

Ce	ntre Number
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General Certificate of Secondary Education 2011–2012

Science: Double Award (Modular)

Using Materials and Understanding Reactions End of Module Test

Foundation Tier

B

[GDB01]

MONDAY 21 MAY 2012, MORNING



TIME

45 minutes.

INSTRUCTIONS TO CANDIDATES

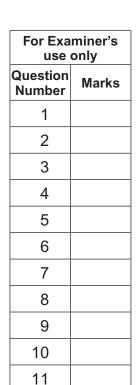
Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

Write your answers in the spaces provided in this question paper. Answer **all twelve** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 50.

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question. A Data Leaflet, which includes a Periodic Table of the elements, is provided for your use.



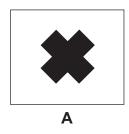
Total	
Marks	

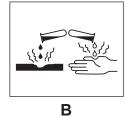


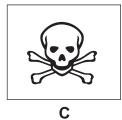
1 Containers of dangerous chemicals must display a hazard symbol.

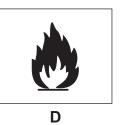
Examiner Only			
Marks	Remark		

(a) Four hazard symbols are shown below.









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(i)	Explain	why these	symbols	are	called	hazard	symbols.
-----	---------	-----------	---------	-----	--------	--------	----------

_____[1]

(ii)	Why is it	better to	use hazard	symbols	rather t	than	words?
------	-----------	-----------	------------	---------	----------	------	--------

______[1]

(b) (i) Which of the hazard symbols, **A**, **B**, **C** or **D** should be placed on a can of petrol?

_____[1]

(ii) Sulphuric acid is a corrosive chemical. Which of the hazard symbols, **A**, **B**, **C** or **D** should be placed on a bottle of sulphuric acid?

2

_____[1]

2 The table below gives 3 different properties of mater	2	The table below	gives 3	different	properties	of materia
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Examiner Only

Marks Remark

(a) Place a tick (✓) in the spaces to show properties of ceramics, fibres and glass. Properties of metals have been completed for you.

Property	metal	ceramic	fibre	glass
electrical insulator				
brittle				
malleable	1			

[3]

` '	Plastics are another type of man-made material. Plastics ca	n be
	thermosetting or thermosoftening.	

/i\	Evolain	what is	meant hy	the term	thermos	oftoning
()		wiiai is	meant by	the term	uieiiios	onenina

		[1]

/ii\	Civo and	evample of a	thermosoftening	nlactic
\ 	OIVE OILE	evalling of a	liiei iiiosoileiiiiid	เมเลอแบ

[1	
_ !	

Choose from the following words to complete the sentences below. Examiner Only Marks Remark solubility solution solvent melts dissolves saturated solute When salt is added to water it ______. A _____ of salty water is formed. The water is called the ______ . If the temperature is raised the _____ of the salt increases. [4]

4

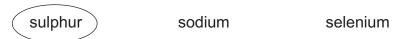
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4	You may use your Data Leaflet to help you answer this question. Circle the	٦e
	correct answer. One has been done for you.	

Examiner Only

Marks Remark

The element with the symbol S is:



(a) The correct symbol for the aluminium ion is:

AI AI^{3-} AI^{3+} [1]

(b) Ca is the chemical symbol for the element:

californium calcium caesium [1]

(c) The correct chemical formula for magnesium sulphate is:

 $MGSO_4$ $MgSO_4$ $MgSO_4$ [1]

(d) The name of the compound with the formula ${\bf K_2CO_3}$ is:

potassium potassium potassium cobalt carbon dioxide carbonate [1]

(e) $2Mg + O_2 \longrightarrow 2MgO$ is an example of a:

word equation symbol equation ionic equation [1]

5 This question is about chemical terms and their meanings. Choose from the chemical terms below to complete the table. The first one has been done for you.

Examiner Only

Marks Remark

element saturated neutralisation
proton compound electron
hydrated reduction neutron

Meaning	Chemical term
the particle in an atom which can be found in shells around the nucleus	electron
two or more types of atom which are chemically combined	
a salt which contains water of crystallisation	
the particle in an atom that has no charge	
the reaction of an acid and a base	

[4]

eople use materials for different reasons. a) Give two reasons why copper is used to make coins.	Ma	rks Re
1		
2		
	[2]	
Give two reasons why plastic is used to make milk cartons.		
© iStockphoto / Thinkstock		
1		
2		
	[2]	

7 The table below shows some information about three elements. Complete the table by filling in the missing information. You may find your Data Leaflet useful.

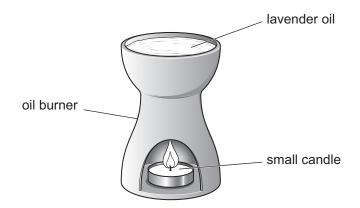
Element	Number of protons	Number of neutrons	Number of electrons	Electronic configuration
	5	6		2,3
sodium	11		11	2,8,1
phosphorus	15	16	15	

[4]

Examiner Only Marks Remark

8 Oil burners are used with oils, such as lavender oil, to give the air in a room a pleasant scent.

Only
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When the lavender oil is poured into the top of the burner the scent spreads around the room. When the candle is lit the scent becomes stronger.

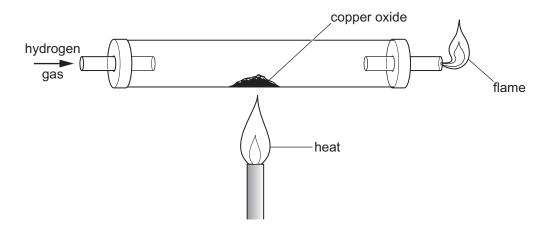
(a) Name the process by which the scent spreads around the room.

______[1]

(b) Using the idea of particles, explain why the scent is stronger when the candle is lit.

9 Hydrogen gas is passed over heated copper oxide as shown in the diagram below.





 ${\sf copper} \; {\sf oxide} \; + \; {\sf hydrogen} \, {\longrightarrow} \; {\sf copper} \; + \; {\sf water}$

In this reaction one substance has been oxidised and one substance has been reduced.

(a) What is the name given to this type of reaction?

_____[1]

(b) Which substance has been **oxidised** in this reaction?

_____[1]

(c) Write a balanced symbol equation for the reaction between copper oxide and hydrogen.

_____[2]

10	Thi	s question is about electrolysis.		Examin	er Only
	(a)	Complete the passage below.		Marks	Remark
		Some substances can be broken down into simpler substances			
		using This is called electrolysis			
		and can happen when the substance is			
		or	[3]		
	(b)	In electrolysis what is the cathode ?			
	(2)	- Tolographic What is the cathods .	[1]		
			. [-]		
	(c)	Name a metal which is produced by the electrolysis of the metal oxide.			
			[1]		

Step 1 Place the two water samples into separate test tubes. Step 2 Add 1 cm³ of soap solution to each test tube and shake. Step 3 Repeat Step 2 until a permanent lather is formed. (a) How can you ensure that this is a fair test?	Remark
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(a) How can you ensure that this is a fair test? [1] (b) How would you use the results of this experiment to compare the hardness of the two samples? [1] (c) Name the type of hardness which can be removed by boiling. Give a disadvantage of this type of hardness. Type of hardness	
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disadvantage of this type of hardness. Type of hardness	
Disadvantage	
Disadvantage	
[2]	

Calcium reacts with chlorine to form the compound calcium chloride.		Examine Marks	er Only Remarl
Explain fully, in terms of electrons, how the compound calcium chloride formed from calcium and chlorine. You may use diagrams if you wish.	is		
	[4]		
THIS IS THE END OF THE QUESTION PAPER			

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