

<b>Candidate Forename</b>		<b>Candidate Surname</b>	
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<b>Centre Number</b>						<b>Candidate Number</b>				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

**A532**

**DESIGN AND TECHNOLOGY**

**Sustainable Design**

**FRIDAY 22 JANUARY 2010: Afternoon**

**DURATION: 1 hour**

**SUITABLE FOR VISUALLY IMPAIRED CANDIDATES**

**Candidates answer on the Question Paper**

**OCR SUPPLIED MATERIALS:**

**None**

**OTHER MATERIALS REQUIRED:**

**None**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

- **Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.**
- **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.**
- **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 (\*).**

## **SECTION A**

**Answer ALL questions.**

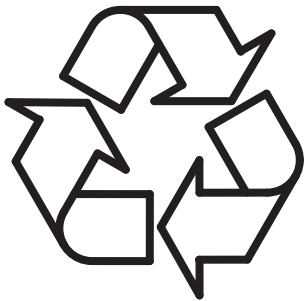
**You are advised to spend 15 minutes on this section.**

**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]

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

Tick (✓) the box to show your answer.

**TRUE**   **FALSE**

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

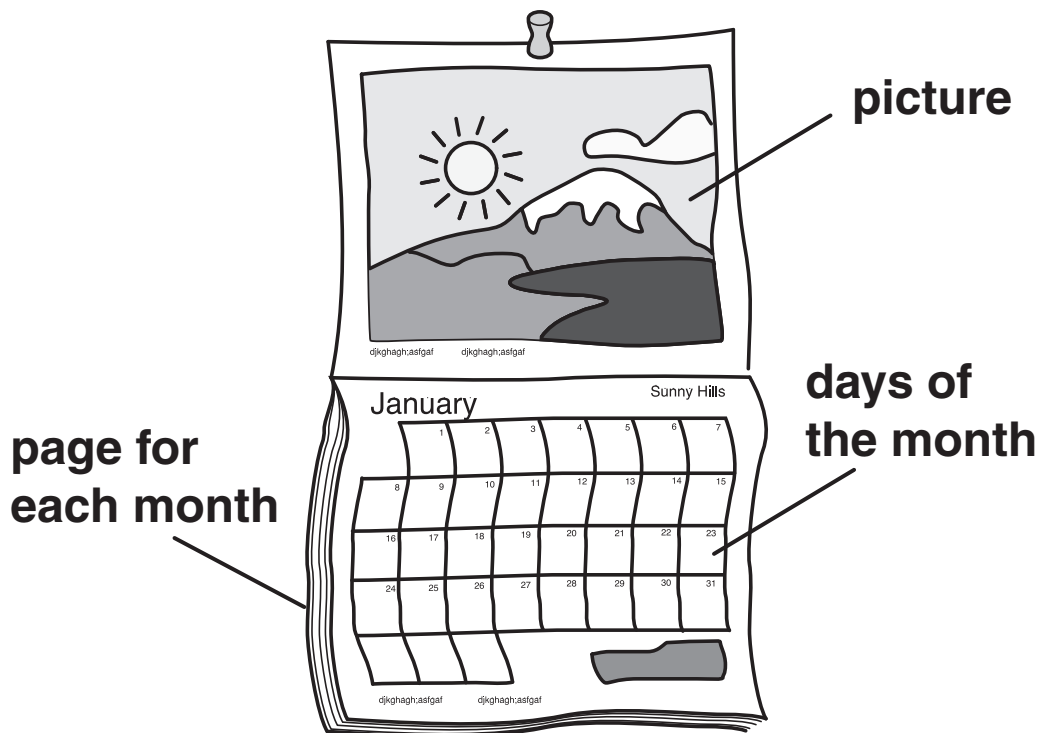
**Total [15]**

## 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]





**(iii) Carbon offsetting**

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**[3]**

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

**Risk 1** \_\_\_\_\_

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**[2]**

**Risk 2** \_\_\_\_\_

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**[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.

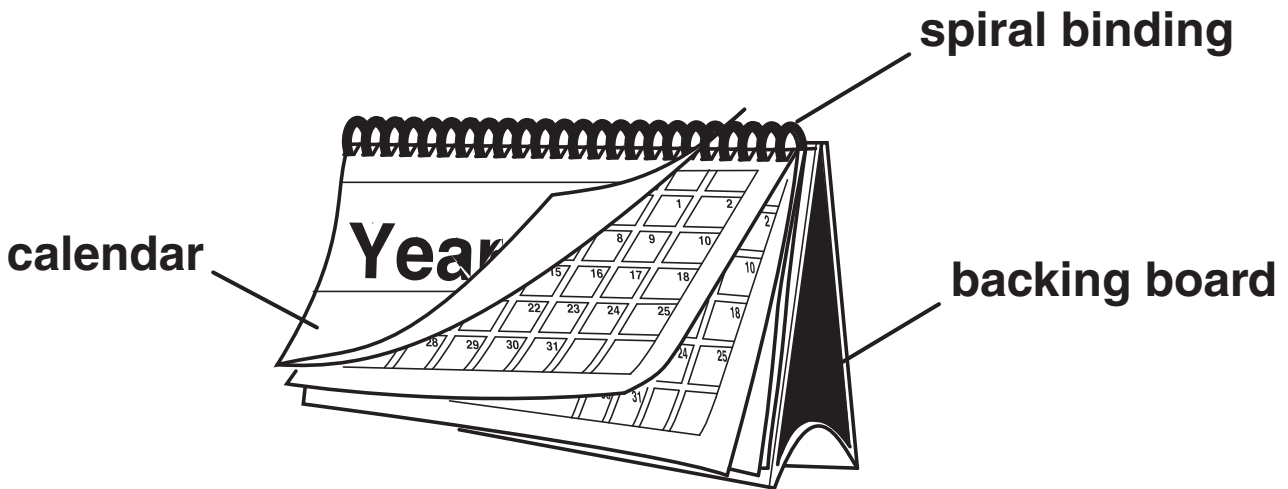


Fig. 2

(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**

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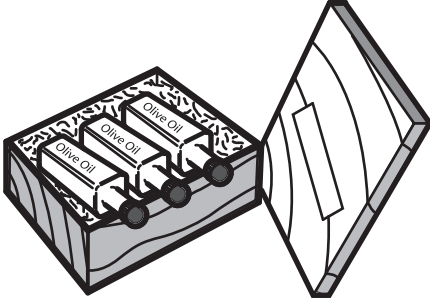
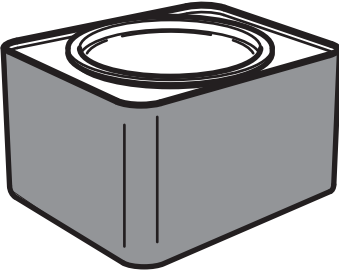

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**[3]**

**Total [15]**

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

 <p>wooden box</p>	 <p>metal tin</p>	 <p>cardboard box</p>
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[1]

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

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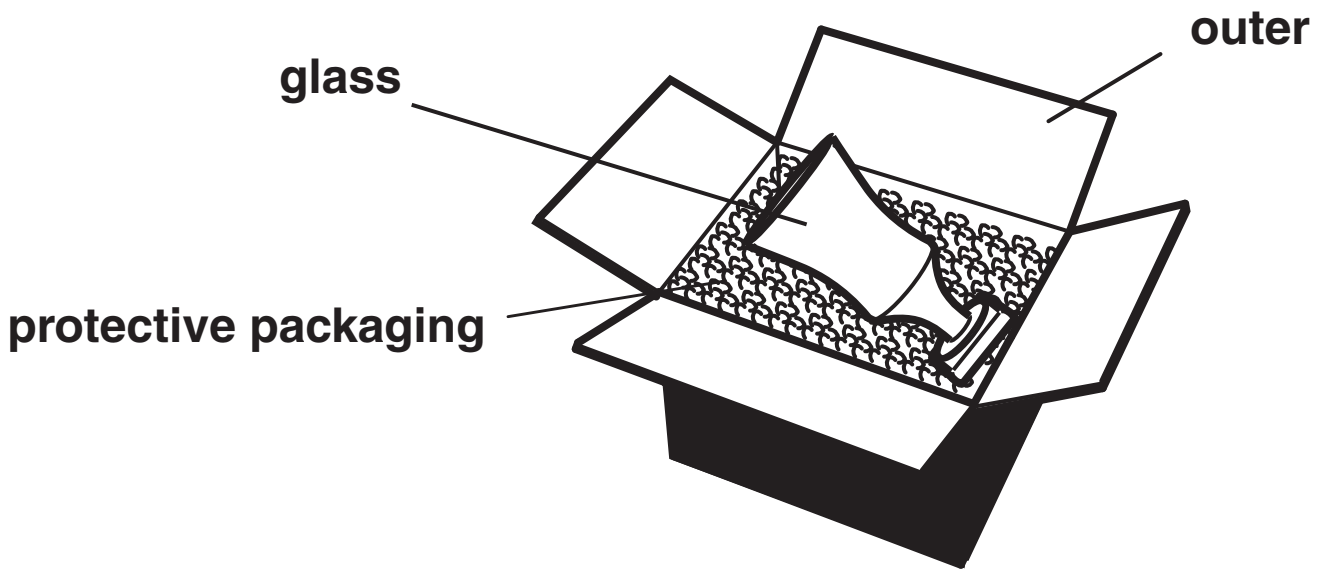
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[2]

**(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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