



Examiners' Report June 2015

GCSE Chemistry 5CH1F 01

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Introduction

This paper is now well established and it is clear that candidates are well prepared for the format. The paper contains six questions with a total of 60 marks. The final two questions contain extended writing.

The Foundation Tier assesses grades G to C. The candidates are challenged with a variety of question styles, including objective, short answer, data analysis and extended writing questions.

Successful candidates:

- read the questions carefully and answered them as they were set and did not simply repeat the stem of the question.
- used scientific terms correctly.
- knew the tests for the gases in the specification.
- could write correct advantages and disadvantages of using bioethanol, rather than petrol, as a fuel for vehicles.
- could explain points from the specification, where necessary, to gain full marks.

Less successful candidates:

- did not read the questions carefully, and gave answers to questions that they thought were there rather than the question actually posed.
- did not know the definitions of key scientific words and phrases.
- could not write a word equation when they had to work out a missing product.
- could not correctly write the formula of a molecule of carbon dioxide.
- were not able to compare data to make reasoned judgements.
- thought that biofuels do not release carbon dioxide when burnt.

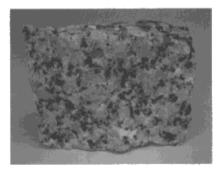
In future, candidates need more practice in analysing data and writing comparative statements about two or more items. Candidates should also revise the factual content of the specification carefully to increase their subject knowledge, learn how to write scientific word equations and write formula of common compounds in the specification.

Question 1 (a)

The majority of candidates scored well on this question, most were able to state that igneous rocks are formed when magma cools. Where errors were made, it was because the candidates confused igneous rocks with other rocks such as sedimentary or metamorphic rocks.

Rocks

- 1 Rocks can be described as igneous, metamorphic, or sedimentary.
 - (a) The photograph shows a sample of igneous rock.



© Geology.com

(2)

Describe how igneous rocks are formed.

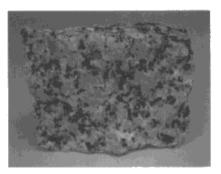
Igneous rocks are formed when magna cools dun and solidifies, if it cools quick, there will be small crystals, but if it cools fast, large will form.



In this example the candidate has correctly stated that igneous rocks are formed when magma is cooled. The candidate then gives extra detail that would not be required to gain both marks.

Rocks

- 1 Rocks can be described as igneous, metamorphic, or sedimentary.
 - (a) The photograph shows a sample of igneous rock.



© Geology.com

Describe how igneous rocks are formed.

Igneous rock are formed using other rocks, having heat and

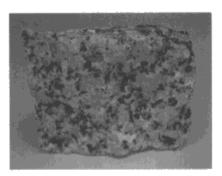


Here the learner has confused the formation of igneous rocks with the formation of metamorphic rocks.

(2)

Rocks

- 1 Rocks can be described as igneous, metamorphic, or sedimentary.
 - (a) The photograph shows a sample of igneous rock.



© Geology.com

Describe how igneous rocks are formed.

(2)

Igneous rock is formed by bones from animals crushed down and squashed bogether to create rock



In other examples candidates confused the formation of igneous rocks with the formation of sedimentary rocks.

Question 1 (b)

In general candidates performed well on this question, with many candidates able to correctly write the equation for the decomposition of calcium carbonate. Where candidates lost marks it was because they rushed what they were writing and wrote that calcium dioxide rather than carbon dioxide would be formed.

(c) Limestone is a naturally occurring form of calcium carbonate.

When calcium carbonate is heated strongly, it decomposes to form calcium oxide and carbon dioxide.

(i) Write the word equation for this reaction.

(2)

coucium	calcium	carbon
ceur bonate >	Oxide	+ dioxide



A common error seen was that candidates wrote calcium dioxide rather than carbon dioxide as the other product with calcium oxide.

(c) Limestone is a naturally occurring form of calcium carbonate.

When calcium carbonate is heated strongly, it decomposes to form calcium oxide and carbon dioxide.

(i) Write the word equation for this reaction.

(2)

Calcium Carbonate - Calcium Oxide + Calcium dioxide



Always check that the equation that you have written makes sense chemically.

Question 1 (c) (ii)

This question asked candidates to describe what would be seen when water is added to a lump of cold calcium oxide. Many candidates correctly answered this by stating that the water would bubble or fizz. The question was worth two marks however, and most candidates stopped there scoring just one mark. In some cases candidates tried to give the products of the reaction, which was worthy of no credit, rather than what would be seen in the reaction.

(ii) Water is added, a drop at a time, to a lump of cold calcium oxide.

Describe what is seen as the water is added.

As worter is added the cold carbon oxide fizzes and releases steam/smake.



A good answer that scored two marks for the two observations given.

(ii) Water is added, a drop at a time, to a lump of cold calcium oxide.

Describe what is **seen** as the water is added.

Steen the calcium oxide fizzes

(2)



This response was worthy of one of the two marks available for giving one observation of the reaction between water and cold calcium oxide.



If a 'describe' question is worth two marks, ensure that you describe two points.

(ii) Water is added, a drop at a time, to a lump of cold calcium oxide.

Describe what is seen as the water is added.

it peachs together to fourm Calcium Hydroxide, which is a white substance



This example scored 0 marks as it does not state what would be **seen** in the experiment.



If a question asks what would be seen, your answer must give observations, not a description of the products of the reaction.

Question 2 (b) (ii)

The number of candidates who correctly wrote the formula of carbon dioxide was disappointing. Many candidates simply wrote 'carbon dioxide', indicating a lack of understanding of the term formula. In other cases, candidates lost marks as, although they knew which elements in what proportions are present in carbon dioxide, they had not been successfully taught how to correctly represent this in a formula. The majority of candidates who scored zero marks did so because they wrote the '2' superscript rather than subscript, while others wrote a lower case 'O' for the oxygen rather than a capital.

(ii) Write the formula of a molecule of carbon dioxide.

(1)





(ii) Write the formula of a molecule of carbon dioxide.

(1)





This example scored 0 marks as the oxygen in the formula has been written lower case rather than upper case.



When writing formula it is very important that the first letter of each element is capitalised.

(ii) Write the formula of a molecule of carbon dioxide.

(1)





This very common answer scored zero marks.

Question 2 (b) (iii)

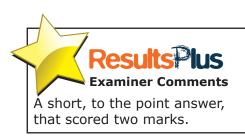
The majority of candidates were able to explain that trees or plants absorb carbon dioxide from the atmosphere for use in photosynthesis. Fewer candidates explained, using the alternative marking route, that carbon dioxide is soluble in water and that it would be absorbed by oceans. This question was a two mark 'explain' type question, in some cases candidates lost marks as they gave a relevant fact to gain the first mark, but then failed to take this further to explain why this fact made carbon dioxide levels decrease. A common error was that deforestation or the burning of fossil fuels caused the amount of carbon dioxide in the atmosphere to decrease, this was most probably due to candidates misreading the question given.

(iii) The percentage of carbon dioxide in the atmosphere has decreased since the Earth's earliest atmosphere.

Explain what has caused the amount of carbon dioxide in the atmosphere to decrease.

(2)

photosynthesis in plants



(iii) The percentage of carbon dioxide in the atmosphere has decreased since the Earth's earliest atmosphere.

Explain what has caused the amount of carbon dioxide in the atmosphere to decrease.

(2)

Plants Respiration

taking Bhat for oxygen



This response scored just 1 mark for showing an understanding that plants caused the decrease of carbon dioxide.



Care should be taken when using key scientific terms; respiration is not equivalent to photosynthesis and is rejected even though the correct exchange of gases is given.

(iii) The percentage of carbon dioxide in the atmosphere has decreased since the Earth's earliest atmosphere.

Explain what has caused the amount of carbon dioxide in the atmosphere to decrease.

(2)

The more plants and tree's have been planted.



This candidate has gained one mark for stating that the amount of carbon dioxide has decreased due to plants/trees but they have not gone to explain how for the second marking point.



When answering questions that ask you to explain, you must give a point, idea or fact and then try to explain the point.

Question 2 (b) (iv)

The majority of candidates performed well in this question, with the most common correct responses stating that the burning of fossil fuels or deforestation would increase the amount of carbon dioxide in the air. Where candidates lost marks it was because they gave weak non-specific answers such as 'driving cars'.

(iv) State one human activity that increases the amount of carbon dioxide in the atmosphere today.

(1)

Burning of fossil fuels.



(iv) State one human activity that increases the amount of carbon dioxide in the atmosphere today.

(1)

Travel Such as cars.



As this response does not give any extra detail it is not worthy of credit. If the candidate had included driving petrol fuelled cars or similar vehicles then credit could have been awarded.

Question 2 (b) (v)

Candidates seemed to find this question difficult with few being able to give the correct test for carbon dioxide. Some candidates scored 1 mark for showing an understanding that limewater is required, but did not give the result of the test for the second mark. Many candidates confused the test for carbon dioxide with tests for other gases such as hydrogen. Some candidates stated that carbon dioxide would extinguish a lighted splint. Whilst this is true it would not prove that carbon dioxide was present and therefore would not serve as a test for carbon dioxide.

(v) Describe the test to show that a gas is carbon dioxide.

you do the squeky pop test whe put tydroagen into a for lest tube then we put the bunsen burner at the top if here is 02 her it will (Total for Question 2=8 marks)



A confused answer. The candidate has obviously confused the test for hydrogen with the test for carbon dioxide.

(v) Describe the test to show that a gas is carbon dioxide.

limewater which goes cloudy to Show that carbon dioxide is present



A good answer that scored the two marks available. The candidate has given the reagent for the test and the positive result for the test.



When describing the test for a gas, you should always include the test method or reagents such as limewater, followed by the positive result of that test.

(2)

(2)

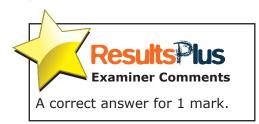
Question 3 (a)

Many candidates were able to state that another effect of hydrochloric acid in the stomach was to kill bacteria. However many candidates did not read the question correctly and just repeated the stem in their answer.

- 3 Hydrochloric acid is present in the stomach to help digestion.
 - (a) State another effect hydrochloric acid has in the stomach.

(1)

To kill any bacteria in the Stomach.



- 3 Hydrochloric acid is present in the stomach to help digestion.
 - (a) State another effect hydrochloric acid has in the stomach.

(1)

to break help break up food in the digested

System



The question stem states that hydrochloric acid is present in the stomach to help digestion. This learner has then simply repeated the stem of the question and so cannot gain any credit.

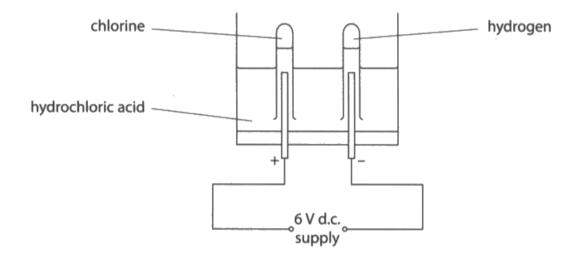


When you have written your answer it is good practice to re-read the question along with your answer to check that you have answered the question that has been posed and that you have not repeated the stem of the question.

Question 3 (d) (i)

Very few candidates managed to give a fully correct definition of electrolysis. Some candidates did not read the question correctly and gave a use of electrolysis rather than a definition of the term. Many knew that electricity was used, but could not correctly state for what. Some candidates lost marks as they stated that electrolysis is the separation of compounds rather than the breaking down of compounds. Others thought that it was the elements themselves that were broken down.

(d) Hydrochloric acid can be used to make chlorine in the apparatus shown.



(i) The experiment shown is an example of electrolysis.

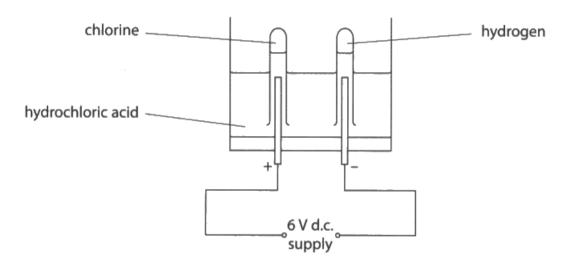
Explain the meaning of electrolysis.

Then you seperate chlorine judrogen:



The use of the term separate is not an alternative to breaking down or decomposing and so therefore cannot gain credit. There is no reference to using electricity or direct current for the second mark. This answer therefore scored no marks.

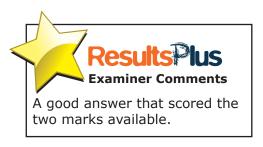
(d) Hydrochloric acid can be used to make chlorine in the apparatus shown.



(i) The experiment shown is an example of electrolysis.

Explain the meaning of electrolysis.

Electrolysis is when electricity is used to break down a compound.



Question 3 (d) (ii)

Candidates performed better in this gas test for chlorine than in the previous carbon dioxide gas test. Many candidates gave a good, detailed answer to score both marks. Fewer candidates confused the test for chlorine with tests for other gases such as oxygen or hydrogen.

(ii) Describe the test to show a gas is chlorine.

(2)

Dans bue librous paper is held in the most



A very good answer that included correct detail for the litmus paper and the result of the test. 2 marks.

Question 3 (d) (iii)

Most candidates performed well on this question by showing an understanding that chlorine is toxic and if released could cause death.

(iii) Great care has to be taken when chlorine is manufactured on a large scale.

Explain the potential hazards of storing large volumes of chlorine.

(2)

Results Plus

A good answer that scored both marks.

Examiner Comments

Question 3 (d) (iv)

This question was generally poorly answered as candidates were too vague with their responses. The most common answer seen was swimming pools which was not worthy of credit.

(iv) State a large-scale use of chlorine.

(1)

Swimming

P0018



The most common answer seen was 'swimming pools' but chlorine is not used for swimming in. If the candidate had stated that chlorine is used in swimming pools to sterilize or purify the water then this would have scored the mark.



Always use the science that you have learnt to answer the question and try to be as specific with your answer as you can.

(iv) State a large-scale use of chlorine.

make PVC.

(1)



To make PVC or bleach was a good answer that scored the mark.

Question 4 (b)

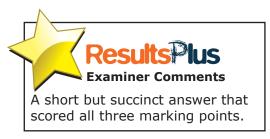
Many candidates did not attempt this question. Of those that did, few scored the full 3 marks available. Some candidates knew that when bromine water was added to an alkane there would be no change and that when added to an alkene the bromine water would become colourless. However many did not refer to the colour of the bromine water before the reaction by stating that it stays orange, or that it turns from orange to colourless. Some candidates are still referring to the bromine water turning clear when reacted with the alkene which is not acceptable for the mark. In some cases the candidates were not reading the question carefully and gave a difference between an alkane and an alkene e.g. alkanes have all single bonds and alkenes have a double bond. Whilst this is correct, it does not answer the question posed and therefore gained no credit.

(b) Bromine water is used to distinguish between alkenes and alkanes.

Describe what would be **seen** when an alkene and an alkane are shaken with separate samples of bromine water.

(3)

alkene goes from orange to colowiess



(b) Bromine water is used to distinguish between alkenes and alkanes.

Describe what would be **seen** when an alkene and an alkane are shaken with separate samples of bromine water.

(3)

alkene the broming water turns collowders



This response scored two marks. The bromine water will turn colourless when shaken with the alkene and there will be no change in colour when shaken with alkane. If the candidate has given the extra detail and stated that there was no change in colour so it would remain orange then the last mark could have been awarded.

(b) Bromine water is used to distinguish between alkenes and alkanes.

it will stay orange.

Describe what would be seen when an alkene and an alkane are shaken with separate samples of bromine water.

(3)



In this response, the candidate has confused the results of the test for the alkane and alkene. However even though 'stays orange' is the incorrect response for the alkene, it does show an understanding that the bromine water was originally orange and so therefore scored 1 mark.

(b) Bromine water is used to distinguish between alkenes and alkanes.

Describe what would be seen when an alkene and an alkane are shaken with separate samples of bromine water.

(3)

a double bone



Whilst the information given in the reponse is correct, it does not address the question posed and therefore gains no credit.



When you have written your answer you should re-read the guestion along with your answer to check that you have answered the question that has been posed and that you have not repeated the stem of the question.

Ouestion 4 (d)

In general candidates performed well in this question, with most scoring at least one mark. The majority of candidates knew that polymers are non-biodegradable or do not rot and then linked this to the polymer taking up space in landfill sites. Where candidates lost marks it was because they simply stated that polymers were sent to landfill and not explaining why this would be a problem. Other candidates gave weak, non-specific answers such as 'pollution' or 'damage the environment' without any further clarification, which were not worthy of credit.

Question 5 (b) (i)

This question was generally well answered. Some candidates lost marks as they wrote hydroxide as a product in place of water. Those that tried to use formula generally failed to write the formula correctly and so therefore did not score. Some candidates scored no credit as they wrote the reverse reaction for the decomposition of water.

(2)

(b) Hydrogen is used as a fuel in the engines of some vehicles.

In these engines hydrogen reacts with oxygen to form water.

(i) Write the word equation for this reaction.

nydrogen - oxygen + water



The candidate here has put the arrow in the wrong place showing that hydrogen reacts to form oxygen and water which gains no credit.

(b) Hydrogen is used as a fuel in the engines of some vehicles.

In these engines hydrogen reacts with oxygen to form water.

(i) Write the word equation for this reaction.

Hydrogen + Oxygen -> Hydrogen Oxide



Hydrogen oxide was accepted in place of water. Hydroxide however was not.

(b) Hydrogen is used as a fuel in the engines of some vehicles.

In these engines hydrogen reacts with oxygen to form water.

(i) Write the word equation for this reaction.

(2)

Hydrogen (H) + the Oxygen (O) = Water (H2O)



This answer scored two marks for the word equation shown. The incorrect formula after the hydrogen and oxygen was ignored.

(b) Hydrogen is used as a fuel in the engines of some vehicles.

In these engines hydrogen reacts with oxygen to form water.

(i) Write the word equation for this reaction.

(2)

H+0 -> HO



This answer scored zero marks. A word equation has been asked for, the candidate has tried the more difficult task of writing a symbol equation. They have not done this correctly and so therefore cannot score credit.



If asked to write a word equation do not attempt to write a symbol equation. To score credit you will need to write the symbol equation fully correct. This is a significantly harder skill than writing a word equation.

Question 5 (b) (ii)

The majority of candidates performed well on this question to score the 1 mark available for stating that hydrogen only produces water or that it does not produce carbon dioxide. Candidates did not score when they used vague, non-specific terms such as it lasts longer or it is cheaper or environmentally friendly.

(ii) State one advantage of using hydrogen, rather than petrol, as a fuel for vehicles.

(1)

14Nor Whatagaran Har YOURS BEHEN FOR the

environment



Vague statements such as better for the environment will not score.



When answering questions that are looking for advantages or disadvantages of using a specific substance, remember to be specific with your answers. 'Environmentally friendly' is unlikely to gain credit as is 'cheaper'. If you were to state that hydrogen is better for the environment as it does not release carbon dioxide, then this would gain credit.

(iii) Explain one disadvantage of using hydrogen as a fuel for vehicles.

Store /transport as it is a gas

and must be Kept & at high Pressure.



This answer is not sufficient. Hydrogen does put water into the air. If the candidate had stated that it does not put harmful gases into the air then credit would have been awarded.

(ii) State one advantage of using hydrogen, rather than petrol, as a fuel for vehicles.

(1)

It des doesn't produce carbon dioxide-



An acceptable advantage of using hydrogen rather than petrol is stated in this answer. Some candidates stated that hydrogen produced less carbon dioxide, this is not acceptable as it implies that some carbon dioxde is produced, but just less.

Question 5 (b) (iii)

Candidates found explaining a disadvantage of hydrogen much more difficult than stating an advantage. Candidates often scored one mark for giving a disadvantage but then found it hard to explain why it was a disadvantage.

(iii) Explain one disadvantage of using hydrogen as a fuel for vehicles.

(2)

Be More

More expensive



Just stating that it would be more expensive was not sufficient for the mark. If the candidate had stated that hydrogen was more expensive to make then credit could have been awarded.

(iii) Explain one disadvantage of using hydrogen as a fuel for vehicles.

(2)

It is hard to Store / transport as it is a gas



A good answer that explains that it is hard to store the gas because it must be kept at high pressure, this candidate scores 2 marks.

Question 5 (c)

This question was a good discriminator. Good candidates were able to give advantages and disadvantages of using bioethanol, rather than petrol as a fuel for vehicles. Weaker candidates were able to give either advantages or disadvantages but did not give a balanced response. Weaker candidates gave incorrect or vague statements in their answer that were ignored. Many candidates still have the misconception that biofuels do not produce carbon dioxide which is incorrect. Candidates often referred to the term carbon neutral but showed no indication of what this meant or how it applied to the situation. Often candidates that used this term went on to try to explain what it meant, but incorrectly. For example 'it is carbon neutral as it gives out no carbon dioxide'. Candidates who explained that the plants used to produce the biofuel took in carbon dioxide and this helped to balance the amount of carbon dioxide produced by the biofuel when it was burnt, scored more credit. Candidates still have the misconception that biofuels can be reused.

*(c) Bioethanol is a biofuel which is produced from plant material.

Petrol is a fossil fuel which is obtained from crude oil.

Describe the advantages and disadvantages of using bioethanol, rather than petrol, as a fuel for vehicles.

(6)

Abrantage	DISall Vantay
1. 145 consum neutral	2. It takes up wor which could be used
·esserenewas/	tor tood
· eass to make	" It takes alot of room
·cheap	in long proceess
	any maneing certain season
	1 50 It doesn't and a setting to the come
MoxIde to the atmospher	
· We can there to be della	Then its being used.
. It's not a hard process	
· 95 theres alot around .	ind not expansive tomane.

2: the crop which is use for the I it can be used to make food

ithat space of expra tields can be used for nouses extension

'you have to wait hatil the Plants you before you grant

making it

'you can't plant crops in the mater 20 in the way it's less of

it crounds



This candidate scored level 3 - 6 marks. They have given two advantages, that biofuels are renewable and that 'it takes as much carbon in as it gives out because of photosynthesis'.



They also give one disadvantage that more land will go to growing plants for bioethanol.

*(c) Bioethanol is a biofuel which is produced from plant material.

Petrol is a fossil fuel which is obtained from crude oil.

Describe the advantages and disadvantages of using bioethanol, rather than petrol, as a fuel for vehicles.

(6)

All alvantage of using biosaiels such as bioethand is that less sorsil such are being burnt as a result, meaning much less Freenhouse gas will go into the atmosphere. Also, it is made from patural sources such as plants and is thus renewable and insente lunlike petrol whicheve will run out of as its sinite.

A disadvantage, however, is that it's not cheap and will cost more to supply large amounts of biosinel.



The candidate starts by giving the advantage that by using biofuels, less fossil fuels are being burnt. This is an acceptable alternative for the conservation of petrol/crude oil. The comment about greenhouse gases was ignored.

The candidate then states that biofuels are renewable and that they are infinite whereas petrol is finite which are all the same indicative content but make a good advantage described.

The disadvantage regarding cost was ignored. The candidate has two advantages described so can gained level 2 - 4 marks

*(c) Bioethanol is a biofuel which is produced from plant material. Petrol is a fossil fuel which is obtained from crude oil. Describe the advantages and disadvantages of using bioethanol, rather than petrol, as a fuel for vehicles. (6) Dlants



The candidate has drawn a table which is an acceptable way of scoring credit. However within the table, there is just one advantage described which is that the biofuel is renewable because we can grow more. This response gained level 1 - 2 marks.

*(c) Bioethanol is a biofuel which is produced from plant material.

Petrol is a fossil fuel which is obtained from crude oil.

Describe the advantages and disadvantages of using bioethanol, rather than petrol, as a fuel for vehicles.

(6)

Recause Bioethoup

The advantages of using bioethounal routher than petral is that bioethounal is produced from plant material, and at is a biofuel.



This candidate scored zero marks, the fact that biofuels are made from plants was ignored in the answer as this is in the stem of the question.

Question 6 (b)

Out of the three word equations on the paper, this was answered the least successfully although many candidates were able to score 1 mark for correctly writing the reactants. Many lost marks on the products side of the equation for including water as a product or only giving iron as a product. Carbon oxide was also a common error seen when writing the products.

Question 6 (c)

Few candidates scored well on this question as they did not compare the data from the table but just re-stated it. Those that did score did so for stating that steel had an increased strength in comparison with iron but then did not write anything else for a second mark. Some seemed to misunderstand the data given and thought that steel would rust easier (than iron). Some compared the cost or density which did not score credit.

Question 6 (e)

The second of the two six markers was also a good discriminator. The better candidates were able to place the three metals in the correct places in the reactivity series and then, using the information to help them, explain why they were in these positions. Weaker candidates placed the metals in the correct positions but instead of explaining, simply repeated the stem. Some candidates misread the question and simply gave uses of the three metals which scored no credit.

*(e) Metals are extracted by different methods which are linked to their position in the reactivity series of metals.

Iron is extracted from iron oxide by heating with carbon. Gold is found uncombined in the Earth's crust. Aluminium is extracted from aluminium oxide using electrolysis.

The list shows part of the reactivity series with iron, gold and aluminium missing.

calcium magnesium

zinc

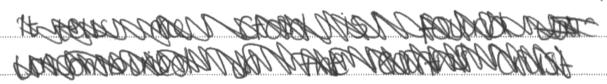
Olluminium

tin lead

Ordol

Use the information given about the methods of extracting these metals to explain where in this reactivity series iron, gold and aluminium are placed.

(6)



Iron 15 extracted from Iron Oxide by heating with carbon, with it being extracted this shows that it is a strong metal.



In this example, the candidate has only placed one of the three metals in the correct position. There is no explanation as to why gold is at the bottom of the series therefore no credit is awarded.



If the candidate had explained that gold was at the bottom of the reactivity series because it is the least reactive then credit could have been awarded. *(e) Metals are extracted by different methods which are linked to their position in the reactivity series of metals.

Iron is extracted from iron oxide by heating with carbon.

Gold is found uncombined in the Earth's crust.

Aluminium is extracted from aluminium oxide using electrolysis.

The list shows part of the reactivity series with iron, gold and aluminium missing.

calcium
magnesium

Auminium
zinc
INON
tin
lead

(6)

Use the information given about the methods of extracting these metals to explain where in this reactivity series iron, gold and aluminium are placed.

Ala mininar is placed in with
colcium and Maynesium
reconse all 3 use electrolosis
to be extracted from they
original form
iron your with zinc because
the both are collected
the both are collected by heating it With
e ur bor
Gold goes with hin and
Read be couse they
are all found in fine
en This crust



This candidate scores a Level 1-2 marks for correctly placing all three metals in the reactivity series.

Unfortunately all of the rest of the information is either a repeat of the stem or not relevant to the question posed.

Aluminum needs electrolysis, iron needs to be heated with carbon and gold is found in the Earth's crust are all in the stem.



Avoid repeating information that is already in the stem of the question as it will not gain credit.

*(e) Metals are extracted by different methods which are linked to their position in the reactivity series of metals.

Iron is extracted from iron oxide by heating with carbon.

Gold is found uncombined in the Earth's crust.

Aluminium is extracted from aluminium oxide using electrolysis.

The list shows part of the reactivity series with iron, gold and aluminium missing.

calcium
magnesium

oluminium
zinc

1000
tin
lead

(6)

Use the information given about the methods of extracting these metals to explain where in this reactivity series iron, gold and aluminium are placed.

different places in depending reactivity 00 can Placed 00 Near because top electric extracted meaning extract then placed 10 the because reaction 16 15 heated enough extracted gold Finalla Gold Dound moombin 10 Meaning doesnit nouse



This candidate has correctly placed the three metals in the reactivity series and scores a Level 2-4 marks.

They have then gone on to explain why they have placed aluminum at the top, saying that it requires electric as it is hard to extract.

The explanations on gold and iron are not creditworthy. The candidate has stated that gold does not have a reaction point. This is a vague statement and as it is unclear what is meant by this, credit cannot be awarded.

Paper Summary

In order to improve their performance, candidates should:

- read all the information in each question carefully, and use it to help them to answer the question, checking afterwards that they have answered the question posed and have not just re-written the question as their answer.
- learn the definitions of the key scientific words and phrases.
- learn the reactions in the specification.
- learn the formula of common elements and compounds in the specification.
- practice analysing data from tables and comparing two or more items.

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link: http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx





