

Tuesday 11 June 2013 – Afternoon

GCSE DESIGN AND TECHNOLOGY Graphics

A532/01 Sustainable Design

Candidates answer on the Question Paper.

OCR supplied materials:

None

Other materials required:

None

Duration: 1 hour

MODIFIED LANGUAGE



Candidate
forename

Candidate
surname

Centre number

Candidate number

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. 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**.
- Do **not** write in the bar codes.

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 (*).
- This document consists of **12** pages. 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 the product
 - (b) Cutting up a product to recycle it
 - (c) Chemically breaking down a product
 - (d) Making a different 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 the product apart
 - (b) Use the product again
 - (c) Make the product
 - (d) Mend the product 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 word '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 Give the meaning of 'geothermal power.'

..... [1]

4

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.

☐☐

[1]

12 People should be encouraged to use non-renewable materials.

☐☐

[1]

13 CFCs are helpful to the earth.

☐☐

[1]

14 Good design improves quality of life.

☐☐

[1]

15 COSHH regulations help to protect workers from exposure to hazardous substances.

☐☐

[1]

Total [15]

5
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.

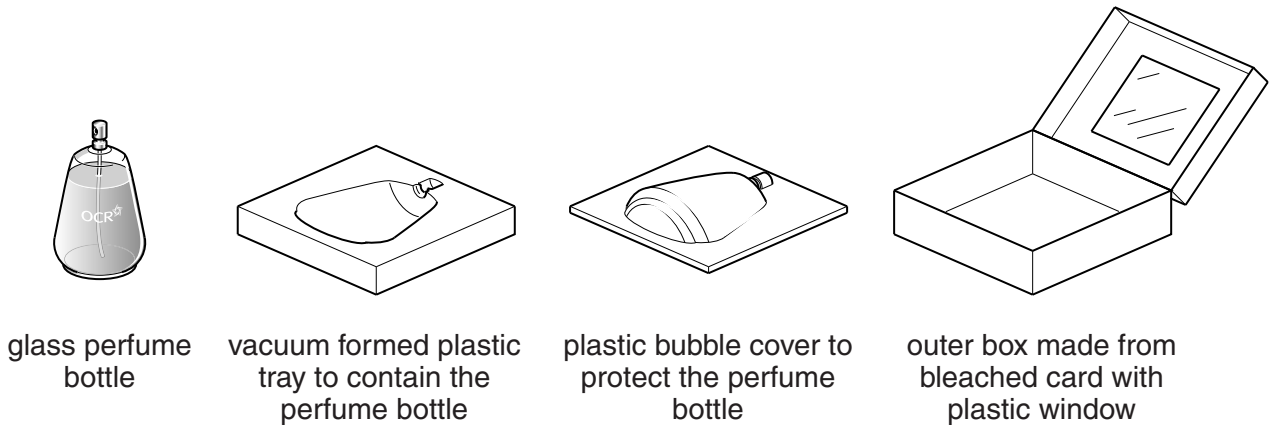


Fig. 1

(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 the product is distributed.

..... [1]

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

Give **two** advantages to the community of manufacturing and selling locally.

1

.....

2

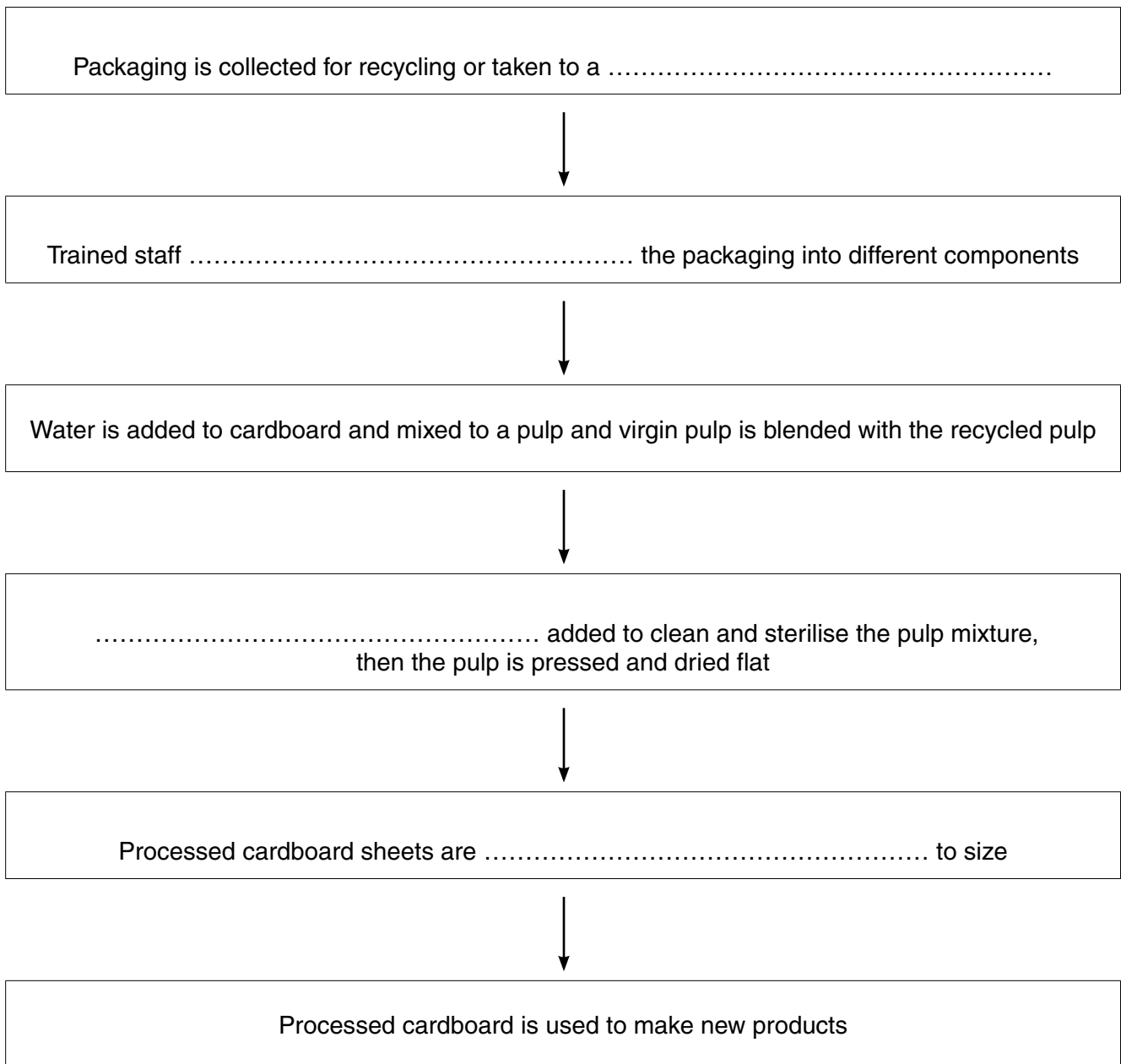
.....

[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 the meaning of:

(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 part of a designer's job.

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

[6]

Total [15]

18 Fig. 4 shows a net (development).

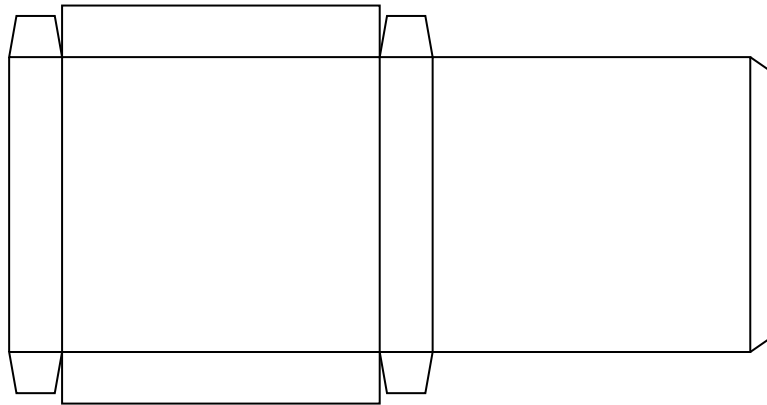


Fig. 4

(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** of the 6Rs that refers to this.

..... [1]

- (d) (i) State **two** ways a manufacturer can decrease their carbon footprint.

1

.....

2

.....

[2]

- (ii) Design a symbol to show consumers that a product has a low carbon footprint. The symbol should be printed onto the packaging.

[4]

Total [15]

END OF QUESTION PAPER

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