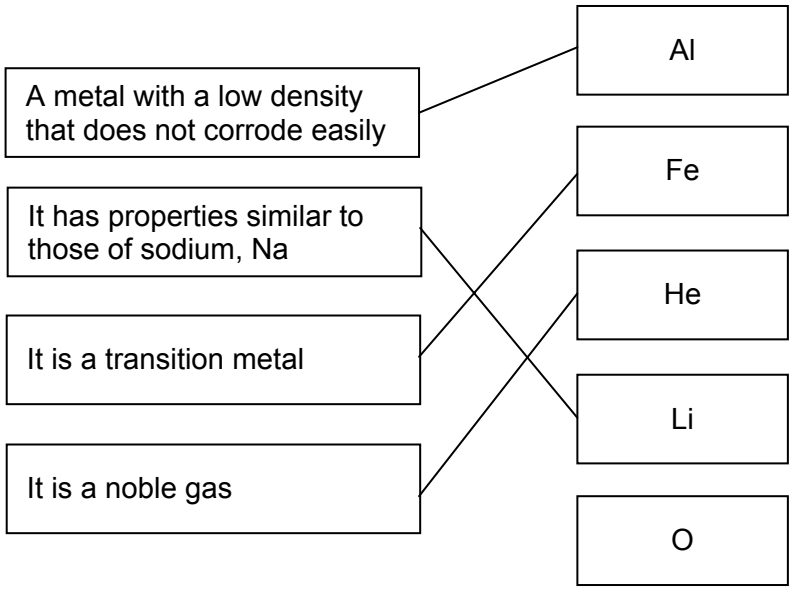
- Knowledge of accurate information appropriately contextualised
- Detailed understanding, supported by relevant evidence and examples
- Answer is coherent and in an organised, logical sequence, containing a wide range of appropriate or relevant specialist terms used accurately.
- The answer shows almost faultless spelling, punctuation and grammar.

In order to attain a mark within a certain level, **both** the science **and** the QWC must be of a standard appropriate to that level.

COMPONENT NUMBER: CH1FP

COMPONENT NAME: GCSE Science A Chemistry 1F

STATUS: Specimen V1.0

question	answers	extra information	mark
1			1 1 1 1
Total			4

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STATUS: Specimen V1.0

question	answers	extra information	mark
2(a)	D C A	letters must be in the order shown	1 1 1
2(b)(i)	floats		1
2(b)(ii)	an emulsion		1
Total			**5**

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STATUS: Specimen V1.0

question	answers	extra information	mark
3(a)(i)	nitrogen		1
3(a)(ii)	carbon dioxide		1
3(a)(iii)	because water boils at 100°C and the temperature on Venus is 460°C therefore any water on the surface would boil to form steam / water vapour / gas		1 1
3(b)	any **three** from: • by photosynthesis • by dissolving in oceans • by the formation of (calcium) carbonate **or** limestone • by the formation of oil **or** coal	accept by the formation of fossil fuels	3
3(c)(i)	0.0317 (%)		1
3(c)(ii)	the percentage of carbon dioxide has increased		1
3(c)(iii)	any **one** from: • burning of fossil fuels • deforestation • release of 'locked up' carbon dioxide		1
Total			**10**

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STATUS: Specimen V1.0

question	answers	extra information	mark
4 (a)	causes dust pollution increases traffic		1 1
4 (b) (i)	decomposition		1
4 (b) (ii)	44(g)		1
4 (c)	(calcium) hydroxide (calcium) carbonate	substances must be in the order shown	1 1
Total			**6**

COMPONENT NUMBER: CH1FP

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STATUS: Specimen V1.0

question	answers	extra information	mark
5 (a)	decane has the largest molecules methane and butane are gases at $20^{o}C$		1 1
5 (b)(i)	water		1
5(b)(ii)	carbon dioxide		1
5 (c)	sulfur dioxide is produced when sulfur burns therefore sulfur must be removed from these fuels because sulfur dioxide causes acid rain		1 1
Total			**6**

COMPONENT NUMBER: CH1FP

COMPONENT NAME: GCSE Science A Chemistry 1F

STATUS: Specimen V1.0

question	answers	extra information	mark
6(a)(i)	copper		1
6(a)(ii)	50p		1
6(a)(iii)	25 (%)		1
6(b)	any **two** from: • high value of copper • less copper available **or** copper ores exhausted / only low-grade ores available • high demand for copper • inflation of prices	 allow copper is expensive **or** contains other metals (that may have higher value now) allow copper is non-renewable	2
Total			**5**

COMPONENT NUMBER: CH1FP

COMPONENT NAME: GCSE Science A Chemistry 1F

STATUS: Specimen V1.0

question	answers	extra information	mark
7(a)(i)	both have one / 1 electron in the outer energy level/shell	allow both react in a similar way	1
7(a)(ii)	eleven / 11		1
7(a)(iii)	twelve / 12		1
7(a)(iv)	(2x)	max **1** if candidate changes the number of electrons in the first energy level / shell	
	8x (in second energy level / shell)		1
	1x (in outer energy level / shell)		1
7(b)	two sodium atoms (react)		1
	two (bonded) chlorine atoms (react)	allow one chlorine molecule (reacts)	1
	two sodium ions and two chloride ions (are produced)	allow two molecules of sodium chloride (are produced) or two sodium chloride particles (are produced)	1
Total			**8**

COMPONENT NUMBER: CH1FP

COMPONENT NAME: GCSE Science A Chemistry 1F

STATUS: Specimen V1.0

question	answers	extra information	mark
8(a)	alkanes catalyst	substances must be in the order shown	1 1
8(b)	many (ethenes / monomers) bond / join together	allow ethenes / monomers bond / join together to form very large molecules for **2** marks	1 1

8(c)

Marks awarded for this answer will be determined by the Quality of Written Communication (QWC) as well as the standard of the scientific response. Examiners should also refer to the information on page 2.

0 marks	Level 1 (1-2 marks)	Level 2 (3-4 marks)	Level 3 (5-6 marks)
No relevant content.	There is a brief description of a positive and a negative environmental impact involved with one or more methods used to reduce the amount of plastic bags sent to landfill.	There is some description of both positive and negative environmental impacts involved with at least 2 methods used to reduce the amount of plastic bags sent to landfill.	There is a clear, balanced and detailed description of both a positive and a negative environmental impact of using each of the 3 methods used to reduce the amount of plastic bags sent to landfill.

examples of the chemistry points made in the response

reuse:
reuse means less bags used so:

positive environmental impact
- saves raw materials / crude oil
- saves energy
- cuts down on CO_2 emissions
- less global warming

negative environmental impact
- could cause litter
- could still be sent to landfill

recycle:
bags can be recycled so:

positive environmental impact
- used to make new plastic bags / objects
- saves raw materials / crude oil
- saves energy compared to producing plastic bags from crude oil
- cuts down on CO_2 emissions
- less global warming

negative environmental impact
- collection point sites cause an eyesore / litter problem
- transportation to recycling plant releases carbon dioxide / causes global warming

burn:
bags can be burned so:

positive environmental impact
- could provide energy for heating buildings
- could provide energy for generating electricity

negative environmental impact
- increases CO_2 emissions
- increases global warming
- could release toxic gases

does not conserve raw materials / crude oil

Total			**10**

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STATUS: Specimen V1.0

question	answers	extra information	mark
9(a)(i)	the continents of South America and Africa would have fitted together like a jigsaw there are matching / similar rocks / fossils on the continents of South America and Africa		1 1
9(a)(ii)	other scientists thought that continents are fixed / cannot float **or** Wegener had no evidence to prove that continents can move and that a land bridge could explain the matching / similar rocks / fossils on the continents of South America and Africa	allow Wegener was not respected by other scientists / PhD in astronomy	1 1
9(b)	radioactive mantle	words must be in the order shown	1 1
Total			**6**