

GENERAL CERTIFICATE OF SECONDARY EDUCATION
DESIGN AND TECHNOLOGY
Resistant Materials
Sustainable Design

A562

Candidates answer on the question paper.

OCR supplied materials:
None

Other materials required:
None

Wednesday 25 May 2011
Afternoon
Duration: 1 hour



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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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. 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** One of the aims of the British Standards Institute is to make sure:
- (a) Products are safe and fit for purpose
 - (b) That products are recyclable
 - (c) Products are not too expensive
 - (d) That workers are paid enough [1]
- 2** Carbon footprint is a measure of:
- (a) Energy used by a company
 - (b) Waste produced by a household
 - (c) The impact of human activities on the environment
 - (d) The size of an adult foot [1]
- 3** Eco-design is the process of designing a product to be:
- (a) As low cost as possible
 - (b) Made as fast as possible
 - (c) As profitable as possible
 - (d) As environmentally friendly as possible [1]
- 4** The CE (Conformité Européenne) is a symbol that ensures a product:
- (a) Meets a safety standard
 - (b) Conforms to a durability standard
 - (c) Is made in Europe
 - (d) Can be connected to an electricity supply [1]

5 Which of the following is **not** a renewable energy resource?

- (a) Biomass
- (b) Wave
- (c) Wind
- (d) Gas

[1]

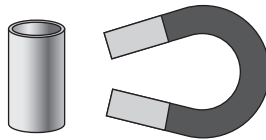
6 State what is meant by a product being 'repaired'.

..... [1]

7 Give **one** advantage to the manufacturer of planned obsolescence.

..... [1]

8 State the meaning of the symbol shown.



..... [1]

9 State the meaning of 'biodegradable'.

..... [1]

10 State why CFCs (chlorofluorocarbons) are no longer widely used in products.

..... [1]

4

Decide whether each of the following is **True** or **False**.

Tick (✓) the box to show your answer.

	True	False	
11 The second-hand use of a product is known as secondary recycling	<input type="checkbox"/>	<input type="checkbox"/>	[1]
12 Air-born particles are one of the hazards regulated by COSHH	<input type="checkbox"/>	<input type="checkbox"/>	[1]
13 The life cycle of a product is the sequence of stages from conception to decomposition	<input type="checkbox"/>	<input type="checkbox"/>	[1]
14 Chemicals that can cause harm to people and animals are called bio products	<input type="checkbox"/>	<input type="checkbox"/>	[1]
15 Sorting plastic into different types is a major problem in recycling centres	<input type="checkbox"/>	<input type="checkbox"/>	[1]
			Total [15]

5
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Section B

Answer **all** questions.

You are advised to spend 45 minutes on this section.

16 Fig. 1 shows a light shade made from polypropylene sheet.

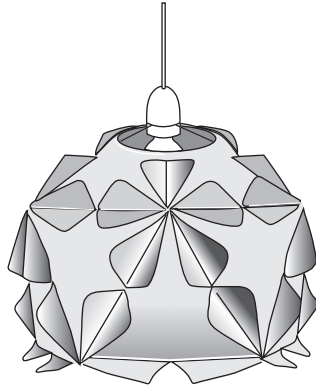


Fig. 1

(a) Manufacturers must ensure that products are safe for the user.

State **two** possible safety concerns that the manufacturer of the light shade would need to consider.

1

2

[2]

(b) The lamp shade is supplied in flat pack form for assembly by the user.

Give **two** reasons why supplying the lamp shade in flat pack form may benefit the environment.

1

.....

.....

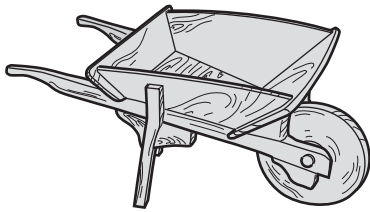
2

.....

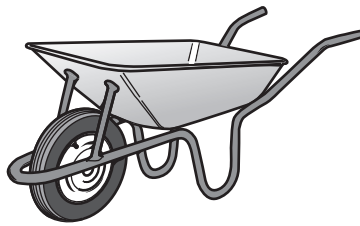
.....

[4]

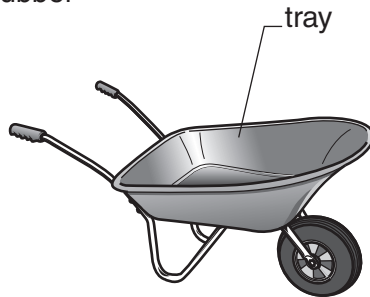
17 Fig. 2 shows three wheelbarrows.



Wheelbarrow **A**
made from wood



Wheelbarrow **B** made
from metal and rubber



Wheelbarrow **C** made
from metal and plastic



Fig. 2

(a) Give **two** reasons why wheelbarrow **B** evolved from wheelbarrow **A**.

Reason 1

.....

.....

.....

Reason 2

.....

.....

.....

(b) Give **two** reasons why wheelbarrow **C** evolved from wheelbarrow **B**.

Reason 1

.....

.....

.....

Reason 2

.....

.....

.....

[4]

(c) Describe **two** ways in which wheelbarrow **C** has better ergonomic qualities than wheelbarrow **A**.

.....

.....

.....

.....

[2]

(d) Give **one** reason, other than cost, why a designer may refuse to use a tropical hardwood for a wheelbarrow.

.....

.....

[2]

(e) Give **one** reason why a designer may choose injection moulding rather than vacuum forming for the tray of wheelbarrow **C**.

.....

.....

[1]

(f) (i) State **one** piece of anthropometric data that would have been used in the design of the wheelbarrow.

Anthropometric data [1]

(ii) Name the part of the wheelbarrow where the data would have been used.

Part of wheelbarrow

..... [1]

Total [15]

Turn over

18 Fig. 3 shows a pendant made from a tropical hardwood.



Fig. 3

(a) Explain, with reference to the tropical hardwood pendant, what is meant by cultural influences on a product.

.....
.....
..... [3]

(b) The pendant is aesthetically pleasing.

List **three** properties of a product which can contribute to its aesthetic appeal.

1
2
3 [3]

The Ethical Trading Initiative (ETI) requires that the working conditions of employees must meet minimum standards.

(c) State **four** examples of working conditions which supporters of this initiative must meet.

1
2
3
4 [4]

(d) Risk assessment is important when planning the manufacture of a product.

State the **two** key components of risk assessment.

1

2

[2]

(e) Some products are marked with the symbol shown in Fig. 4.



Fig. 4

(i) Name the symbol shown in Fig. 4.

..... [1]

(ii) Explain why consumers may wish to purchase products displaying this symbol.

.....
.....

..... [2]

Total [15]

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