



GCE A level

1113/01

DESIGN AND TECHNOLOGY – DT3
Product Design

A.M. FRIDAY, 18 January 2013

2½ hours

ADDITIONAL MATERIALS

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

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Answer **three** questions from Section A.

Answer **three** 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 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.*

*This section is designed to demonstrate your **breadth** of knowledge in Product Design.*

Each question carries 8 marks.

1. Outline **four** ways that consideration of the product life cycle can influence the sustainability footprint of a product. 4 × [2]

2. Describe **two** benefits and **two** limitations of solar energy when used as a power source by industry. 2 × [4]

3. Explain the reasons why some products are subjected to incremental improvements over time. [8]

4. Explain how the ‘market pull’ model of innovation can impact positively on the development of a product. [8]

5. Describe how the use of JIT (Just in Time) manufacturing strategies has impacted on product manufacturing. [8]

SECTION B

*Answer **three** questions from this section.*

*This section is designed to demonstrate your **breadth** of knowledge in Product Design.*

Each question carries 8 marks.

6. Describe how the aesthetic improvement of a particular named product has impacted upon purchasing decisions made by consumers. [8]

7. Give **four** reasons why surface detailing is important to particular named products. 4 × [2]

8. Outline **four** reasons for patenting a product. 4 × [2]

9. Describe, using diagrams where necessary, a processing operation that is used when forming a named plastic product or component. [8]

10. (a) Explain what is meant by the term ergonomics. [2]
(b) Describe how you have applied an ergonomic consideration in the design of a specific product that you have made. [6]

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 26 marks.

- 11.** Compare and contrast the ways in which **two** product designers of your choice, from the early 70s to the present day, have impacted on the design of a named product. [26]

- 12.** Describe the benefits that choosing specific plastic materials has on sustainability issues. Contrast these benefits with the detrimental effects of using specific plastics when designing and manufacturing new products. [26]

- 13.** A design icon is said to be that which is readily recognized and generally represents an object or concept with great significance to a wide group within the field of design.

Fully describe how this statement applies to a product that you consider to be ‘iconic’, giving your interpretation of the design criteria that class the product in this genre. [26]

- 14.** Explain how the over use of natural resources, the consequences of pollution and over production have impacted on a design consciousness in society. [26]

- 15.** Describe how the use of ICT and the internet has impacted on the designing of products and global manufacturing. [26]