

Ce	ntre Number
71	

Cand	idate	Num	ber

General Certificate of Secondary Education 2011–2012

Science: Double Award (Modular)

Using Materials and Understanding Reactions End of Module Test

Foundation Tier

B

[GDB01]

THURSDAY 19 MAY 2011, 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 thirteen** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 50.

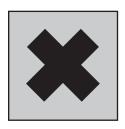
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question. A Data Leaflet, which includes a Periodic Table of the elements, is provided for your use.

For Examiner's use only							
Question Number	Marks						
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							



1 The cleaners in the bucket shown below all have the same **hazard symbol** printed on their container.

Examiner Only					
Marks	Remark				
Marks	Remark				

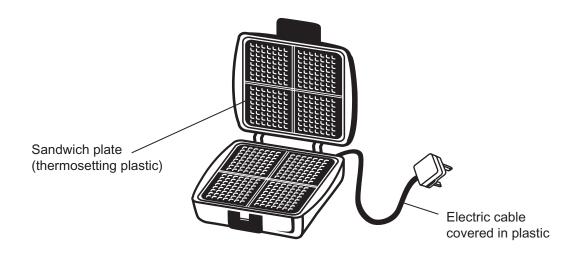




(a)	Give two reasons why hazard symbols are printed on containers of cleaners.
	1
	2
	[2]
(b)	What does the hazard symbol shown tell you about the substances used to make the cleaners?
	[1]
The	substance used to make the cleaners is also poisonous.
(c)	In the box below, draw the hazard symbol for a poisonous substance.

[1]

2 Plastic and metal are used to make this toasted sandwich maker.



(a) Why is a thermosetting plastic used to make the sandwich plate?

_____[1]

(b) Why is the electric cable covered in plastic?

_____[1]

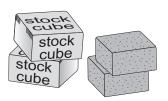
The electric cable is made from copper which is a good conductor of electricity.

(c) What other property of copper makes it useful for making electrical wires?

_____[1

3 The stock cubes shown in the photograph below can be dissolved in water and used to make soups.

Examiner Only					
Marks	Remark				



(a)	Give three ways in which the stock cubes can be helped to dissolve
	quickly.

1.	

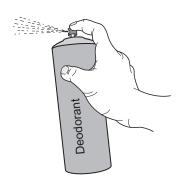
|--|

(b)	Explain	how	you	could	make	а	saturated	solution	using	stock	cubes.

		[2]

4	Us	Use your Data Leaflet to help you answer this question.								
	Cir	Circle the correct answer in each part.								
	(a)	a) The chemical symbol for potassium is:								
		Ро	K	Р	[1]					
	(b)	The formula for the								
		SO_3^{-2}	SO ₄	SO ₄ ⁻²	[1]					
	(c)	Cu is the chemical	symbol for:							
		calcium	copper	carbon	[1]					
	(d)	Which of the follow	ing statements is true							
		All ammonium salts are	All ammonium salts are	Some ammonium salts are						
		soluble.	insoluble.	soluble.	[1]					

5 Some deodorants are sold in an aerosol spray, similar to the one shown in the diagram below. Aerosols contain a **compressed** gas. When the button is pressed the gas is released carrying the deodorant with it.



Explain, in terms of particles, why gases can be compressed.						
	Γ4					

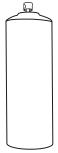
(b) The following warning is printed on aerosol cans.

Do not expose to temperatures above 50°C

What happens to the volume of the gas in the aerosol can when the temperature is increased?

_____[1]

(c) When the aerosol can is "empty", a small number of gas particles remain. Shade in the aerosol can below to show the position of the remaining gas particles in the container.



[1]

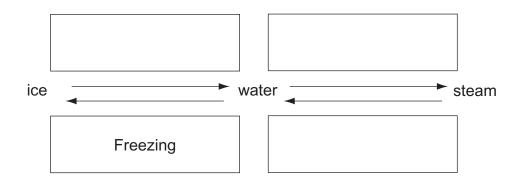
6		s question is about atoms. Place a tick (🗸) in the box beside each rect answer.		kamine Irks	er Only Remark
	(a)	Which one of the following statements about atoms is correct?			
		The number of protons, electrons and neutrons are always equal			
		The number of protons and electrons are equal			
		The number of protons and electrons always adds up to 8	41		
		ι	1]		
	(b)	What name is given to a group of different types of atoms which are joined together?	е		
		a mixture			
		an element			
		a compound [1]		
	(c)	Where can the neutrons in an atom be found?			
		in the nucleus			
		in the shells around the nucleus			
		in both the nucleus and the shells around the nucleus	41		
		l	1]		
	(d)	What name is given to an atom which has lost or gained an electron	?		
		a molecule			
		a compound			
		an ion [1]		
			1	1	

7 Water changes to steam when it is heated. When water is cooled it eventually turns to ice.

Examiner Only

Marks Remark

(a) Complete the diagram below to name these changes of state.



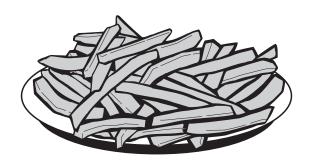
[3]

lodine changes from the solid state to a gas without becoming a liquid.

(b) Complete the diagram below to name this change of state.

solid iodine	 iodine vapour

[1]



The smell from hot chips can quickly fill a room.

(a) Name the process which allows the smell to reach your nose.

_____[1]

(b) Explain, with reference to the particles involved, why the smell from hot chips reaches your nose so quickly.

[2]

This question is about chemical formulae.	Examino Marks	er Only Remark
You may find your Data Leaflet helpful.		
(a) How many different elements are there in the compound N	Na ₂ CO ₃ ?	
	[1]	
(b) Name the compound KHCO ₃ .		
	[1]	
(c) How many atoms are there in a Cu(OH) ₂ molecule?		
	[1]	
(d) What is the correct formula for magnesium nitrate?		
	[1]	

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9

	ete the table by putting \ st one has been done fo	YES or NO in the appropriate boxes. r you.
	name of oxide	reacts with acids to form salts YES or NO
	zinc oxide	YES
	nitrogen dioxide	
	sodium oxide	
	carbon dioxide	
	calcium oxide	
rea	acts with an oxide?	[1]
_		type of chemical reaction?
_		
_		type of chemical reaction?
_		type of chemical reaction?

11 The table below gives information about the atomic structure of five elements.

Examiner Only

Marks Remark

Use this information and your Data Leaflet to answer the questions which follow.

	number of electrons						
element	1st shell	2nd shell	3rd shell				
А	2	1					
В	2	6					
С	2	4					
D	2	8	1				
E	2	8	8				

(a)	Which element A, B, C, D or E has an atomic number of 6?	[1]
(b)	Which element A, B, C, D or E has a noble gas structure?	[1]
(c)	Which two of the elements A, B, C, D or E are very reactive? and	[1]
(d)	Give the name of element D.	[1]

12		en magnesium reacts with chlor gnesium chloride.	ine it forms a compound called	
	(a)	On the diagrams below show has magnesium atom and in a chlorology	now all the electrons are arranged rine atom.	in a
		magnesium atom	chlorine atom	[2

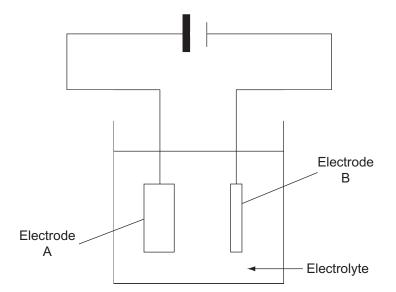
Examiner Only						
Remark						

[2]

(b) Use words or a diagram to explain how the electrons are rearranged to form magnesium chloride.

____[3]

13 Copper metal is purified by the process of electrolysis.



Examiner Only

(2)	Namo	cuitable	alactroly	to for	tho	purification	of	connor
(a)	mame a	Sullable	electron	yte for	me	purincation	OI	copper.

_____[1]

(b) What material is used to make electrode B?

_____[1]

(c) What happens to the mass of electrode A during the electrolysis?

[1]

THIS IS THE END OF THE QUESTION PAPER

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