



**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 26 May 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 Section A **and** Section B.
- Do **not** write in the bar codes.
- 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).

**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 Which of the following is **not** a renewable resource?
- (a) Wood
  - (b) Wool
  - (c) Metal
  - (d) Paper
- [1]
- 2 Taking a product apart to analyse the parts, is called:
- (a) Product disassembly
  - (b) Product assembly
  - (c) Repair analysis
  - (d) Commercial analysis
- [1]
- 3 Adding design features to deliberately make a product outdated after a certain length of time is called:
- (a) Planned obsolescence
  - (b) Safety obsolescence
  - (c) Expired warranty
  - (d) Technological obsolescence
- [1]
- 4 The symbol shown indicates:
- (a) Environmentally friendly
  - (b) Environmentally recyclable
  - (c) European eco label
  - (d) European standards label
- 
- The image shows the European eco label symbol, which consists of a stylized plant with three leaves and a stem. Above the plant is a circle of twelve five-pointed stars, with a Euro symbol (€) in the center of the circle.

- 5 The role of a designer of sustainable products is to:
- (a) Modify existing designs
  - (b) Use traditional designs
  - (c) Design products that can be bought cheaply
  - (d) Create innovative environmentally friendly designs [1]

6 Give the term used to describe waste materials that rot easily within the environment.  
..... [1]

7 State the meaning of eco design.  
..... [1]

8 In the context of a company's moral issues what does ETI stand for?  
..... [1]

9 Fig. 1 shows a symbol found on products made from one type of material



Fig. 1

On which material would you find this symbol?  
..... [1]

10 Give **one** reason why numbers from 1 – 7 are used on the symbol shown in **Fig. 1**.  
..... [1]

Decide whether each of the following is **True** or **False**.  
Tick (✓) the box to show your answer.

	<b>True</b>	<b>False</b>	
<b>11</b> Manufactures do not have to follow government guidelines when disposing of waste materials.	<input type="checkbox"/>	<input type="checkbox"/>	<b>[1]</b>
<b>12</b> Energy from the sun is an example of a fossil fuel.	<input type="checkbox"/>	<input type="checkbox"/>	<b>[1]</b>
<b>13</b> Disposal is the final stage in a life-cycle analysis of a product.	<input type="checkbox"/>	<input type="checkbox"/>	<b>[1]</b>
<b>14</b> Wood is biodegradable.	<input type="checkbox"/>	<input type="checkbox"/>	<b>[1]</b>
<b>15</b> Carbon offsetting allows companies to compensate for unavoidable emissions.	<input type="checkbox"/>	<input type="checkbox"/>	<b>[1]</b>
			<b>[Total: 15]</b>

5  
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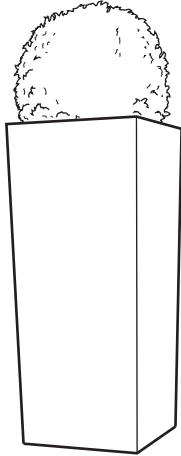
**PLEASE DO NOT WRITE ON THIS PAGE**

**Section B**

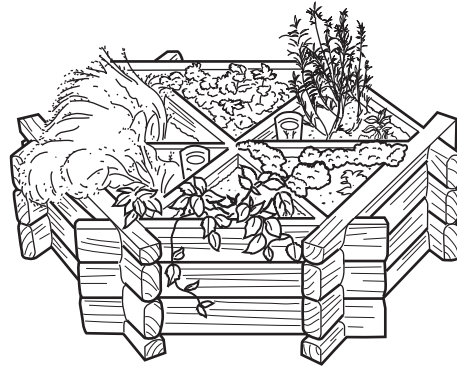
Answer **all** questions.

You are advised to spend 45 minutes on this section.

**16** Fig. 2 shows two plant containers. One is made from **Plastic** the other from **Wood**.



Plant container  
made from Plastic



Plant container  
made from Wood

**Fig. 2**

**(a)** Explain, with reference to the plant containers shown in Fig. 2, what is meant by the following **three** terms.

**(i)** Sustainable

.....

.....

.....

.....

.....

..... [3]

(ii) Recyclable

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

(iii) Biodegradable

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

(b) Give **one** environmental advantage of using water based sealer rather than synthetic paint to finish the wooden plant container.

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

(c) The label on a tin of wood finishes includes the term '**low volatile organic compounds**'.

Explain why a manufacturer would include this information on their products.

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

(d) Explain the term 'globalisation of products'.

.....

.....

.....

..... [2]

[Total: 15]



17 Fig. 3 shows two possible designs for the seat of a child's swing. One is made from wood the other from an old car tyre.



Fig. 3

(a) Give **three** advantages of the seat made from an old car tyre.

Advantage 1 ..... [1]

Advantage 2 ..... [1]

Advantage 3 ..... [1]

(b) Use sketches and notes to show how the design of the wooden seat could be developed to make it **safer** for the user of the swing.

[3]

(c) With reference to the seat of a child's swing.

Explain what is meant by 'Anthropometrics' and 'Ergonomics'.

(i) Anthropometrics

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

(ii) Ergonomics

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

(d) Products can be recycled and disposed of by incineration at the end of their useful life.

Give **one** other way of disposing of waste products.

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

(e) State **two** harmful effects on the environment of incinerating waste products.

Effects 1 .....  
..... [1]

Effects 2 .....  
..... [1]

[Total: 15]



- (b) Name **two** wood based materials that could be used for the top of a coffee table that would be considered to be more environmentally friendly than solid Mahogany and give a reason for your choice.

Material 1 ..... [1]

Reason .....

..... [1]

Material 2 ..... [1]

Reason .....

..... [1]

- (c) (i) Explain why companies are relocating the manufacturing of products to countries such as China and India.

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

- (ii) Explain the benefits, to local people, of companies relocating the manufacture of products to developing countries.

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

[Total: 15]



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