



GCE A level

1113/01



S15-1113-01

DESIGN AND TECHNOLOGY – DT3

Product Design

A.M. MONDAY, 8 June 2015

2 hours 30 minutes

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. Explain the terms **customer needs** and **customer wants**, when making decisions about the design of products. 2 × [4]

2. Explain what you understand by the term Computer Integrated Manufacturing (CIM) as a system used in volume production. [8]

3. Describe **one** benefit and **one** limitation of using the following sources of energy when manufacturing products: 4 × [2]
 - (a) fossil fuels;
 - (b) nuclear fuels;
 - (c) hydro generation;
 - (d) wind generation.

4. Name a product which has been subjected to incremental improvements over time and explain the reasons for **two** of these improvements. 2 × [4]

5. Give reasons why an understanding of the product life cycle is so important when deciding on strategies to sell a product. [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. Explain why the development and refinement of aesthetic values is so important to the designer. [8]
7. Describe the impact that innovation has on the success of products. [8]
8. (a) Name **two** composite materials. [2]
(b) Describe what you understand by the term composite materials. [6]
9. Describe the essential features of a:
(a) registered design; [4]
(b) registered trade mark. [4]
10. Evaluate the effect of market research in ensuring the success of products that enter the market place. [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 26 marks.

- 11.** Prior to use in the manufacture of products, raw materials are processed and finished to make them suitable for use.

Explain how a material you are familiar with, is processed and finished into a form which is suitable for use in the manufacture of products. [26]

- 12.** Evaluate the design features of products developed by a designer you are familiar with, suggesting why the products have become successful and how they have influenced the development of similar products. [26]

- 13.** “Design must reflect the practical and aesthetic ... but above all ... good design must primarily serve people.”

Thomas J. Watson

Suggest ways in which this quote can be applied to good design. [26]

- 14.** Describe a product that you consider to be a ‘design classic’, giving reasons for its classification and trace the development of the product through time. [26]

- 15.** Evaluate the part that quality assurance and quality control have played in high volume product manufacturing. [26]

END OF PAPER