



**GCE A level**

354/01

**DESIGN AND TECHNOLOGY  
PRODUCT DESIGN DT4**

A.M. FRIDAY, 13 June 2008

3 hours

**ADDITIONAL MATERIALS**

In addition to this examination paper, you will need a 12 page answer book.

**INSTRUCTIONS TO CANDIDATES**

Answer **three** questions from Section A.

Answer **four** questions from Section B.

Answer **two** questions from Section C.

**INFORMATION FOR CANDIDATES**

When and where appropriate, answers should be amplified and illustrated with sketches and/or diagrams.

**Section A** and **Section B** answers should be no more than half a page. These sections are designed to demonstrate your **breadth** of knowledge in Product Design.

Your **Section C** answers should be substantial and demonstrate your **depth** of knowledge in Product Design.

Candidates are reminded of the necessity for good English and orderly presentation in their answers.

**SECTION A**

Answer **three** questions from this section.

The maximum length of each answer should be no more than about 150 words.  
This section is designed to demonstrate your **breadth** of knowledge in Product Design.

**Each question carries 8 marks.**

1. Describe how CAM has been used effectively to replace manual construction techniques in the production of a named product. [8]
  
2. Describe the importance of:
  - (a) *technology push*and
  - (b) *market pull*as driving forces for the development of new products.  $2 \times [4]$
  
3. Explain how the *build quality* of products impacts on the target audience anticipated by the manufacturer. [8]
  
4. What are the factors which influence the success of a product when purchasing decisions are being made by the consumer? [8]
  
5. Explain how jigs, templates or patterns can be used to ensure accuracy when constructing components for a product. [8]

**SECTION B**

Answer **four** questions from this section.

The maximum length of each answer should be no more than about 150 words.  
This section is designed to demonstrate your **breadth** of knowledge in Product Design.

**Each question carries 8 marks.**

6. What is the essential difference between a Registered Trade Mark and a Registered Design? [8]
7. Explain why accurate and wide-ranging detail designing is important in:
- (a) designing;
  - (b) manufacturing. [8]
8. (a) Fully describe a method of temporarily joining two similar named materials. [4]
- (b) Fully describe a method of permanently joining the same named materials. [4]
- Use diagrams where appropriate.
9. Explain how ISO Standards (International Organisation for Standardization) impact on the design and manufacture of products. [8]
10. The properties and characteristics of polymers play an important part in their selection for manufacturing processes.
- (a) Explain the properties and characteristics of a named polymer. [4]
  - (b) Describe a manufacturing or processing operation available when using the named polymer. [4]
11. Describe, with examples, the properties which enable certain materials to be classified as *SMART*. [8]

**SECTION C**

*Answer **two** questions from this section.*

*Your answers should be substantial and show the **depth** of your knowledge in Product Design.*

*Each question carries 22 marks, 2 of which are for clarity of communication.*

- 12.** Identify a specific product, or range of products, and give a detailed account of the changes in design and/or styling that have been attributed to a particular designer from the 1970s onward. [22]
- 13.** (a) Give a detailed description of the product life cycle for a specific named product that has been through a process of frequent revitalisation. [10]
- (b) Describe the impact that this type of product life cycle has on the designer and on the manufacturer. [10]
- Clarity of communication.* [2]
- 14.** “The environment cannot continue to sustain bad design.”
- Discuss how product designers can have an influence on improving the environmental performance of products they design. [22]
- 15.** Give a detailed description of the properties and characteristics of **two** specific named materials that you have used in your design studies. Explain your reasons for selecting **each** material. [22]
- 16.** Describe **two** creative designing strategies that are often used by designers to stimulate creative thinking and explain how you would employ both in your own design work. [22]