



GCE A level

1113/01

DESIGN AND TECHNOLOGY – DT3
Product Design

A.M. TUESDAY, 3 June 2014

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. Identify the kind of information that is gathered by designers when compiling client profiles and explain why the information is useful. [8]

2. Describe **four** main features of lean production. 4 × [2]

3. Explain why innovation is important to the process of designing products. [8]

4. Describe what you understand by the term 'technology push' and identify **two** such products which illustrate innovative 'technology push' features. [8]

5. Identify **four** incremental improvements that have been included in a named, specific product and describe how **each** improvement contributes to the effectiveness of the product. 4 × [2]

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) Explain what you understand by 'above the line' and 'below the line' analysis. 2 × [2]
(b) Describe **two** 'above the line' features of a named product and **two** 'below the line' features of the **same** product. 2 × [2]
7. Explain the purpose of product development work within a design process. [8]
8. Outline how the main elements of Registered Design, as prescribed by the Intellectual Property Office, benefit the creator of the design. [8]
9. Describe the characteristics and typical uses for **one** of the following material classifications:
(a) wood-based composites;
Or
(b) performance fabrics. [8]
10. (a) Explain why the inclusion of accurate and complete dimensions is essential to the design of products. [4]
(b) Describe the relationship between dimensioning and the mass manufacture of a specific product. [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 26 marks.

11. Discuss the ways in which **two** product designers of your choice, from the early 1970s to the present day, have sought to influence their chosen market segments. [26]

12. Identify the properties of specific named materials that have been used in a specific product and describe how their selection has benefited the performance of the product. [26]

13. Product designers will often have a 'toolbox' containing various strategies for creative thinking, such as brainstorming.

Compare, in detail, **two** other creative thinking strategies with which you are familiar. [26]

14. "The Measure of Man and Woman, human factors in design is said to be one of the classic tools for fitting products and environments to people."

Stephen B Wilcox, Introduction – The Measure of Man and Woman.

Fully explain how anthropometric data and ergonomic rules are of benefit to the designer. [26]

15. Discuss ways in which the four Ps are instrumental in achieving maximum sales for products. [26]

END OF PAPER