



**GENERAL CERTIFICATE OF SECONDARY EDUCATION**  
**DESIGN AND TECHNOLOGY**  
**GRAPHICS**

**A532**

Sustainable Design

Candidates answer on the Question Paper

**OCR Supplied Materials:**  
None

**Other Materials Required:**  
None

**Friday 22 January 2010**  
**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 clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions in sections **A and B**.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided.

**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 **ring** your answer

**1** Instructions are included with products to:

- (a) Promote the company
- (b) Provide reading material
- (c) Protect the safety of users
- (d) Increase sales

[1]

**2** To disassemble a product means to:

- (a) Take it apart
- (b) Make it
- (c) Sketch it
- (d) Buy it

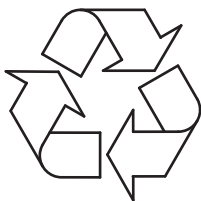
[1]

**3** A product cannot be economically repaired if:

- (a) There is no proof of purchase
- (b) It is more than three years old
- (c) Spare parts are not available
- (d) It was expensive to buy

[1]

**4** The symbol shown stands for:



- (a) The product can be recycled
- (b) The product has been imported
- (c) Return the product to the shop
- (d) A recycled product

[1]

- 5 Designers should:
- (a) Only design for one culture
  - (b) Respond to the values of different cultures
  - (c) Not allow different cultures to affect their thinking
  - (d) Design for their own use [1]
- 6 Which of the 6Rs describes when a product is adapted to suit an alternative purpose.  
..... [1]
- 7 State what is meant by the 'life cycle of a product'.  
..... [1]
- 8 Give the full name of the abbreviation **ETI** which relates to company moral issues.  
..... [1]
- 9 State the term used to describe the total effect of the greenhouse gas emissions resulting from a company's transportation of materials and products.  
..... [1]
- 10 Name the term used to describe waste materials that decompose easily without causing harm to the environment.  
..... [1]

4

Decide whether each of the following statements is *true* or *false*.  
Tick (✓) the box to show your answer.

True

False

- |    |   |                          |                          |     |
|----|---|--------------------------|--------------------------|-----|
| 11 | The creation of worldwide production markets with greater access to foreign products is called Globalisation. | <input type="checkbox"/> | <input type="checkbox"/> | [1] |
| 12 | Careful marking out can reduce waste material.  | <input type="checkbox"/> | <input type="checkbox"/> | [1] |
| 13 | A questionnaire is used to gather customers' views.   | <input type="checkbox"/> | <input type="checkbox"/> | [1] |
| 14 | Recycling started during the 20th Century.  | <input type="checkbox"/> | <input type="checkbox"/> | [1] |
| 15 | An obsolete product cannot be used.   | <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 a wall calendar.

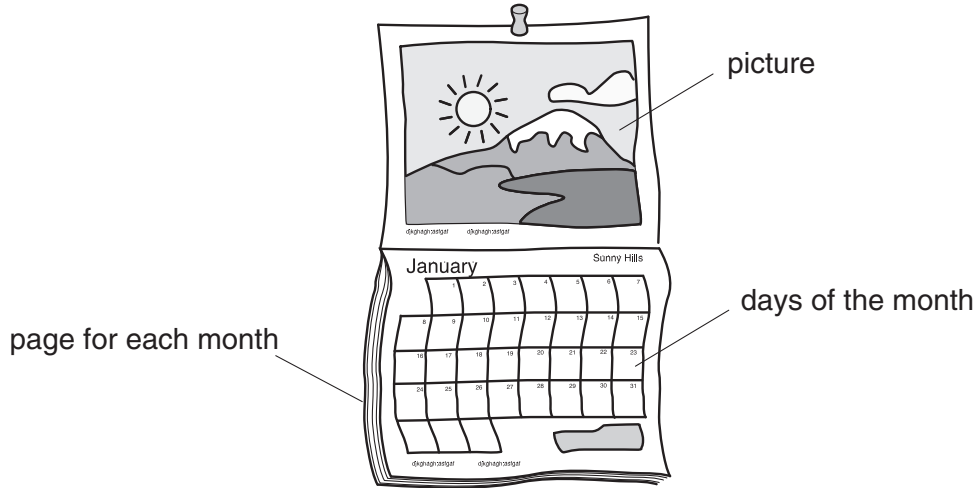


Fig. 1

(a) Give **one** reason why the designer would use different pictures for each month on the calendar.

..... [1]

(b) Give **one** example of re-using a picture from the calendar.

..... [1]

(c) Explain what is meant by the following **three** terms with reference to the materials and production of the calendar,

(i) Sustainable material

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

(ii) Redundant product

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

(iii) Carbon offsetting

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

(d) Describe **two** potential chemical risks to the environment that could be caused during the production of the calendar.

Risk 1.....  
.....  
..... [2]

Risk 2.....  
.....  
..... [2]

**Total [15]**

17 The calendar in Fig. 2 is printed on paper with wildflower seeds embedded in it. When a page has been used it is planted directly in the ground and wildflowers grow in its place.

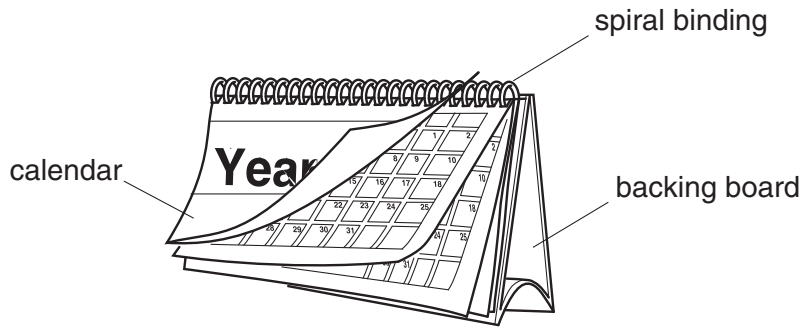


Fig. 2

(a) (i) Name **one** specific material that could be used to make the spiral binding.  
..... [1]

(ii) Give **two** advantages for the manufacturer of using a recycled material for the backing board.  
**1** ..... [1]  
.....

**2** ..... [1]  
.....

(b) Describe how the calendar in Fig. 2 could address the following **three** aspects of the 6Rs.  
(i) Rethink  
.....  
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.....  
..... [2]

(ii) Reduce  
.....  
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.....  
..... [2]

(iii) Refuse

.....  
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.....  
.....  
..... [2]

(c) A calendar can be both functional and aesthetic.

Explain with reference to the calendar in Fig. 2:

(i) Functional

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

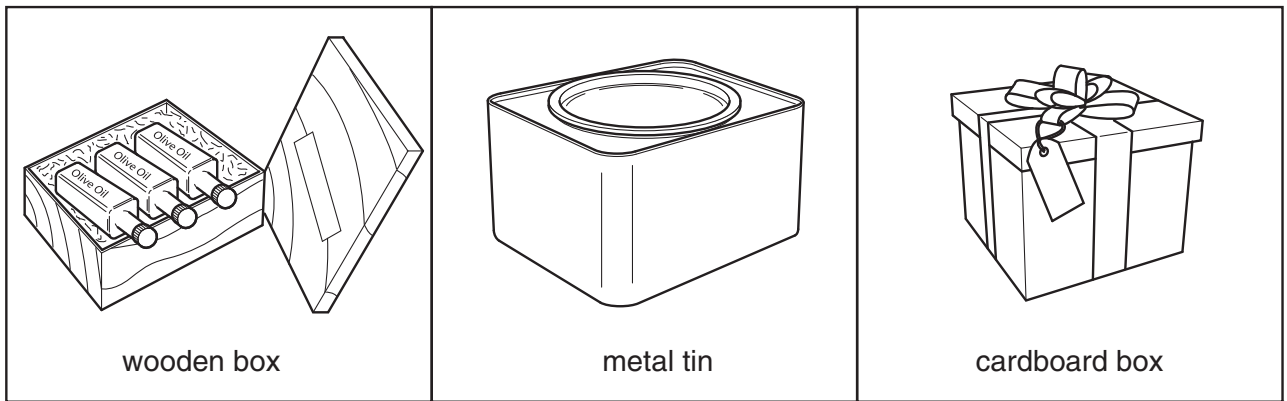
(ii) Aesthetic

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

**Total [15]**



18 (a) (i) Tick (✓) the packaging below that is made from a non-sustainable resource.



[1]

(ii) Explain what is meant by a non-sustainable resource.

.....

.....

.....

.....

.....

[2]

(b) Identify the materials used for the box outer and the protective packaging in Fig. 3.

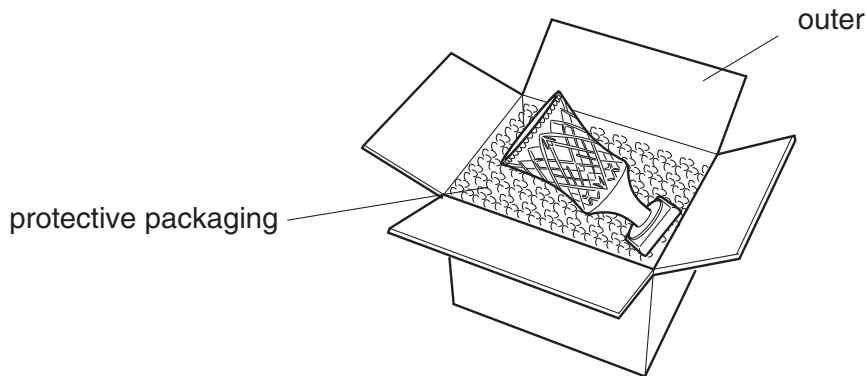


Fig. 3

(i) Outer ..... [1]

(ii) Protective packaging ..... [1]

(c) The box in Fig. 3 has been designed to be Eco-friendly.

Give **one** point for each of the following headings to show how the box is Eco-friendly.

Material ..... [1]  
.....

Manufacture ..... [1]  
.....

Transport ..... [1]  
.....

Disposal ..... [1]  
.....

(d\*) Environmental considerations are important parts of a manufacturing system.

Discuss **three** ways in which manufacturing processes can be improved to protect and preserve the environment.

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..... [6]

**Total [15]**

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