

Centre Number				
71				

Candidate Number

General Certificate of Secondary Education 2011–2012

Science: Single Award (Modular)

Materials and their Management

Module 4

Foundation Tier

[GSC41]



TUESDAY 28 FEBRUARY 2012 9.30 am-10.15 am

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 seven** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 45.

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			
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6			
7			

Iotai	
Marks	



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4	Dalam		£		
1	Relow	are	tour	common	materials

Examiner Only				
Marks	Remark			

wood	:	plastic	:	petrol	:	wool
	•	p	-	P	-	

(a) Place each material in the correct column of the table below.

Man-made	Natural

[2]

(b) The window panes shown below are made from glass.



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(i) Suggest one reason why glass is a sui	itable material to use.
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1

(ii) Window frames used to be made from wood but more recently plastic is usually used. Give **two** reasons why plastic is better than wood for making window frames.

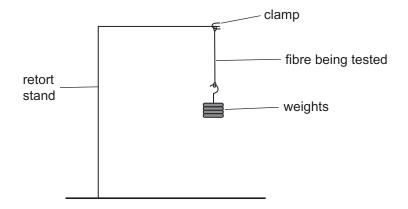
1.			

2. _____

[0]	
2	

2 Ronald did an investigation to test the strength of five different fibres using the apparatus shown below.

Examiner Only			
Marks	Remark		



(a)	State one thing	that mus	st be kep	ot the sa	ame to	make su	re it is	a	fair
	test.								

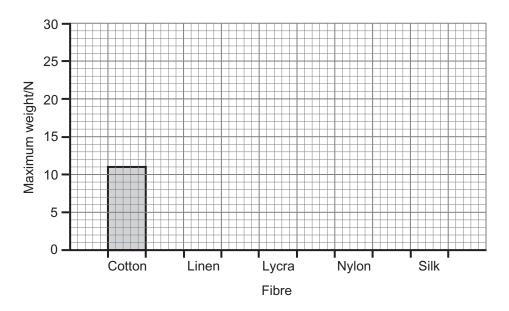
[1	

(b) The maximum weight each fibre could hold before breaking was measured and recorded below.

Examiner Only			
Marks	Remark		

Fibre	Maximum weight/N
Cotton	11
Linen	10
Lycra	25
Nylon	19
Silk	9

(i) Complete the bar chart below for the results of Ronald's investigation.



[2]

(ii) Name the weakest fibre.

_____ [1]

	Lilac : Blue/Green : Red				
	Metal	Colour of Flame			
	Copper				
	Sodium	Orange/Yellow			
	Potassium				
	Lead	Blue/White			
			[2]		
_			[2]		
_			[2]		
_			[2]		
_			[2]		
			[2]		
			[2]		

4	Water can	he	described	as being	hard o	or soft
_	vvator car		acscribed	as build	Tial a	JI 3011



(a) Complete the sentences below.

Choose from:

stalagmites : stalactites : dissolve : sodium :

soft : calcium : lather : permanent

Hard water is water that does not ______ easily with soap.

There are two types of hard water, temporary and ______.

The compounds that cause hard water contain magnesium or

_____.

Hard water areas can have caves where you might find

_____ hanging from the roof.

[4]

(b) (i) Give two advantages of hard water.

1. _____

2. ______ [2]

(ii) Give one disadvantage of hard water.

_____[1]

(c) Temporary hard water can be softened by boiling. Give **two** methods of softening **permanent** hard water.

1. _____

2. ______ [2]

5 Coal, oil and natural gas are fossil fuels used to heat our homes.

Examiner Only		
Marks	Remark	



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(a)	The chemical formula for natural gas is $\mathbf{CH_4}$. Name the two elemen it contains.	ts
	(You may find your Data Leaflet helpful.)	
	and	[2]
(b)	Why are fossil fuels described as finite energy resources?	
		[1]
(c)	Suggest two alternative energy sources that could be used instead fossil fuels.	l of
	1	
	2	[2]
(d)	In each statement below circle the correct word(s) to complete the sentences about natural gas.	
	(i) Natural gas is a polymer / hydrocarbon / plastic	
	(ii) When natural gas burns it produces carbon dioxide and	
	hydrogen / water / oxygen	
	(iii) One harmful effect of burning natural gas is	
	acid rain / global warming / water pollution	[3]

6 Bottles can be made from plastic or glass.

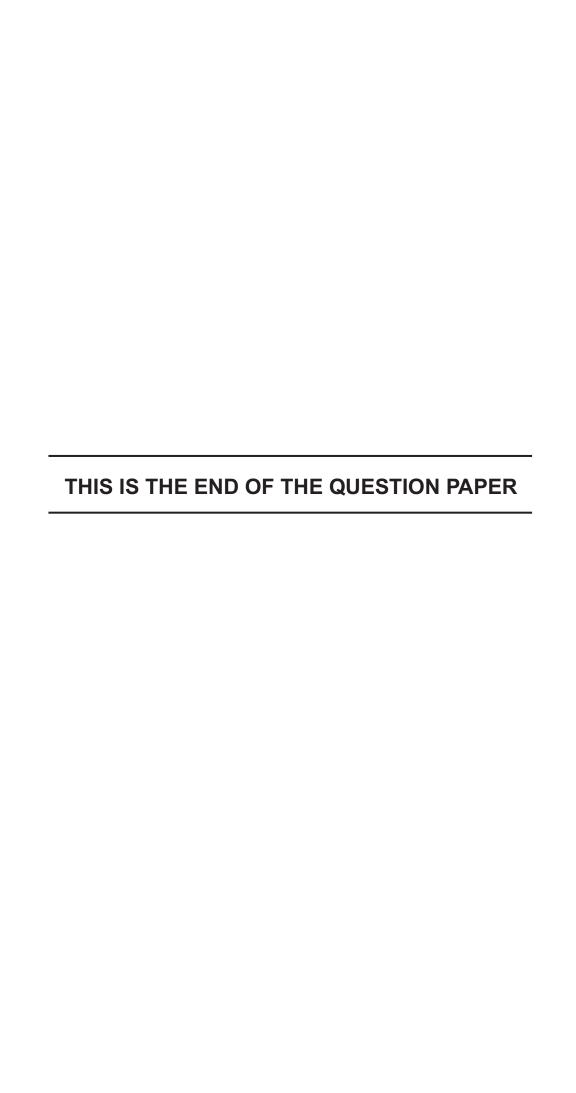
Examiner Only		
Marks	Remark	



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(a)	Give one advantage of using plastic instead of glass to make bottle	s.
		[1]
(b)	Glass can be recycled. Give two ways that local councils are encouraging the recycling of glass.	
	1	
	2	
		[2]
		[-]
(c)	Give two reasons why it is important to recycle materials.	
	1	
	2	[2]
(d)	Some companies are using biodegradable plastics to make their bottle	les.
	(i) Explain fully what is meant by the term biodegradable.	
		[2]
	(ii) Give one other example of a biodegradable material.	
		[1]

-	gerprints can be used to help solve crimes. There are four types of erprint patterns; arch, loop, whorl and composite.	Examine Marks
(a)	In the box below draw the pattern for a whorl fingerprint.	
		[1]
(b)	Describe how you would obtain your fingerprint from a white surface	ce
	such as a tile.	
	Your description must include:	
	 how the fingerprint is put onto the tile the powder used how you would remove excess powder 	
	how to remove the fingerprint from the tile	
		- [,]
(c)	Apart from fingerprints, give two other types of forensic evidence which scientists collect at the scene of a crime.	
	1	
	2	[2]



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