

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE

A532/01

DESIGN AND TECHNOLOGY
Graphics

Sustainable Design

TUESDAY 11 JUNE 2013: Afternoon

DURATION: 1 hour
plus your additional time allowance

MODIFIED ENLARGED

Candidate forename		Candidate surname	
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Centre number						Candidate number				
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Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

None

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. HB pencil may be used for graphs and diagrams only.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).**
- **Answer ALL the questions in SECTION A AND SECTION B.**

INFORMATION FOR CANDIDATES

- **The number of marks is given in brackets [] at the end of each question or part question.**
- **The total number of marks for this paper is 60.**
- **Your Quality of Written Communication is assessed in questions marked with an asterisk (*).**
- **Any blank pages are indicated.**

SECTION A

Answer ALL questions.

You are advised to spend 15 minutes on this section.

On questions 1–5 circle your answer.

1 Eco-friendly materials:

- (a) Use toxic chemicals**
- (b) Use non-renewable sources**
- (c) Use sustainable sources**
- (d) Are made in third-world countries** **[1]**

2 Primary recycling is:

- (a) Using a product again without changing it**
- (b) Cutting up a product to recycle it**
- (c) Chemically breaking down a product**
- (d) Making another product** **[1]**

3 The Green Dot symbol shows that:

- (a) A product can be recycled**
- (b) The manufacturer has contributed towards recycling**
- (c) The manufacturer is environmentally friendly**
- (d) The product cannot be recycled**

[1]

4 To disassemble a product means to:

- (a) Take it apart**
- (b) Use it again**
- (c) Make it**
- (d) Mend it when it is broken**

[1]

5 The symbol shown below means:

- (a) Plastic should be recycled**
- (b) Recycle aluminium**
- (c) Throw your rubbish away**



- (d) Glass should be disposed of in a bottle bank.**

[1]

6 State what a Mobius Loop symbol tells you about a product.

_____ [1]

7 Give the meaning of the term 'disposal'.

_____ [1]

8 Name ONE smart material that changes colour depending on the temperature.

_____ [1]

9 Name ONE specific plastic that can be recycled.

_____ [1]

10 State the meaning of the term geothermal power.

_____ [1]

Decide whether each of the following statements is TRUE or FALSE.

Tick (✓) the box to show your answer.

	TRUE	FALSE	
11 Aluminium is not recyclable.	<input type="checkbox"/>	<input type="checkbox"/>	[1]
12 The use of non-renewable materials should be encouraged.	<input type="checkbox"/>	<input type="checkbox"/>	[1]
13 CFCs are beneficial to the earth.	<input type="checkbox"/>	<input type="checkbox"/>	[1]
14 Good design improves quality of life.	<input type="checkbox"/>	<input type="checkbox"/>	[1]
15 COSHH regulations help to protect workers from exposure to hazardous substances.	<input type="checkbox"/>	<input type="checkbox"/>	[1]
			TOTAL [15]

SECTION B

Answer ALL questions.

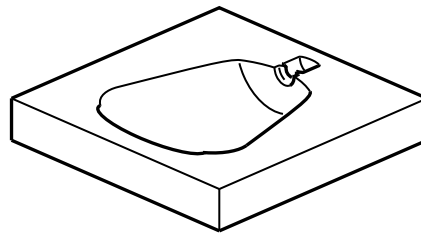
You are advised to spend 45 minutes on this section.

16 Fig. 1 shows packaging used for a perfume bottle.

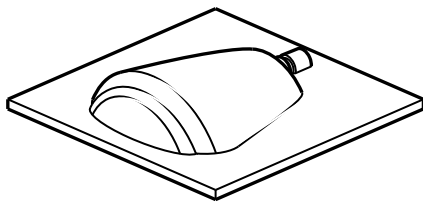
FIG. 1



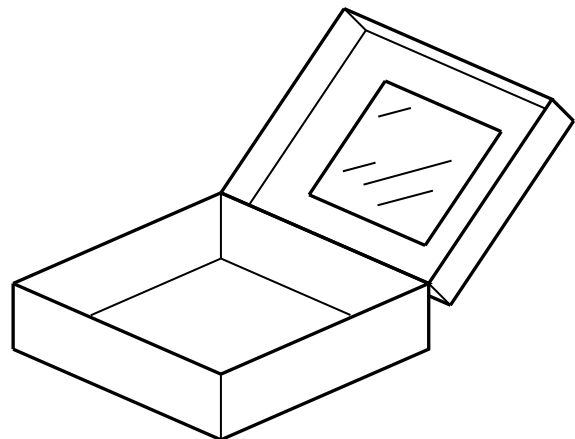
**glass perfume
bottle**



**vacuum formed plastic
tray to contain the
perfume bottle**



**plastic bubble cover to
protect the perfume
bottle**



**outer box made from
bleached card with
plastic window**

- (a) State ONE part of the packaging that is biodegradeable.**

_____ **[1]**

- (b) The manufacturer wants to make the packaging more environmentally friendly.**

Explain THREE ways this could be done.

1 _____

2 _____

3 _____

_____ **[6]**

- (c) Give ONE reason why the manufacturer wraps the outer packaging in cellophane before it is distributed.**

_____ [1]

- (d) The perfume is manufactured close to where it is sold.**

Give TWO advantages to the community of manufacturing and selling locally.

1 _____

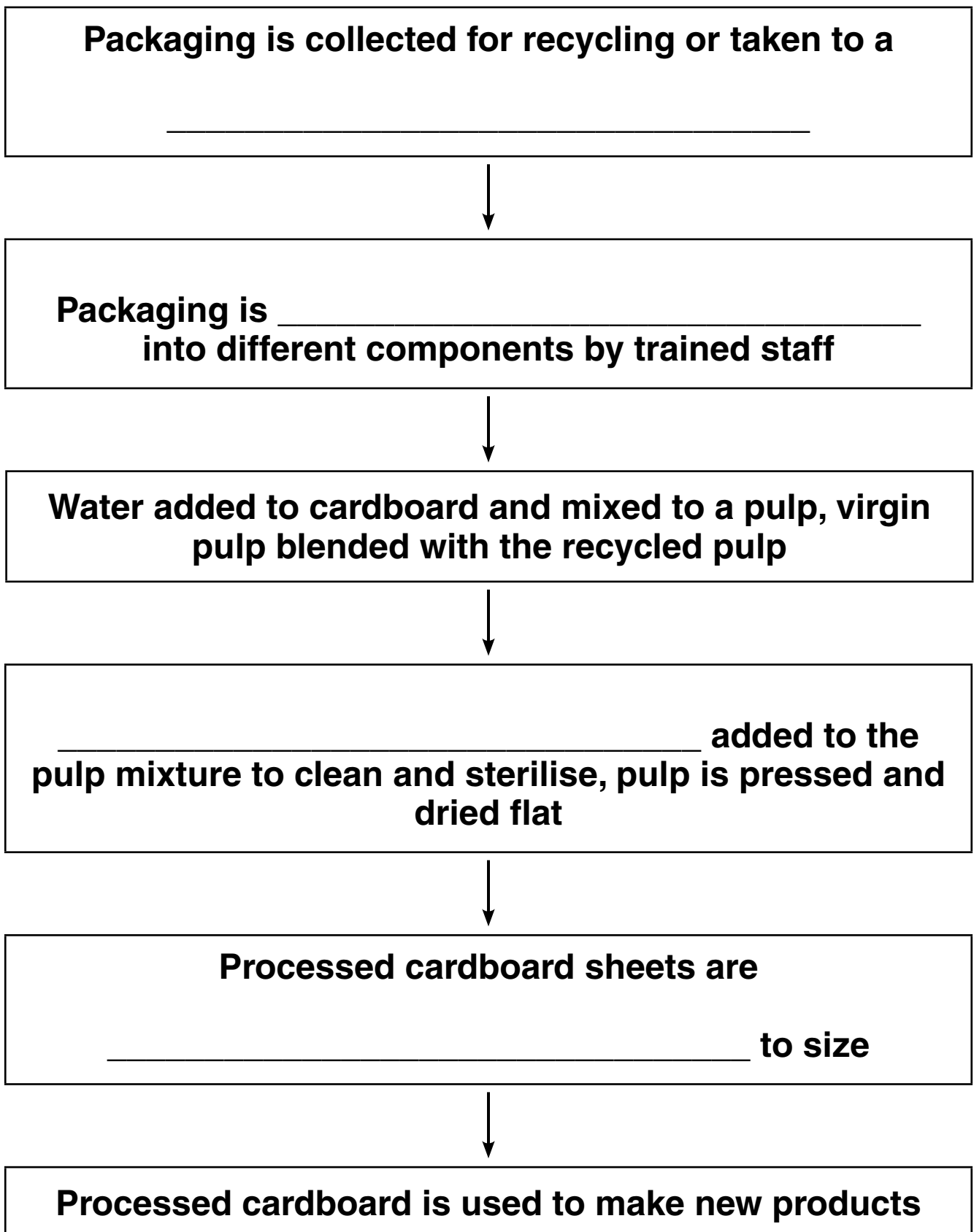
2 _____

_____ [2]

- (e) With reference to Fig. 1, state ONE way the consumer can help to make the recycling of packaging easier.**

_____ [1]

- (f) Complete the diagram below to show the tertiary recycling process of packaging. [4]



TOTAL [15]

17 Fig. 2 shows a child's lunchbox made from plastic.

FIG. 2



(a) With reference to the child's lunchbox in Fig. 2, explain what is meant by these terms:

(i) Functional

[3]

(ii) Built-in obsolescence

[3]

(b) The mobius loop symbol in Fig. 3 is embossed onto the bottom of the lunchbox.

(i) State the meaning of the number and letters on the symbol in Fig. 3.

FIG. 3



[1]

(ii) Explain how the embossed symbol would be helpful to a partially sighted person.

[2]

(c)* Explain how Life Cycle Analysis (LCA) is an important aspect of a designer's role.

Marks will be awarded for the quality of written communication in your answer.

[6]

[illegible]

TOTAL [15]

18 Fig. 4 shows a net (development).

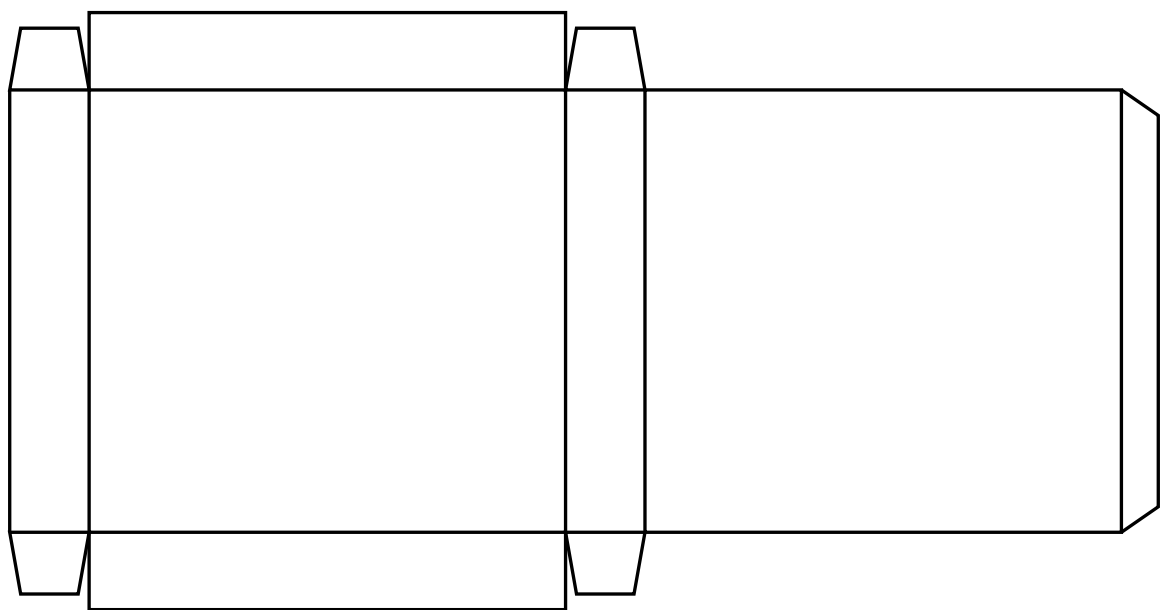


FIG. 4

(a) Give **THREE** benefits to the environment of using a computer program to create the net (development).

- 1
- 2

3 _____

_____ [6]

(b) Describe ONE disadvantage that using computers can have on the environment.

_____ [2]

(c) The net (development) should be tessellated before printing in quantity.

Name ONE 6R that refers to this.

_____ [1]

(d) (i) State TWO ways a manufacturer can decrease their carbon footprint.

1 _____

2 _____

[2]

- (ii) Design a symbol that could be printed onto packaging to show consumers that a product has a low carbon footprint. [4]**

TOTAL [15]

END OF QUESTION PAPER

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