OCR
RECOGNISING ACHIEVEMENT

SPECIMEN F

GENERAL CERTIFICATE OF SECONDARY EDUCATION

TWENTY FIRST CENTURY SCIENCE **A171/01**

CHEMISTRY A

Unit A171: Modules C1, C2, C3 (Foundation Tier)

Candidates answer on the question paper
A calculator may be used for this paper

OCR Supplied Materials:
None

Other Materials Required:
- Pencil
- Ruler (cm/mm)

Duration: 1 hour

Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES

- Your quality of written communication is assessed in questions marked with a pencil (✎).
- The number of marks for each question is given in brackets **[ ]** at the end of the question or part question.
- The total number of marks for this paper is **60**.
- This document consists of **20** pages. Any blank pages are indicated.

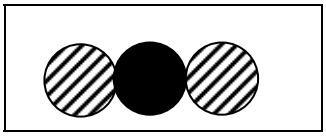
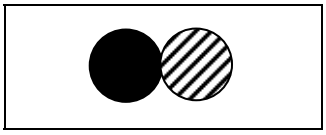
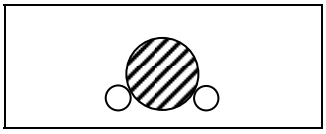
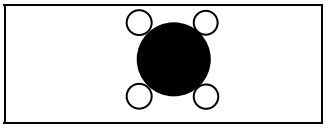
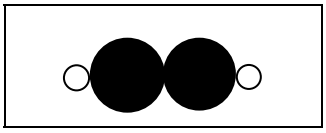
For Examiner's Use		
	Max	**Mark**
1	**5**	
2	**9**	
3	**6**	
4	**8**	
5	**7**	
6	**5**	
7	**10**	
8	**4**	
9	**6**	
TOTAL	**60**	

Answer **all** the questions.

1 Ethene is used as a fuel. It is obtained from crude oil.

(a) Carbon dioxide and water are produced when ethene burns completely.

Draw a straight line from each **product** to the **diagram** representing its molecule.

product	**diagram**
carbon dioxide	
	
	
water	
	

Key: ● carbon ◍ oxygen ○ hydrogen

[2]

(b) A scientist analyses the products of combustion of ethene.

He collects all the products of the reaction.

His results are shown in the table.

	mass in g
carbon dioxide	82.0
water vapour	70.2
carbon monoxide	52.0
carbon	2.0
total	**206.2**

(i) The scientist calculates that carbon dioxide made up 39.8% of the mass of the total products.

What is the percentage by mass of carbon monoxide?

percentage by mass = ... % **[1]**

(ii) What can be concluded from these results about the conditions in which combustion occurred?

Explain your answer.

.....

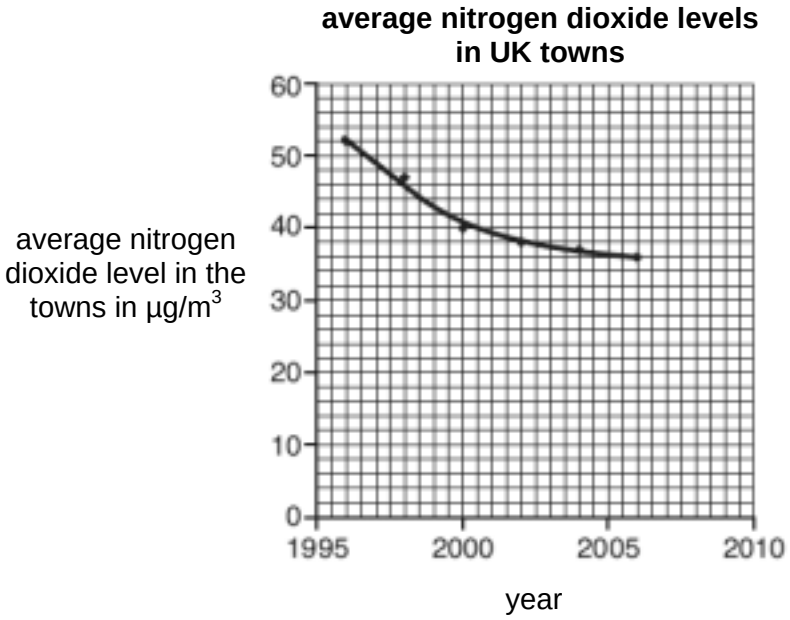
.....

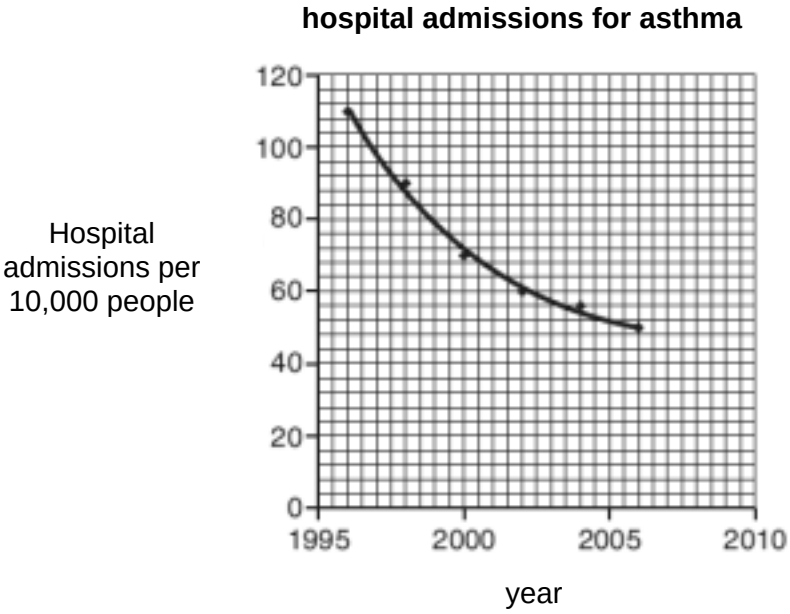
..... **[2]**

[Total: 5]

2 This question is about air pollution.

The graphs show nitrogen dioxide pollution in the air and the number of hospital admissions for asthma between 1996 and 2006.





(a) (i) What was the average nitrogen dioxide level in UK towns in 2000?

answer = ... µg / m^3 **[1]**

(ii) In what year did hospital admissions reach 60 per 10 000 people?

year = ... **[1]**

(b) (i) The graphs, **when taken together**, show a correlation between two factors.

Write a sentence to describe this correlation.

.....

..... **[1]**

(ii) Scientists looking at the graphs suggest that nitrogen dioxide in the air may cause asthma.

What extra information would support this suggestion?

Put ticks (✓) in the boxes next to the **two** correct answers.

how nitrogen dioxide is made in a car engine	☐
nitrogen dioxide levels in the countryside	☐
how nitrogen dioxide affects breathing	☐
similar data from other countries	☐
how many asthma inhalers are prescribed by doctors	☐

[2]

(c) The number of cars and lorries on the roads increased between 1996 and 2006.

During this time, the amount of pollution by nitrogen dioxide decreased.

Describe and explain how nitrogen dioxide pollution from cars and lorries has been reduced.

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..... **[4]**

[Total: 9]

3 The atmosphere of Venus was originally formed from gases released from inside the planet.

It is nearly completely made of carbon dioxide (96.5%).

The surface temperature is about 464°C.

How does the atmosphere of the Earth compare with the atmosphere of Venus?

Suggest similarities and differences in

- how the atmosphere formed
- the way this affected what the atmosphere is now made of.

The quality of written communication will be assessed in your answer to this question.

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..... **[6]**

[Total: 6]

4 The table shows how the Olympic record height for the pole vault event has increased over the last 60 years.

It also shows the material used to make the pole.

year that record was broken	Olympic record in metres	material used to make the pole
1948	4.45	bamboo
1952	4.55	bamboo
1960	4.70	bamboo
1964	5.10	polymer and glass fibre
1968	5.40	polymer and glass fibre
1972	5.50	polymer and glass fibre
1980	5.80	polymer and glass fibre
1988	5.90	polymer and glass fibre
2004	5.95	polymer and glass fibre
2008	5.96	polymer and glass fibre

(a) Here are four statements about the pole vault Olympic record height.

Use the evidence in the table to evaluate each statement.

Put a tick (✓) in the correct box next to each statement to show whether it is **true** or **false**.

	true	**false**
The world record doubled between 1948 and 2008.	☐	☐
The record increased by more than 1 m between 1948 and 2008.	☐	☐
The biggest increase over 4 years was between 1960 and 1964.	☐	☐
The record improved when polymer and glass fibre poles were introduced.	☐	☐

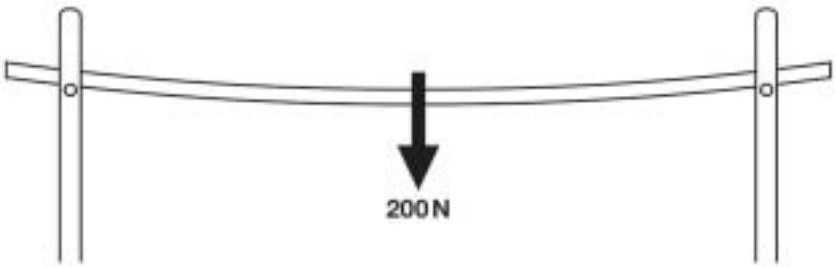
[2]

(b) Anna and Nick are investigating the properties of vaulting poles.

They know that flexibility (how far the pole bends) is an important property.

They support a pole at both ends as shown in the diagram.

They hang a 200 N weight from the centre of the pole and measure how far the pole bends.



(i) They repeat this measurement five times.

Suggest reasons why.

.....

..... **[2]**

Here are their results.

test number	**1**	**2**	**3**	**4**	**5**
how far the pole bends in cm	11.4	10.9	11.5	11.0	11.2

(ii) Suggest why the results of the five tests are different.

. .....

.....

.....

..... **[2]**

(iii) What is the best estimate of the true value of how far the pole bends?

Put a (ring) around the correct answer.

10.9 **11.0** **11.2** **11.4** **11.5**

[1]

(iv) Within what range does the true value probably lie?

..... to ..... **[1]**

[Total: 8]

5 Read the newspaper article.

> **Skincare creams use nanotechnology**
>
> Nanoparticles can be put in face creams and sunscreens.
>
> These creams are easy to apply and invisible on the skin.
>
> At the moment it is impossible for consumers to tell if the creams contain nanoparticles.

(a) It has been suggested that labelling of these creams should show that they contain nanoparticles.

Why should this information be included?

Put a tick (✓) in the box next to the correct answer.

Nanotechnology increases the cost of the creams.	☐
Not all the effects of nanoparticles are fully understood.	☐
Creams containing nanoparticles are easy to apply.	☐
Nanoparticles can occur naturally.	☐
Nanoparticles are too small to see.	☐

[1]

(b) Nanoparticles are also added to other materials.

Adding nanoparticles changes the properties of these materials.

Describe **two** examples of products, other than skincare creams, that have nanoparticles added to them.

Explain how adding nanoparticles changes the properties of these products, and suggest why this is useful.

The quality of written communication will be assessed in your answer to this question.

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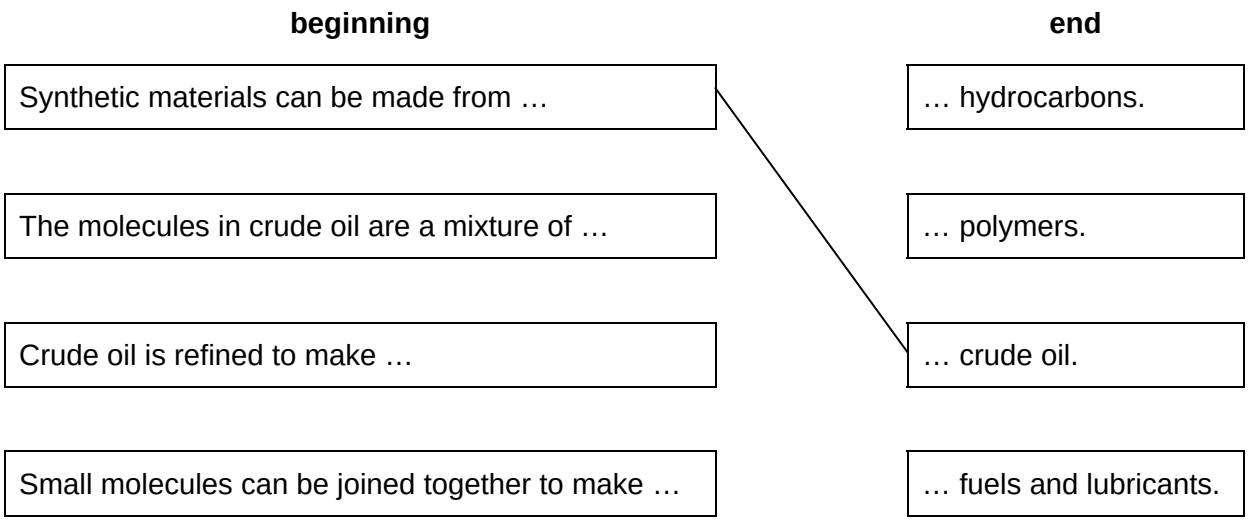
..... **[6]**

[Total: 7]

6 (a) The sentences below describe how polymers can be made.

Draw a straight line from the **beginning** of each sentence to its correct **end**.

The first one has been done for you.



[2]

(b) Hydrocarbons are one type of polymer.

Look at the table showing the number of carbon atoms in their chains and their boiling points.

hydrocarbon	number of carbon atoms in chain	boiling point in °C
ethane	2	-89
propane	3	-42
butane	4	-0.5
pentane	5	36

This shows that as the number of carbon atoms in the chain increases, the boiling point increases.

Use ideas about the forces between molecules to explain this trend.

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..... **[3]**

[Total: 5]

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Question 7 starts on page 14

7 A website gives information about salt in the diets of children.

> The daily maximum amount of salt for children depends on their age.
>
> | | | |
> |---|---|---|
> | 1 to 3 years old | – | 2 g salt per day |
> | 4 to 6 years old | – | 3 g salt per day |
> | 7 to 10 years old | – | 5 g salt per day |
> | 11 years old and over | – | 6 g salt per day |

The mean mass of children at different ages is also given in a table.

age in years	1	2	3	4	5	6	7	8	9	10	11
mean mass in kg	9.9	12.9	14.5	16.1	18.5	21.0	23.0	25.9	28.5	31.9	35.4

Use this information to answer the following questions.

(a) What is the relationship between the age of the children and the daily maximum amount of salt?

Complete the sentence by putting a tick (✓) in the box next to the correct answer.

As children get older, the daily maximum salt intake …

… keeps increasing. ☐

… increases gradually until age 11. ☐

… stays the same. ☐

… decreases gradually. ☐

[1]

(b) (i) Tom is surprised by these figures.

He suggests that the limit for a 1-year-old should be lower than the limit for a 3-year-old.

What evidence in the table supports his suggestion?

.....

..... **[1]**

(ii) A health advisor reassures Tom that the figures are safe, although they are not as precise as they could be.

What are possible reasons for this?

Put ticks (✓) in the boxes next to the **two** correct reasons.

Providing that the figure is safe for the youngest children in the range, it will also be safe for older children.	☐
Salt is a preservative so is needed in some foods.	☐
All of the figures are very low anyway.	☐
It is better to keep the figures as simple as possible so that they can be remembered more easily.	☐
Salt improves flavour so encourages children to eat a variety of healthy foods.	☐

[1]

(c) John is 5 years old.

For his dinner he eats

- one 200 g hamburger, which contains 1.89 g salt
- 225 g baked beans, which contain 2.98 g salt.

What advice would you give to John's mother about his salt intake from this meal?

.....

..... **[1]**

(d) Many food companies add salt to improve the taste of their food. Salt is also a food preservative.

Food companies are being told to reduce the amount of salt in their products.

Explain why

- food companies **may not want** to lower the amount of salt in their food
- food companies **should be made** to lower the amount of salt in their foods.

The quality of written communication will be assessed in your answer to this question.

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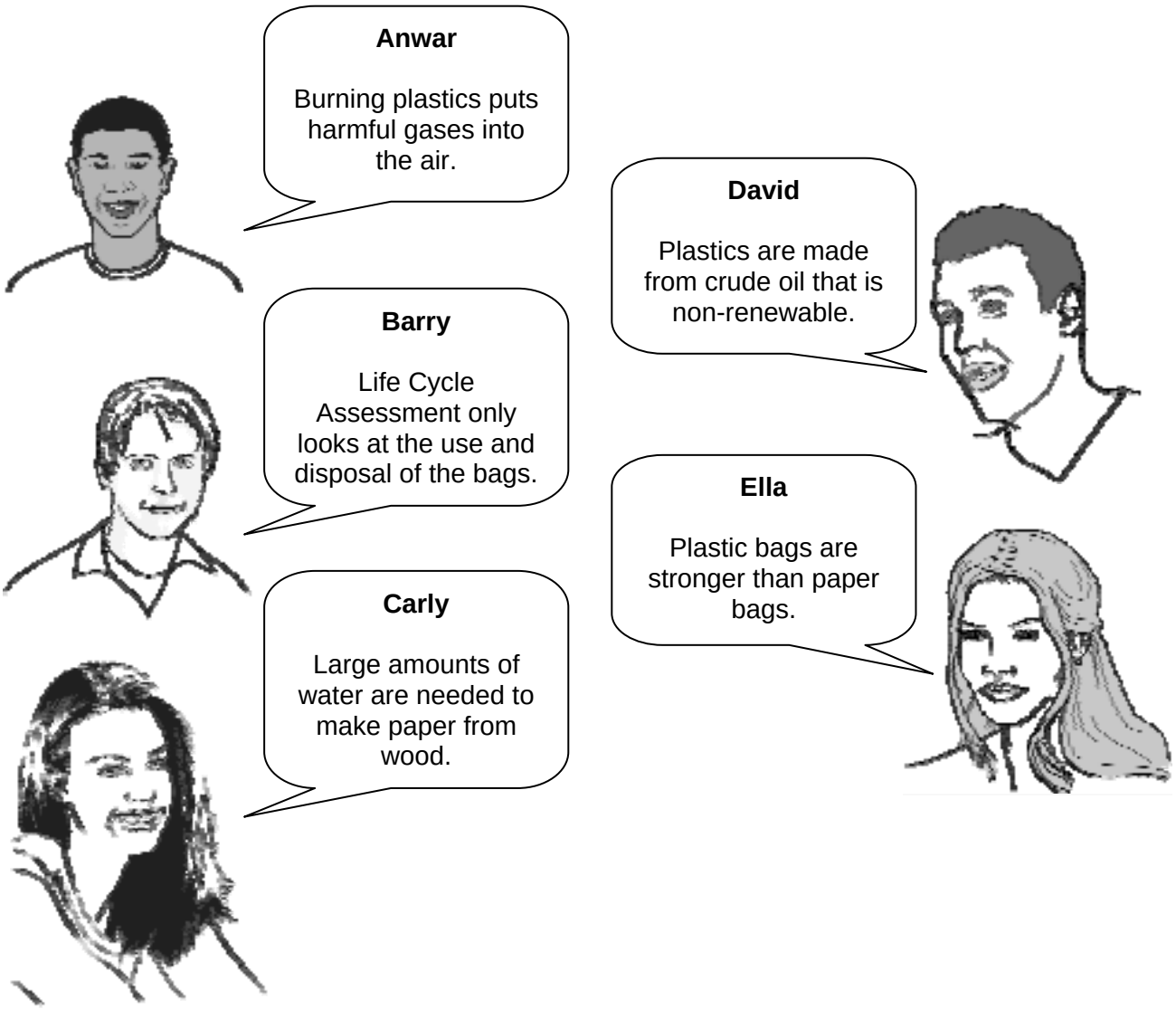
..... **[6]**

[Total: 10]

8 Some students are talking about the Life Cycle Assessment (LCA) of poly(ethene) bags and paper bags.

Here is what they say.



(a) Which two students are talking about resources?

..... and ..... **[2]**

(b) Which person is talking about the environmental problems of disposal?

..... **[1]**

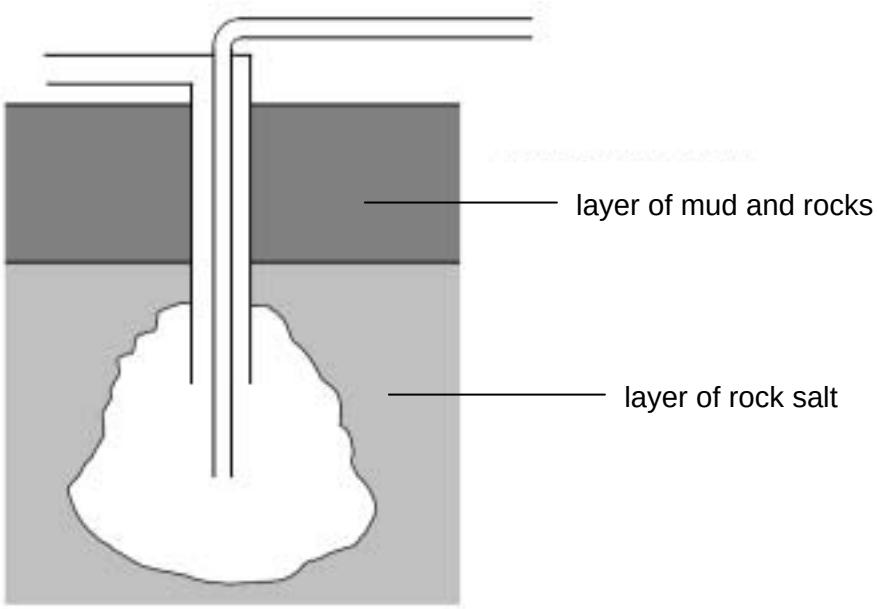
(c) Which one of these people is making an incorrect statement?

..... **[1]**

[Total: 4]

9 Salt is found underneath the ground in some parts of the UK.

The diagram shows one way in which salt can be obtained from underground.



(a) Use the diagram to describe how salt is obtained from underneath the ground.

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..... **[3]**

(b) What effect might solution mining have on the environment?

Include in your answer

- the effect on the land above the mine
- how this affects people who live there.

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..... **[3]**

[Total: 6]

[Paper Total: 60]

END OF QUESTION PAPER

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TWENTY FIRST CENTURY SCIENCE

CHEMISTRY A **A171/01**

Unit A171: Modules C1, C2, C3 (Foundation Tier)

MARK SCHEME

MAXIMUM MARK 60

This document consists of 16 pages

Guidance for Examiners

Additional guidance within any mark scheme takes precedence over the following guidance.

1. Mark strictly to the mark scheme.
2. Make no deductions for wrong work after an acceptable answer unless the mark scheme says otherwise.
3. Accept any clear, unambiguous response which is correct, e.g. mis-spellings if phonetically correct (but check additional guidance).
4. Abbreviations, annotations and conventions used in the detailed mark scheme:

   / = alternative and acceptable answers for the same marking point
   (1) = separates marking points
   not/reject = answers which are not worthy of credit
   ignore = statements which are irrelevant - applies to neutral answers
   allow/accept = answers that can be accepted
   (words) = words which are not essential to gain credit
   words = underlined words must be present in answer to score a mark
   ecf = error carried forward
   AW/owtte = alternative wording
   ORA = or reverse argument

   Eg mark scheme shows 'work done in lifting / (change in) gravitational potential energy' (1)
   work done = 0 marks
   work done lifting = 1 mark
   change in potential energy = 0 marks
   gravitational potential energy = 1 mark

5. Annotations:
   The following annotations are available on SCORIS.

   ✓ = correct response
   ✖ = incorrect response
   bod = benefit of the doubt
   nbod = benefit of the doubt **not** given
   ECF = error carried forward
   ^ = information omitted
   I = ignore
   R = reject

6. If a candidate alters his/her response, examiners should accept the alteration.

7. Crossed out answers should be considered only if no other response has been made. When marking crossed out responses, accept correct answers which are clear and unambiguous.

   Eg
   For a one mark question, where ticks in boxes 3 and 4 are required for the mark:

Put ticks (✓) in the two correct boxes.	Put ticks (✓) in the two correct boxes.	Put ticks (✓) in the two correct boxes.
☐	☐	✓
☐	☐	✓
✓	✓	☐
✓	✓	☐
☐	☐	☐
This would be worth 0 marks.	This would be worth one mark.	This would be worth one mark.

8. The list principle:
   If a list of responses greater than the number requested is given, work through the list from the beginning. Award one mark for each correct response, ignore any neutral response, and deduct one mark for any incorrect response, eg one which has an error of science. If the number of incorrect responses is equal to or greater than the number of correct responses, no marks are awarded. A neutral response is correct but irrelevant to the question.

9. Marking method for tick boxes:

   Always check the additional guidance.

   If there is a set of boxes, some of which should be ticked and others left empty, then judge the entire set of boxes.
   If there is at least one tick, ignore crosses. If there are no ticks, accept clear, unambiguous indications, eg shading or crosses.
   Credit should be given for each box correctly ticked. If more boxes are ticked than there are correct answers, then deduct one mark for each additional tick. Candidates cannot score less than zero marks.

   Eg If a question requires candidates to identify a city in England, then in the boxes

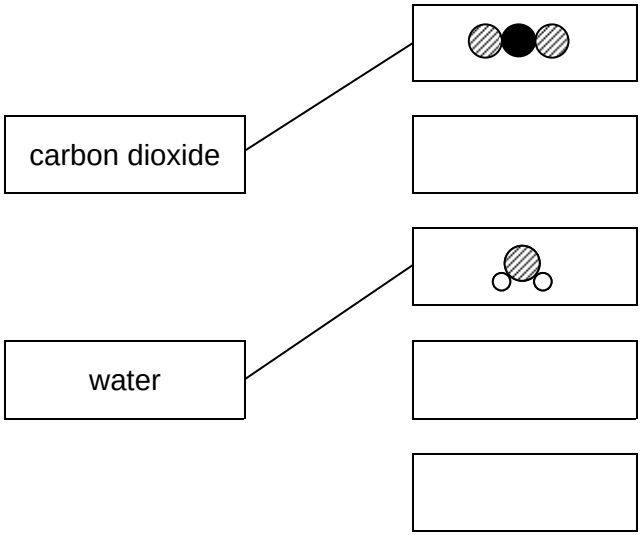
Edinburgh	
Manchester	
Paris	
Southampton	

   the second and fourth boxes should have ticks (or other clear indication of choice) and the first and third <u>should be blank</u> (or have indication of choice crossed out).

Edinburgh			✓			✓	✓	✓	✓	
Manchester	✓	×	✓	✓	✓				✓	
Paris				✓	✓		✓	✓	✓	
Southampton	✓	×		✓		✓	✓		✓	
Score:	2	2	1	1	1	1	0	0	0	NR

10. Three questions in this paper are marked using a Level of Response (LoR) mark scheme with embedded assessment of the Quality of Written Communication (QWC). When marking with a Level of Response mark scheme:

- Read the question in the question paper, and then the list of relevant points in the 'Additional guidance' column of the mark scheme, to familiarise yourself with the expected science. The relevant points are not to be taken as marking points, but as a summary of the relevant science from the specification.
- Read the level descriptors in the 'Expected answers' column of the mark scheme, starting with Level 3 and working down, to familiarise yourself with the expected levels of response.
- *For a general correlation between quality of science and QWC*: determine the level based upon which level descriptor best describes the answer; you may award either the higher or lower mark within the level depending on the quality of the science and/or the QWC.
- *For high-level science but very poor QWC*: the candidate will be limited to Level 2 by the bad QWC no matter how good the science is; if the QWC is so bad that it prevents communication of the science the candidate cannot score above Level 1.
- *For very poor or totally irrelevant science but perfect QWC*: credit cannot be awarded for QWC alone, no matter how perfect it is; if the science is very poor the candidate will be limited to Level 1; if there is insufficient or no relevant science the answer will be Level 0.

Question			Expected answers	Marks	Additional guidance
1	(a)			[2]	1 mark for each correct answer
	(b)	(i)	25.2	[1]	
		(ii)	there was a lack of oxygen since carbon monoxide and carbon were produced due to incomplete combustion	[2]	for full marks the explanation must be linked to the conclusion
			Total	[5]	

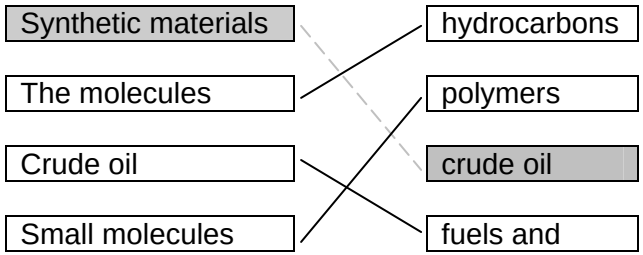
Question			Expected answers	Marks	Additional guidance
2	(a)	(i)	41	[1]	**allow** 40 - 42
		(ii)	2002	[1]	**allow** 2003
	(b)	(i)	as nitrogen dioxide levels decrease, the number of hospital admissions decreases / ORA	[1]	**ignore** correlations with time
		(ii)	☐ ☐ how nitrogen dioxide affects breathing. ✓ similar data from other ... ✓ ☐	[2]	
	(c)		**any two of the following for two marks each** • more efficient engines; which burn less fuel so make less nitrogen dioxide • catalytic converters; that reduce nitrogen monoxide to nitrogen and oxidise carbon monoxide to carbon dioxide • enforced legal limits to emissions; which make people maintain efficient engines	[4]	**ignore** references to sulfur **ignore** refs to public transport
			Total	[9]	

Question			Expected answers	Marks	Additional guidance
3		✎	**[Level 3]** Similarities and differences between the present atmospheres (for the factors mentioned in the question) fully described and related to similarities and differences in the formation of the atmospheres. All information in answer is relevant, clear, organised and presented in a structured and coherent format. Specialist terms are used appropriately. Few, if any, errors in grammar, punctuation and spelling. (5-6 marks) **[Level 2]** Similarities and differences in atmosphere composition and formation partially described with an attempt to relate these to one another. For the most part the information is relevant and presented in a structured and coherent format. Specialist terms are used for the most part appropriately. There are occasional errors in grammar, punctuation and spelling. (3-4 marks) **[Level 1]** Limited description of similarities and differences with little or no attempt to relate differences in formation to differences in composition. Answer may be simplistic. There may be limited use of specialist terms. Errors of grammar, punctuation and spelling prevent communication of the science. (1-2 marks) **[Level 0]** Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)	**[6]**	**relevant points include:** composition • both contain carbon dioxide and nitrogen • much less CO_2 in Earth's atmosphere and much more N_2 formation • both originally formed from gases released from inside planet/volcanic activity • original atmosphere of both was mainly carbon dioxide • as the Earth cooled water vapour condensed to form the oceans, but Venus may have been too hot for water to condense (this is a 'suggest' question so reasonable suggestion should be credited) • on Earth carbon dioxide dissolved in oceans, but no oceans on Venus (reasonable suggestion) • plants evolved on Earth but not on Venus • (on Earth) as the trees and plants grew they photosynthesised to make their own food • (on Earth) absorbed carbon dioxide • (on Earth) produced oxygen • (on Earth) carbon dioxide decreased in the atmosphere • (on Earth) oxygen increased in the atmosphere • (on Earth) water vapour decreased in the atmosphere • but on Venus carbon dioxide not reduced and oxygen not increased since no plants/photosynthesis
			Total	**[6]**	

Question			Expected answers	Marks	Additional guidance
4	(a)		<table><tr><th></th><th>true</th><th>false</th></tr><tr><td>The world record doubled ...</td><td></td><td>✓</td></tr><tr><td>... between 1948 and 2008.</td><td>✓</td><td></td></tr><tr><td>... between 1960 and 1964.</td><td>✓</td><td></td></tr><tr><td>The record improved ...</td><td>✓</td><td></td></tr></table>	[2]	all 4 correct = 2 marks 3 correct = 1 mark
	(b)	(i)	**any two from:** find the best estimate of the true value identify outliers discard outliers ensure results are reliable	[2]	
		(ii)	**any two from:** human error in measuring weight not placed in middle / weight hung from a different place supports move apart or together / pole in a different position on supports pole does not straighten after weight hung on it	[2]	
		(iii)	11.2	[1]	
		(iv)	10.9 to 11.5	[1]	**accept** 11.5 to 10.9
			Total	[8]	

Question			Expected answers	Mark	Additional guidance
5	(a)		Not all the effects … ☐ Not all the effects … ✓ ☐ ☐ ☐	[1]	tick in any other box = 0 marks

Question			Expected answers	Mark	Additional guidance
5	(b)	✎	**[Level 3]** Answer gives two different examples, each with clear details of the property that changes and a suggested benefit. All information in answer is relevant, clear, organised and presented in a structured and coherent format. Specialist terms are used appropriately. Few, if any, errors in grammar, punctuation and spelling. (5 – 6 marks) **[Level 2]** Answer fully describes **one** example **OR** gives **two** examples but omits detail from both. For the most part the information is relevant and presented in a structured and coherent format. Specialist terms are used for the most part appropriately. There are occasional errors in grammar, punctuation and spelling. (3 – 4 marks) **[Level 1]** Answer names **two** examples but gives no further detail about properties or benefits **OR** gives only **one** example and omits either the property that has changed or the benefit. Answer may be simplistic. There may be limited use of specialist terms. Errors of grammar, punctuation and spelling prevent communication of the science. (1 – 2 marks) **[Level 0]** Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)	**[6]**	**relevant points include:** • fibres / cloths / bandages etc. • (have <u>silver</u> nanoscale particles added) • gives the fibre antibacterial properties (that weren't there before) • keeps the material sterile / used in hospitals / keeps wounds clean / stops the spread of bacteria/germs • sports equipment • makes them stronger (than they were before) • lasts longer / does not break / improves performance • relate changes of properties to much larger surface area compared to their volume **accept** any correct example **reject** any answer related to face/skin creams or sunscreens
			Total	**[7]**	

Question			Expected answers	Marks	Additional guidance
6	(a)			[2]	3 lines correct = 2 marks 2 or 1 line correct = 1 mark
	(b)		larger hydrocarbons have larger forces between the molecules therefore more energy is needed to break them out of liquid form into a gas so the boiling point occurs at a higher temperature	[3]	**accept** converse answers for full marks answer must be coherent and logically link points to address the question
			Total	[5]	

Question			Expected answers	Marks	Additional guidance
7	(a)		… increases gradually until age 11. ☐ ✓ ☐ ☐	[1]	
	(b)	(i)	idea that a 1-year-old is much smaller than a 3-year-old (so needs less salt)	[1]	**accept** quoted figures of mass and age from table to make this comparison
		(ii)	Providing that the figure is … ✓ ☐ ☐ It is better to keep the … ✓ ☐	[1]	both required for the mark
	(c)		John's salt intake should be reduced / choose foods lower in salt / owtte	[1]	mark is for advice, not for calculation

Question			Expected answers	Mark	Additional guidance
7	(d)	✎	**[Level 3]** Answer clearly considers (perceived) risks versus (perceived) benefits in the argument *against* lowering salt, and in the argument *for* lowering salt. All information in answer is relevant, clear, organised and presented in a structured and coherent format. Specialist terms are used appropriately. Few, if any, errors in grammar, punctuation and spelling. (5-6 marks) **[Level 2]** Answer for the most part considers (perceived) risks and (perceived) benefits on both sides of the argument. For the most part the information is relevant and presented in a structured and coherent format. Specialist terms are used for the most part appropriately. There may be occasional errors in grammar, punctuation and spelling. (3-4 marks) **[Level 1]** Answer shows a limited consideration of (perceived) risks and (perceived) benefits, but may not address both sides of the argument. Answer may be simplistic. There may be limited use of specialist terms. Errors of grammar, punctuation and spelling may be intrusive. (1-2 marks) **[Level 0]** Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)	**[6]**	**relevant points include:** Food companies may not want to lower the amount of salt in their food because: • (the companies think) the , cost of reformulating recipes / cost of removing salt / risk of decreased sales (due to , poorer taste / shorter shelf life) , outweighs benefits to health • (the companies think) the benefits of taste and preservative outweigh (perceived) risk(s) to health Food companies should be made to lower the amount of salt in their foods because: • too much salt in a diet increases the risk of high blood pressure, heart disease and strokes • risk / cost , of ill health outweighs benefits of adding salt • benefit to population outweighs , risk / cost , to food companies
			Total	**[10]**	

Question			Expected answers	Marks	Additional guidance
8	(a)		David Carly	[2]	answers in either order
	(b)		Anwar	[1]	
	(c)		Barry	[1]	
			Total	[4]	

Question			Expected answers	Marks	Additional guidance
9	(a)		water is pumped to the salt layer (down the outer pipe) salt dissolves in the water pressure pushes salt solution back to surface (through middle pipe)	[3]	points must be coherently and logically linked for three marks
	(b)		**any three from:** land above mine is unsupported/less stable so land could sink into the mine / subsidence which causes damage to buildings and roads meaning people can't live in houses / have to pay cost of repair	[3]	for full marks answer must be coherent and logically link points **accept** danger from falling into cracks / owtte
			Total	[6]	

Assessment Objectives (AO) Grid

(includes quality of written communication ✎)

Question	AO1	AO2	AO3	Total
1(a)	2			**2**
1(b)(i)		1		**1**
1(b)(ii)	1		1	**2**
2(a)(i)		1		**1**
2(a)(ii)		1		**1**
2(b)(i)			1	**1**
2(b)(ii)		2		**2**
2(c)	3	1		**4**
3✎	3	2	1	**6**
4(a)		1	1	**2**
4(b)(i)	1	1		**2**
4(b)(ii)	1	1		**2**
4(b)(iii)		1		**1**
4(b)(iv)		1		**1**
5(a)		1		**1**
5(b)✎	4	2		**6**
6(a)	2			**2**
6(b)	1	2		**3**
7(a)		1		**1**
7(b)(i)		1		**1**
7(b)(ii)			1	**1**
7(c)			1	**1**
7(d)✎	2	2	2	**6**
8(a)		2		**2**
8(b)		1		**1**
8(c)		1		**1**
9(a)	3			**3**
9(b)	3			**3**
Totals	**26**	**26**	**8**	**60**

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