

354/01

DESIGN AND TECHNOLOGY

PRODUCT DESIGN DT4

P.M. TUESDAY, 20 June 2006

(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. (a) Describe the important features of a design specification. [4]
(b) Explain how a design specification is used to guide designing. [4]
2. Outline the factors that govern the price that a product is sold at in the market-place. [8]
3. Describe **four** benefits of using computer-controlled machines to cut sheet materials during the manufacturing process. $4 \times [2]$
4. Explain the need for the manufacturer to identify the risks associated with the use of particular named products. [8]
5. Describe the importance of consumer group opinions on the incremental developments of established market products. [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. (a) Describe the essential elements of *Design Registration*. [4]
 (b) Explain what you understand by the term *Design Right*. [4]
7. Describe how consumer products or their components have been re-designed to make them more environmentally friendly. [8]
8. Postal questionnaires are a market research technique involving no personal contact.
 Explain **four** limitations of this technique. 4 × [2]
9. Explain how government policies are used to impact positively on the sale of some products whilst having a negative impact on others. [8]
10. Explain **each** of the following using examples of consumer products:
 (a) how *needs* can impact on the design and manufacture of products; [4]
 (b) how *wants* can impact on the design and manufacture of products. [4]
11. Smart materials have particular characteristics and working properties which enable them to be used within particular products.
 Name a specific Smart material and describe:
 (a) **two** characteristics of the material; [4]
 (b) **two** working properties of the material. [4]

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. Give a detailed account of the impact and influence that an eminent product designer or design movement, from the 1970s onward, has exerted on a particular field of product design. [22]

13. Identify **two** principal materials that you have used when designing and making your A2 product.

Describe the particular characteristics and working properties of the **two** materials that were appropriate and which fit the purpose for which they were intended. $2 \times [10]$

Clarity of communication [2]

14. Globally, the use of ICT has had a great impact on the design and development of products.

Fully describe how software, CAM machines and the use of the Internet has enabled this. [22]

15. Quality Control and Quality Assurance are important factors to be considered when manufacturing products.

Fully describe these terms with references to named products whenever possible. [22]

16. “Designing is a distinctive kind of skilled intellectual activity. It draws on some features of, say scientific or artistic activity, but in many ways it is noticeably different.”

(An Introduction to Design: Design Processes and Products. OU Press 1986)

Fully express your opinion regarding the above statement and where possible include your own experiences of designing during your A level course of study. [22]