



GCE A level

1113/01

**DESIGN AND TECHNOLOGY
PRODUCT DESIGN DT3**

P.M. WEDNESDAY, 13 June 2012

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. (a) Fully describe the product life cycle using diagrams where relevant. [6]
(b) Draw a labelled diagram demonstrating the life cycle of an incrementally improved product. [2]

2. (a) State what you understand by the term target audience in relation to product design. [2]
(b) Give **three** reasons why researching a target audience plays such an important role in product design. [6]

3. The product champion and the entrepreneur are two key facilitators in the process of innovation. Considering the process of product innovation, describe the role of:
(a) the product champion; [4]
(b) the entrepreneur. [4]

4. Using diagrams where necessary, describe an industrial method of forming a particular named plastic sheet material. [8]

5. The materials chosen by designers for the manufacture of products often have a significant impact on sales.
(a) Name and briefly describe **two** specific products that have benefited from the innovative use of materials. 2×[1]
(b) Describe the typical characteristics of **one** material used in either product. [6]

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. (a) Name **two** forms of product management systems that could be used in school when tracking the development of a product. [2]
- (b) Explain **one** such system in detail. [6]
7. (a) Explain the importance of on-going evaluation when designing. [4]
- (b) Evaluate the impact that the design specification has on this process. [4]
8. Rights granted by the Intellectual Property Office can protect the outward appearance of a product.
- (a) Name the form of Intellectual Property that affords this protection. [2]
- (b) Describe the essential elements of this Intellectual Property. [6]
9. Combining plastics with traditional materials has offered many new opportunities for product designers.
- Name a specific material that has been enhanced in this way and describe how product designers have utilised the enhanced properties of the material. [8]
10. When products are manufactured in volume, explain the part played by:
- (a) Quality Control; [4]
- (b) Quality Assurance. [4]

SECTION C

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

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

Each question carries 26 marks.

11. Give a detailed description of the aesthetic style of a designer you admire and explain how the designer has influenced the style of other similar products. [26]

12. Discuss the value judgements that are implicit in most product design solutions particularly relating to economic, aesthetic and environmental considerations. [26]

13. Designers need a detailed knowledge and understanding of materials to make successful products.

Describe the particular purpose, characteristics and working properties of **two** materials that have been selected for use in a particular named product and explain what features made them appropriate for use. [26]

14. Describe how the development of a design consciousness within society has impacted on product design.

In your answer discuss the materials selected, the manufacturing considerations, the product life cycle and the eventual disposal of the product. [26]

15. 'The art of designing is often said to be a social activity.'

Explain how this phrase is depicted in the many activities that designers are involved with when designing a product. [26]