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Examiners' Report
June 2012

GCSE Chemistry 5CH2H 01

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Introduction

This was the first C2 chemistry examination for the new GCSE Science specification. The new C2 unit 'Discovering chemistry' is designed to build on the work covered in C1 to provide a more extensive understanding of chemistry.

The unit is assessed through a one hour, 60 mark, written examination containing a mixture of question styles, including objective questions, short answer questions and extended writing questions. The quality of the candidates' written communication is assessed in the extended writing questions, including clear use of correct scientific terms. It was pleasing to see that most candidates attempted the new style extended writing questions.

Some excellent answers were seen from the more successful candidates.

Less successful candidates

- had not learnt precise definitions of common terms e.g. isotopes or covalent bond
- used chemical formulae as shorthand for the names of substances e.g. HCl
- could not write balanced chemical equations
- showed confusion in language e.g. molecules instead of atoms.

Candidates need to be discouraged from using generalisations and chemical formulae as shorthand. They should be encouraged to think carefully about their use of language and scientific terminology. They should also be encouraged to plan their answers to extended writing questions ensuring that a well structured answer that fully answers the question is produced.

This report will provide exemplification of candidates' work, together with tips and/or comments, for a selection of questions. The exemplification will come mainly from questions which required more complex responses from candidates.

Question 1 (a)

The majority of candidates were able to identify indium as a metal but fewer managed to explain their answer. Some did not realise that groups could contain both metals and non-metals. Indium was commonly identified as a transition metal, as candidates did not recognise where this section finished in the periodic table.

Answer ALL questions

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Group 3

1 The elements in group 3 of the periodic table are boron, aluminium, gallium, indium and thallium.

(a) Elements can be classified as metals or non-metals.

Explain, using its position in the periodic table, whether indium is a metal or a non-metal.

(2)

It is a metal.

It is before the ~~sep~~ seperator.

- Group 3 are all metal except boron so indium is a metal

ResultsPlus
Examiner Comments

In this answer the idea of the dividing line between metals and non metals was not well explained, but the correct reference to group 3 confirmed the second mark.

ResultsPlus
Examiner Tip

Try to express your answers clearly using scientific language.

Answer ALL questions

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Group 3

1 The elements in group 3 of the periodic table are boron, aluminium, gallium, indium and thallium.

(a) Elements can be classified as metals or non-metals.

Explain, using its position in the periodic table, whether indium is a metal or a non-metal.

(2)

Indium is a metal because on the periodic table there is a 'staircase' that seperates metals from non-metals.

ResultsPlus
Examiner Comments

This answer clearly identifies the 'staircase' but does not state that indium is on the left of this, so the second mark was not awarded.

ResultsPlus
Examiner Tip

Read through your work and ensure that you have provided a clear and unambiguous answer.

Answer ALL questions

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Group 3

1 The elements in group 3 of the periodic table are boron, aluminium, gallium, indium and thallium.

(a) Elements can be classified as metals or non-metals.

Explain, using its position in the periodic table, whether indium is a metal or a non-metal.

(2)

Indium is a metal we know this because it is on the left hand side of the periodic table where the metals are found

ResultsPlus
Examiner Comments

A vague explanation. Indium is actually on the right hand side of the periodic table but to the left of the metal non-metal dividing line.

ResultsPlus
Examiner Tip

Think carefully about the answer that you are writing.

Question 1 (c) (ii)

(ii) Explain what is meant by the term **isotopes**.

(2)

Isotopes are different forms of one element

ResultsPlus
Examiner Comments

This answer was too vague to score. It needed to say different atoms, or indicate how they are different.

ResultsPlus
Examiner Tip

Try to add detail into your answer by using scientific terminology correctly.

(ii) Explain what is meant by the term **isotopes**.

(2)

Isotopes are diggerent atomic structures of the same element, with the same number of protons but diggerent number of neutrons.

ResultsPlus
Examiner Comments

A good answer. Some slightly weaker answers mentioned amount rather than number, but this was not penalised.

ResultsPlus
Examiner Tip

Try to learn definitions and state them in precise scientific terms.

Question 1 (c) (iii)

Many candidates clearly stated, that there is a greater number of atoms with a mass of 11, than that of 10. Common errors included the rounding up of decimal places to give 11, and relating their answer to the periodic table.

(iii) A sample of boron contains the two isotopes, boron-10 and boron-11.
The relative atomic mass of boron is 10.8

Give the reason why the relative atomic mass is closer to 11 than 10.

(1)

Because the .8 makes it round up to eleven rather than ten. Anything of .5 or over .8^ is rounded up to the next whole number.

(Total for Question 1 = 7 marks)

ResultsPlus
Examiner Comments

A common error suggesting that 10.8 rounds up to 11.

ResultsPlus
Examiner Tip

Read the question carefully. The question asks why the relative atomic mass is closer to 11 than 10.

(iii) A sample of boron contains the two isotopes, boron-10 and boron-11.
The relative atomic mass of boron is 10.8

Give the reason why the relative atomic mass is closer to 11 than 10.

(1)

Boron's relative atomic mass on the periodic table is 11 so it is closer to 11 than 10.

(Total for Question 1 = 7 marks)

ResultsPlus
Examiner Comments

Another common error where an attempt is made to link the answer to information in the periodic table.

Question 2 (b)

Many candidates found this question challenging. Those that did identify the product as hydrochloric acid, sometimes lost the first mark by giving vague answers such as "the hydrogen chloride mixes with the water".

Explain what was formed in the test tube after the water had entered.

(2)

The hydrogen formed more water (H_2O) and made water levels rise and chlorine gas would be left in the test tube.

ResultsPlus
Examiner Comments

A common misconception was that chlorine and/or water was the main product formed at the end of the experiment

ResultsPlus
Examiner Tip

Think carefully before answering a question. How could water be formed if the test tube is full of hydrogen chloride. There is no oxygen.

Explain what was formed in the test tube after the water had entered.

(2)

The hydrogen chloride gas would have dissolved in the water. When this happens HCl is produced.

ResultsPlus
Examiner Comments

It is never correct to use formulae as shorthand for the names of substances.

sultsPlus
Examiner Tip

Always write out the names of substances. Only use formulae in equations.

Question 2 (c)

Most candidates realised this was a displacement reaction, but sometimes did not pick up a second mark because they said chlorine was more reactive than **bromide,** or they thought the orange colour was due to potassium chloride. Some talked about a precipitate being formed even though there was no mention of a precipitate in the question.

(c) When chlorine is bubbled into potassium bromide solution, the solution turns orange.

Explain why this happens.

(2)

The potassium bromide solution turns orange when chlorine is bubbled through it because chlorine displaces the potassium bromide because chlorine is more reactive than bromine and so the potassium bromide solution turns orange.

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Examiner Comments

This answer states that chlorine displaces potassium bromide, not bromine, and does not state that the orange colour is caused by bromine. 1 mark was awarded for the statement that chlorine is more reactive than bromine.

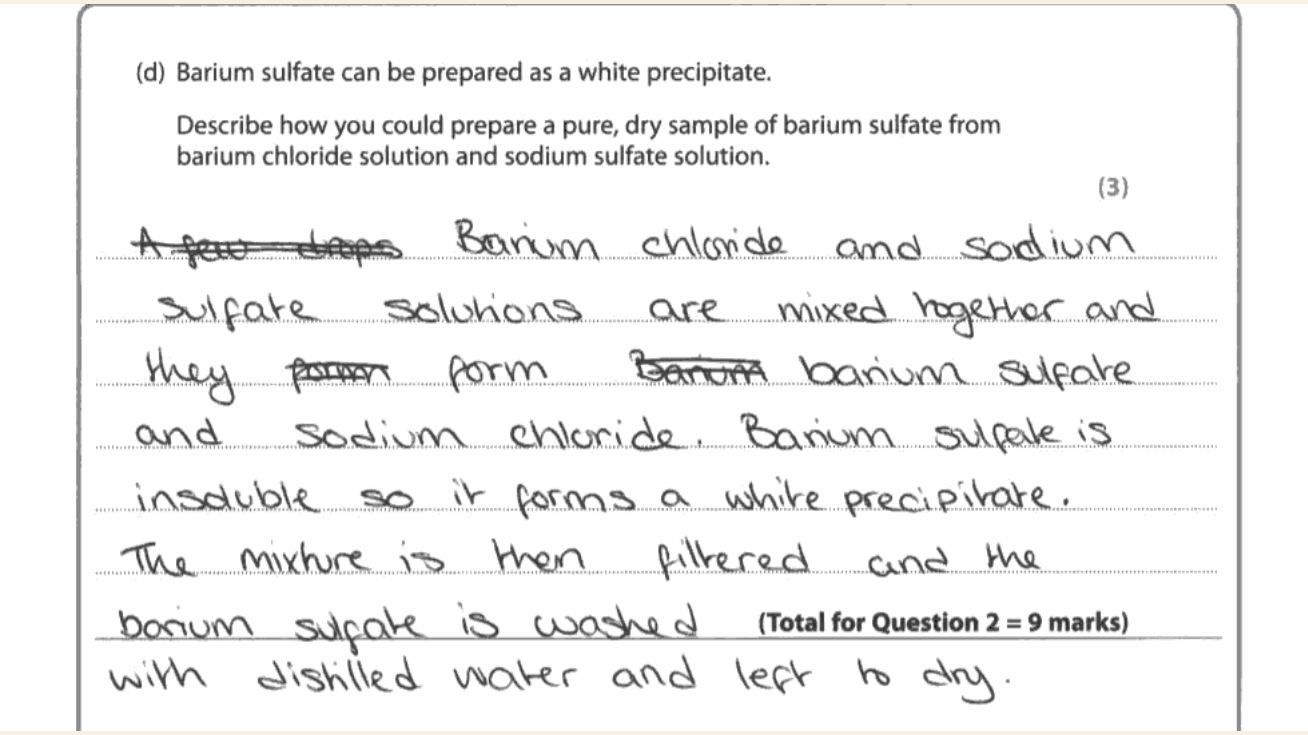
ResultsPlus
Examiner Tip

Take care when answering questions and make sure you use words such as bromine and bromide correctly.

Question 2 (d)

Candidates that appeared to have carried out the practical, generally had few problems obtaining marks on this question. Marks were lost for stating 'react solutions' and not giving the **method** of reacting i.e. mixing and stating 'dry the precipitate', but not giving the **method** of drying.

There was some confusion with the test for sulfate ions, with some candidates suggesting that dilute hydrochloric acid should be added.



(d) Barium sulfate can be prepared as a white precipitate.

Describe how you could prepare a pure, dry sample of barium sulfate from barium chloride solution and sodium sulfate solution.

(3)

~~A few drops~~ Barium chloride and sodium sulfate solutions are mixed together and they ~~form~~ form ~~Barium~~ barium sulfate and sodium chloride. Barium sulfate is insoluble so it forms a white precipitate. The mixture is then filtered and the barium sulfate is washed with distilled water and left to dry.

(Total for Question 2 = 9 marks)

ResultsPlus
Examiner Comments

A well constucted answer giving all the points from the mark scheme and obtaining full marks.

(d) Barium sulfate can be prepared as a white precipitate.

Describe how you could prepare a pure, dry sample of barium sulfate from barium chloride solution and sodium sulfate solution.

(3)

1) add 1 spatula of barium chloride and mix with water untill dissolved.
2) add 1 spatula of sodium sulfate and mix with water untill dissolved
3) mix two solutions together in a beaker and barium sulfate precipitate formed
4) pour solution onto filter paper and rinse to remove any liquid
5) scrape barium sulfate precipitate onto fresh filter paper and leave to dry.

(Total for Question 2 = 9 marks)

ResultsPlus
Examiner Comments

This answer starts by preparing the solutions. The question states solutions, but candidates were not penalised for starting from the solids.

Rinse was insufficient for that mark, water was required. However the third mark was obtained for 'leave to dry'.

ResultsPlus
Examiner Tip

Read the question carefully and give full details in your answer.

(d) Barium sulfate can be prepared as a white precipitate.

Describe how you could prepare a pure, dry sample of barium sulfate from barium chloride solution and sodium sulfate solution.

(3)

Mix barcium chloride and sodium sulphate together. Filter out the white barcium ~~salt~~ sulphate. Dry the Barcium Sulphate. \precipitate/

ResultsPlus
Examiner Comments

This answer does not state clearly that the **solutions** are mixed. The method of drying is also not stated.

ResultsPlus
Examiner Tip

Take care when describing experiments. If solutions are involved then this should be stated. A method of drying a solid should be given.

Question 3 (b) (i)

This question was generally answered well. Most candidates appreciated that the honeycomb structure increased surface area and therefore increased the frequency of collisions and the rate of reaction.

(b) It is important that the reactions in the catalytic converter happen quickly.

(i) Explain why the catalyst is spread onto the honeycomb structure rather than used as large pieces.

(2)

Because this way it has a larger surface area for air, carbon monoxide and unburnt hydro carbons to go through

ResultsPlus
Examiner Comments

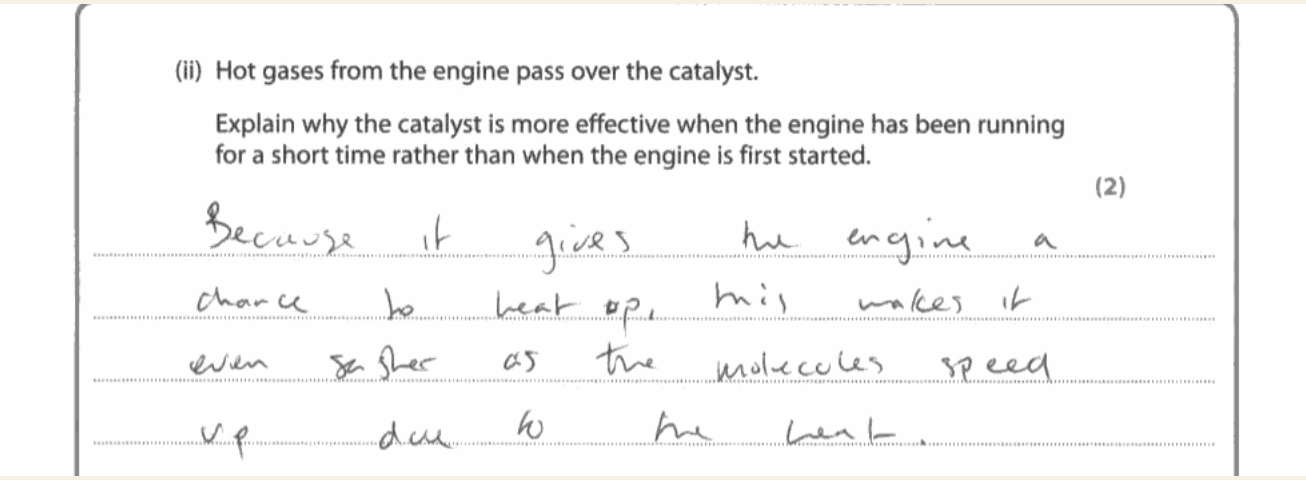
This answer does not link the increase in surface area to an increase in the rate of reaction, and so only scores 1 mark.

ResultsPlus
Examiner Tip

Read the question carefully, a 2 mark 'explain' question will require two linked points in the answer.

Question 3 (b) (ii)

This question was generally well answered, but some candidates confused the importance of the catalyst becoming warmer with the engine warming up.



(ii) Hot gases from the engine pass over the catalyst.

Explain why the catalyst is more effective when the engine has been running for a short time rather than when the engine is first started.

(2)

Because it gives the engine a chance to heat up, this makes it even faster as the molecules speed up due to the heat.

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Examiner Comments

In this answer it is unclear what is being made faster. 1 mark is awarded for 'molecules speed up due to heat'.

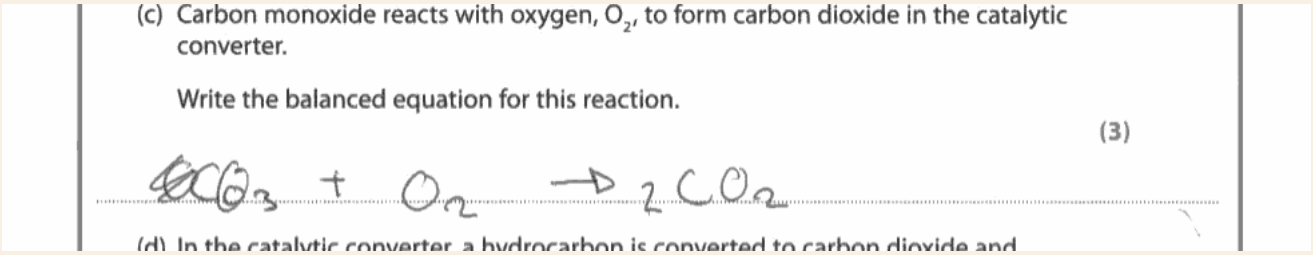
ResultsPlus
Examiner Tip

Avoid the use of 'it'. If a candidate is about to write 'it' they should replace this word with what 'it' is.

Question 3 (c)

Many candidates could write a correctly balanced equation here, but some lost marks by not reading the question and writing the equation for the reaction of oxygen with carbon.

Some candidates wrote 'Cmo' for Carbon Monoxide. Many used a small 'o' rather than a capital O for oxygen. Quite a few used the correct formulae but didn't balance the equation.


(c) Carbon monoxide reacts with oxygen, O_2, to form carbon dioxide in the catalytic converter.

Write the balanced equation for this reaction.

(3)

$CO_3 + O_2 \rightarrow 2CO_2$

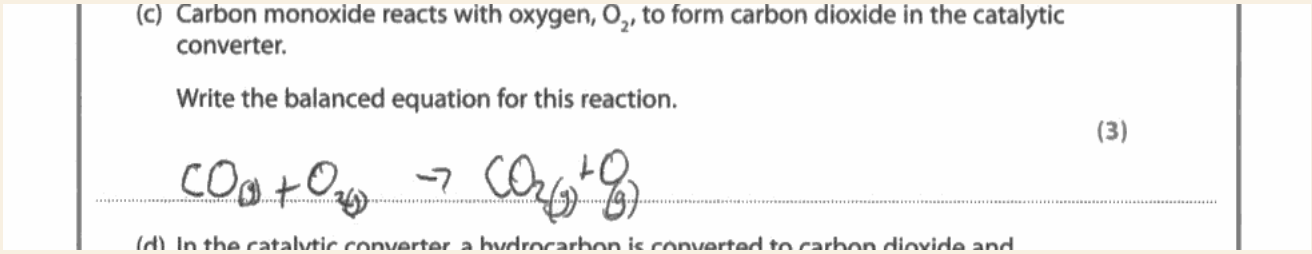
(d) In the catalytic converter a hydrocarbon is converted to carbon dioxide and

ResultsPlus
Examiner Comments

The formula for carbon monoxide has been changed. However, it is incorrect.

ResultsPlus
Examiner Tip

Never change formulae so that the final answer is unclear. This could result in a loss of marks. If you need to make a change, cross out the original and write the new formula clearly.


(c) Carbon monoxide reacts with oxygen, O_2, to form carbon dioxide in the catalytic converter.

Write the balanced equation for this reaction.

(3)

$CO_{(g)} + O_{2(g)} \rightarrow CO_{2(g)} + O_{(g)}$

(d) In the catalytic converter a hydrocarbon is converted to carbon dioxide and

ResultsPlus
Examiner Comments

An interesting way of balancing that is unfortunately incorrect. Without the extra O on the right hand side this answer would have scored 2 marks.

ResultsPlus
Examiner Tip

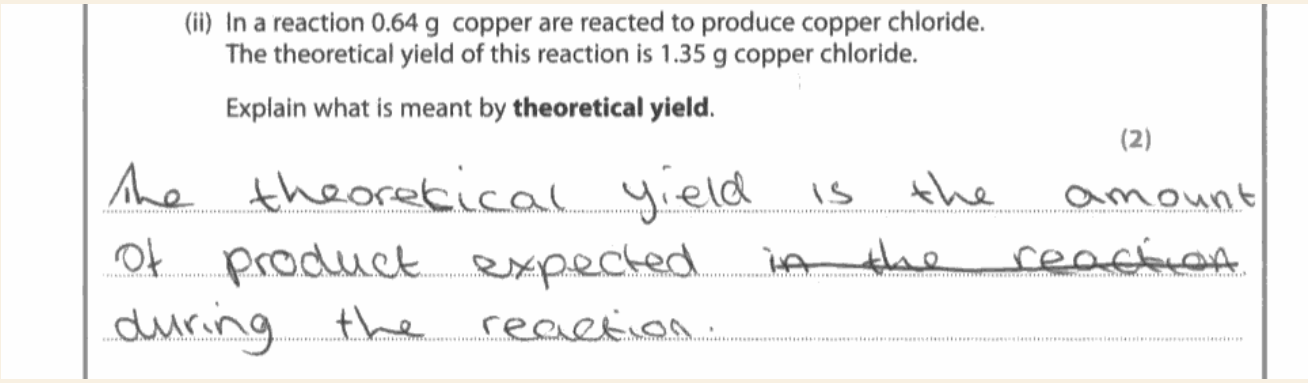
Never add extra things to make the equation balance, and never change formulae to make the equation balance. Equations with the correct formulae must be balanced by inserting numbers in front of the formulae.

Question 3 (d)

Some good answers were seen, especially from candidates who appeared to be familiar with this type of diagram. Some confused exothermic and endothermic, and others were unclear about heat energy confusing it with temperature.

Question 4aii

This question was answered poorly with very few candidates showing an appreciation of the definition in the specification. A typical answer was 'amount of product you would expect to get in a reaction'. Students failed to relate this to a calculation involving the balanced equation, or the maximum mass of product when all reactants are used.



(ii) In a reaction 0.64 g copper are reacted to produce copper chloride.
The theoretical yield of this reaction is 1.35 g copper chloride.

Explain what is meant by **theoretical yield**.

(2)

The theoretical yield is the amount of product expected ~~in the reaction~~ during the reaction.

ResultsPlus
Examiner Comments

A typical answer showing no indication of a calculated or maximum amount. In most experiments the expected yield will be less than the theoretical yield.

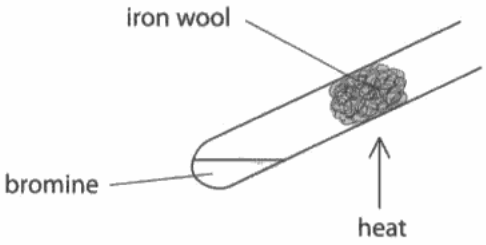
ResultsPlus
Examiner Tip

Try to understand the exact meaning of technical terms such as theoretical yield, and ensure that you explain them precisely.

Question 4 (b) (i)

Surprisingly only the most able candidates could write a correct equation here. The most common mistake was not to recognise that bromine is diatomic, and 3Br or Br_3 were often seen. Those who did manage to write a correctly balanced equation often lost a mark by either not including state symbols, or by giving the wrong state symbols. $Br_2(l)$ or (aq) was quite common, despite the fact that bromine gas was stated in the question. Other candidates only scored the state symbol mark.

(b) Bromine reacts with hot iron wool to produce solid iron(III) bromide, $FeBr_3$.



(i) Write the balanced equation for the reaction between iron and bromine gas. Include state symbols.

$2Fe(s) + 3Br_2(g) = 2FeBr_3(g)$

~~$Fe(s) + 3Br(g) = FeBr_3(g)$~~

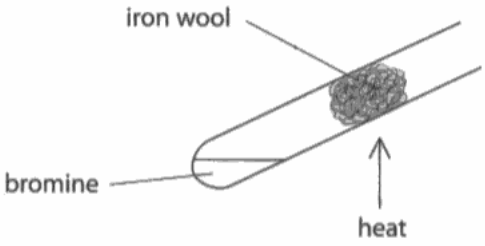
ResultsPlus
Examiner Comments

This answer was awarded 2 marks. It is unclear if the state symbol after $FeBr_3$ is an s or a g.

ResultsPlus
Examiner Tip

Write state symbols carefully.

(b) Bromine reacts with hot iron wool to produce solid iron(III) bromide, $FeBr_3$.



(i) Write the balanced equation for the reaction between iron and bromine gas. Include state symbols. (3)

$Fe_{(s)} + Br_{2(G)} \rightarrow FeBr_{3(s)}$

ResultsPlus
Examiner Comments

A clear upper case G and solid instead of (s), so the state symbol mark was not awarded.

ResultsPlus
Examiner Tip

Just as it is important to use correct symbols when writing formulae, it is also important to use correct state symbols.

Question 4 (b) (ii)

Many candidates got this correct. When there was a mistake the common error was just adding 56 and 80.

Question 4 (b) (iii)

This was generally answered well. A common error was; 310/56 instead of 56/310.

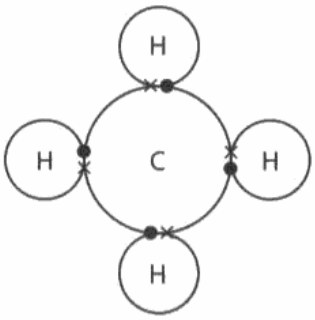
Question 5 (a) (i)

Only a very small minority of candidates could give a correct definition here, with the majority just referring to sharing of electrons, with no mention of a shared pair. This is a clear example of candidates not learning definitions which are clearly stated in the specification. There was also sharing between two or more atoms.

Covalent substances

5 Many substances exist as molecules.

(a) The diagram shows the outer shell electrons in a molecule of methane, CH_4.



(i) Each hydrogen atom is bonded to the carbon atom by a covalent bond.

Give the meaning of the term **covalent bond**.

(1)

A Covalent bond is where 2 or more atoms 'share' electrons to bond together.

(ii) Complete the sentence by putting a cross (☒) in the box next to your answer

ResultsPlus
Examiner Comments

'Two or more atoms' and no mention of electrons being paired.

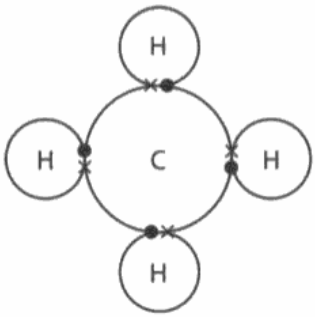
ResultsPlus
Examiner Tip

Learn specification definitions and read the question carefully. This asked about the term covalent bond, not covalent bonding.

Covalent substances

5 Many substances exist as molecules.

(a) The diagram shows the outer shell electrons in a molecule of methane, CH_4.



(i) Each hydrogen atom is bonded to the carbon atom by a covalent bond.

Give the meaning of the term **covalent bond**.

(1)

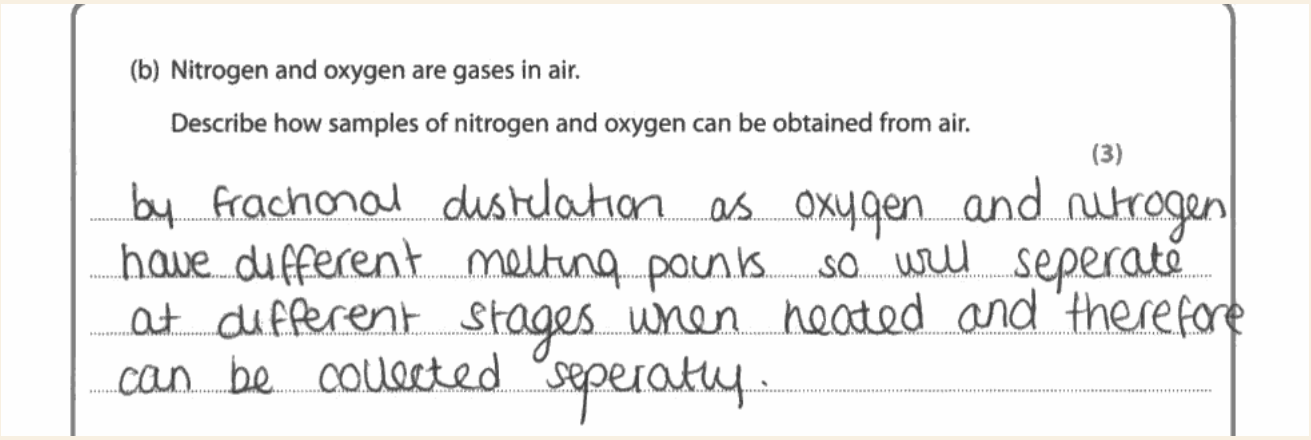
A shared pair of electrons

ResultsPlus
Examiner Comments

This candidate has read the question carefully. They could have added 'between two atoms' but the answer is sufficient to score the mark.

Question 5 (b)

Some candidates had no idea where to start, with some leaving the question blank. Some excellent answers were seen describing the fractional distillation of liquid air in some detail. Others showed confusion about when exactly air was cooled and heated.



(b) Nitrogen and oxygen are gases in air.

Describe how samples of nitrogen and oxygen can be obtained from air.

(3)

by fractional distilation as oxygen and nitrogen have different melting points so will seperate at different stages when heated and therefore can be collected seperatly.

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Examiner Comments

Confusion here between boiling point and melting point, but 1 mark awarded for mention of fractional distillation.

ResultsPlus
Examiner Tip

Make sure that you know the exact meaning of technical terms such as boiling point, and take care to use them correctly.

(b) Nitrogen and oxygen are gases in air.

Describe how samples of nitrogen and oxygen can be obtained from air.

(3)

Samples of nitrogen and oxygen can be obtained from air through fractional distillation of liquid air. Because nitrogen and oxygen have different boiling points, they will be produced each at a different end of the fractionating column.

ResultsPlus
Examiner Comments

This answer was awarded 2 marks, but lacked sufficient detail for the award of a third mark.

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Examiner Tip

Try to include detail in answers to questions worth 3 or more marks.

Question 5 (c)

Many candidates had some knowledge of the structure of graphite, but some had difficulties linking the structure to the properties asked about in the question. Some described the reasons for high melting and boiling points, and the reasons for graphites use in pencils, which was not relevant to the question. Some poor scientific terminology was seen including 'spare bonds'.

*(c) Graphite is a form of the element carbon.
Graphite is a giant molecular, covalent substance.

Use the structure and bonding in graphite to explain why it is able to be used as a lubricant and as a conductor of electricity.

(6)

The atoms in graphite are arranged in layers letting them slide over each other making them lubricant. In Graphite the ~~arrangements~~ particles are able to move about causing electricity this makes graphite a good conductor of ~~gra~~ electricity because theres alot of free space allowing the particles to move freely causing electricity and by taking a more particles it's only graphite can be used as a conductor of electricity.

(d) Give a use of graphite that depends on its ability to conduct electricity

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Examiner Comments

In the first sentence this answer links the sliding of layers to the use of graphite as a lubricant.

The rest of the answer is confused. The type of particle is not specified and reference is made incorrectly to 'causing electricity'.

The answer is awarded 2 marks for the first sentence.

ResultsPlus
Examiner Tip

Even very limited knowledge may gain important marks. All questions should be attempted.

*(c) Graphite is a form of the element carbon.
Graphite is a giant molecular, covalent substance.

Use the structure and bonding in graphite to explain why it is able to be used as a lubricant and as a conductor of electricity.

(6)

~~Graphite is able to be used as a lubricant because it is~~ ~~slippy~~ Graphite can conduct electricity because, although it is a giant molecular covalent structure, in its bonds each carbon atom is only directly bonded to 3 others This means, since carbon has 4 outer electrons one of the electrons from each carbon atom is free to move about the structure in a 'sea of electrons'. This means when a potential difference is applied to graphite these free electrons all move in the same direction - this is a electrical current.
Graphite can also be used as a lubricant because of these electrons too, when graphite rubs against something these electrons are easily rubbed away leaving a mark, this is why we can use graphite in pencils. It also means that when things are covered in graphite the can move easily.

(d) Give a use of graphite that depends on its ability to conduct electricity

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Examiner Comments

This answer makes a good attempt to explain the electrical conductivity of graphite in terms of free electrons.

Unfortunately the second part of the answer tries to explain the use as a lubricant in terms of free electrons.

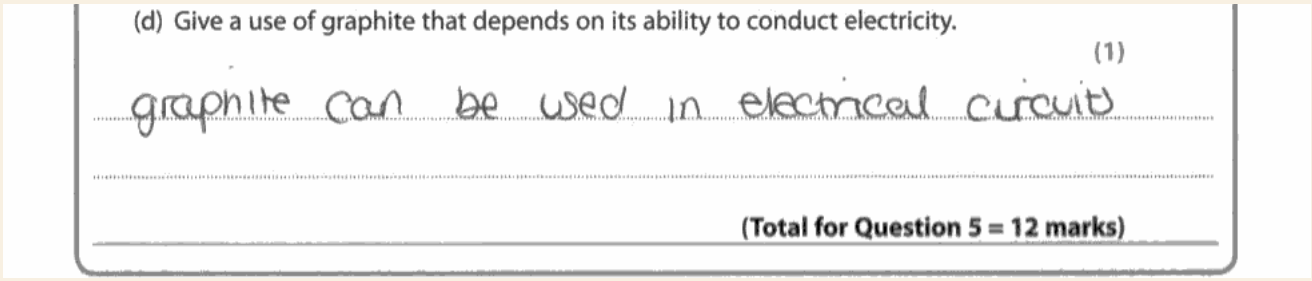
Overall 4 marks are awarded for the first part of the answer.

ResultsPlus
Examiner Tip

Try to ensure that you have the necessary knowledge to answer the question, and that you use technical terms correctly.

Question 5 (d)

Answers here were varied. Some thought electrical wires were made of graphite and others gave answers which were nothing to do with electrical conductivity, eg 'it's used in pencils'. The most common correct answer was 'to make electrodes'.



(d) Give a use of graphite that depends on its ability to conduct electricity.

(1)

graphite can be used in electrical circuit

(Total for Question 5 = 12 marks)

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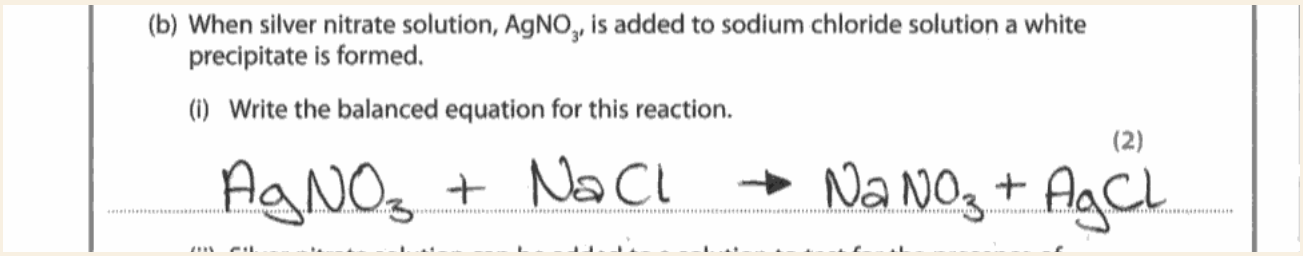
Examiner Comments

A vague answer that does not state what it is used for in the electrical circuit.

Question 6 (b) (i)

Many gave a correct equation here. Some gave the formula of sodium chloride as $NaCl_2$ and some strange products were seen, eg AgNa and $AgClNaNO_3$ as some sort of complex salt!



(b) When silver nitrate solution, $AgNO_3$, is added to sodium chloride solution a white precipitate is formed.

(i) Write the balanced equation for this reaction.

(2)

$AgNO_3 + NaCl \rightarrow NaNO_3 + AgCl$

ResultsPlus
Examiner Comments

The 'l' on AgCl could be a capital. This candiate was given the benefit of the doubt and awarded 2 marks.

ResultsPlus
Examiner Tip

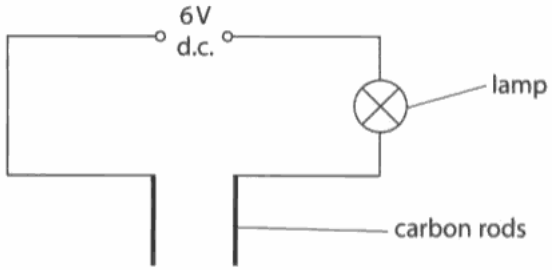
Make sure when writing fromulae that upper and lower case letters are clearly distinguished.

Question 6 (c)

Attempts at this question were generally disappointing.

There was a lack of understanding of the whole concept of electrical conductivity of aqueous salts. Even those who appreciated that sodium chloride is ionic, often talked about electrons carrying the current in sodium chloride solution, and failed to note the importance of ions as charged particles in conducting electricity. Explanations were often confused and lacked organisation. Science terminology was frequently used inappropriately, indicating knowledge of a key word without understanding its meaning.

*(c) This circuit was used to test the ability of water, solid sodium chloride and sodium chloride solution to conduct electricity.



The results were

substance	conducts electricity
water	no
solid sodium chloride	no
sodium chloride solution	yes

Explain these results by referring to the structures of the substances.

(6)

Sodium Chloride Solution can conduct electricity but Solid Sodium Chloride cannot because, in a liquid form, the electrons are free to move and pass on the energy.

ResultsPlus
Examiner Comments

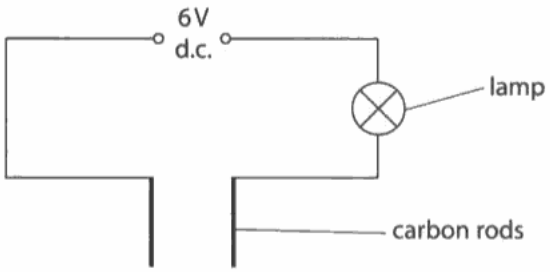
The first three lines simply repeat what is shown in the table of results. This answer then makes the common error of suggesting that electrons are free to move in sodium chloride solution. There also appears to be some confusion between solution and liquid. No attempt is made to discuss the fact that water does not conduct electricity.

No marks were scored.

ResultsPlus
Examiner Tip

Make sure that all parts of the question are attempted using appropriate scientific terms correctly.

*(c) This circuit was used to test the ability of water, solid sodium chloride and sodium chloride solution to conduct electricity.



$NaCl_2$

The results were

substance	conducts electricity
water	no
solid sodium chloride	no
sodium chloride solution	yes

Explain these results by referring to the structures of the substances.

(6)

Water does not Conduct electricity because ~~of the free ions are~~ H_2O is a Covalent bond they share electrons so their no free electrons / full outer shell. Solid sodium Chloride does not conduct electricity because all the free electrons are trapped full outer shell because of its State as a solid. Sodium Chloride Conducts electricity because. In the Compound $NaCl_2$ Cl have free electrons moving about. free delocalised electrons means conduct electricity.

(Total for Question 6 = 12 marks)

TOTAL FOR PAPER = 60 MARKS

ResultsPlus

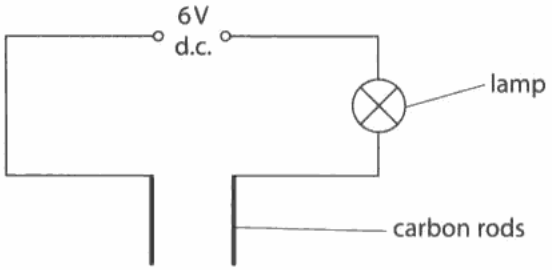
Examiner Comments

Formulae, even if correct, should not be used as shorthand for the names of substances.

This answer makes a reasonable attempt to explain the fact that water does not conduct electricity. The rest of the answer is incorrect.

The answer is not well expressed, but does satisfy the level 1 criteria for written communication, so 2 marks are awarded.

*(c) This circuit was used to test the ability of water, solid sodium chloride and sodium chloride solution to conduct electricity.



The results were

substance	conducts electricity
water	no
solid sodium chloride	no
sodium chloride solution	yes

Explain these results by referring to the structures of the substances.

(6)

Water is a simple molecular covalent substance. It does not conduct electricity because there are no charged particles to conduct electricity.
For a substance to conduct electricity it must contain charged particles and these particles must be free to move.
Solid sodium chloride does not conduct electricity because it forms an ionic lattice and although it contains charged particles these particles (ions) are not free to move.
When dissolved in a solution the ionic bonds in sodium chloride are broken, this allows the ions to move within the solution and conduct electricity.

(Total for Question 6 = 12 marks)

ResultsPlus
Examiner Comments

This is a well constructed clear and coherent answer. It lacks some detail but is sufficient for the award of 6 marks.

ResultsPlus
Examiner Tip

Try to construct answers in a logical sequence, stating facts clearly and using appropriate scientific terminology.

Make sure that you answer fully all parts of the question.

Read through your answer to check that it is clear and unambiguous.

Paper Summary

It was pleasing to see few blank spaces, suggesting candidates were attempting all of the questions.

In order to improve their performance, candidates should:

- practise writing balanced equations, using correct symbols for the elements and compounds
- learn the meanings of the key scientific words and phrases,
- read all the information in each question carefully
- revise the experiments carried out during the course
- practise answering the 6-mark questions.

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