



Rewarding Learning

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



Centre Number

71

Candidate Number

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### 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.

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

<b>Total Marks</b>	
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2 The table below gives 3 different properties of materials.

(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	✓			

[3]

(b) Plastics are another type of man-made material. Plastics can be **thermosetting** or **thermosoftening**.

(i) Explain what is meant by the term **thermosoftening**.

\_\_\_\_\_  
\_\_\_\_\_ [1]

(ii) Give **one** example of a **thermosoftening** plastic.

\_\_\_\_\_ [1]

Examiner Only	
Marks	Remark

3 Choose from the following words to complete the sentences below.

**solution      solvent      solubility      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]

Examiner Only	
Marks	Remark

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

The element with the symbol S is:

○ sulphur

sodium

selenium

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

Al

Al<sup>3-</sup>

Al<sup>3+</sup>

[1]

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

californium

calcium

caesium

[1]

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

MGSO<sub>4</sub>

MgSo<sub>4</sub>

MgSO<sub>4</sub>

[1]

- (d) The name of the compound with the formula **K<sub>2</sub>CO<sub>3</sub>** is:

potassium  
cobalt

potassium  
carbon dioxide

potassium  
carbonate

[1]

- (e)  $2\text{Mg} + \text{O}_2 \longrightarrow 2\text{MgO}$  is an example of a:

word equation

symbol equation

ionic equation

[1]

Examiner Only

Marks

Remark

- 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.

**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]

Examiner Only

Marks      Remark



- 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	

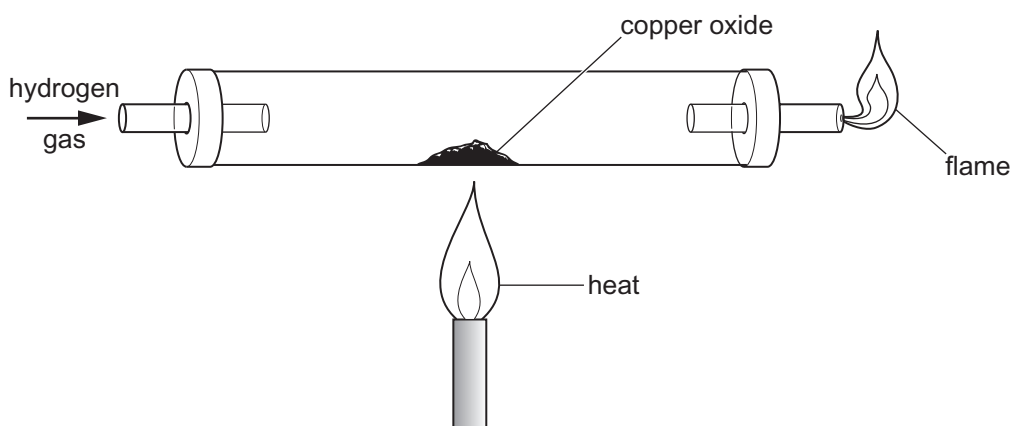
[4]

Examiner Only	
Marks	Remark





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



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]

Examiner Only

Marks Remark

10 This question is about electrolysis.

(a) Complete the passage below.

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**?

\_\_\_\_\_ [1]

(c) Name a **metal** which is produced by the electrolysis of the metal  
oxide.

\_\_\_\_\_ [1]

Examiner Only

Marks Remark

**11** The following experiment was carried out to investigate the hardness of **two** samples of hard water.

Step 1 Place the two water samples into separate test tubes.

Step 2 Add 1 cm<sup>3</sup> 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?

\_\_\_\_\_ [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 \_\_\_\_\_

Disadvantage \_\_\_\_\_

\_\_\_\_\_ [2]

Examiner Only	
Marks	Remark







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