



**GCE AS/A level**

1111/01

**DESIGN AND TECHNOLOGY  
PRODUCT DESIGN DT1**

P.M. TUESDAY, 22 May 2012

2 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 **five** questions from Section A.

Answer **one** question from Section B.

#### **INFORMATION FOR CANDIDATES**

When and where appropriate, answers should be amplified and illustrated with sketches and/or diagrams.

**Section A** is designed to demonstrate your **breadth** of knowledge in Product Design.

Your **Section B** answer should be substantial and demonstrate your **depth** of knowledge in Product Design.

You are reminded that assessment will take into account the quality of written communication used in answers that involve extended writing (**Section B**).

**SECTION A**

*Answer **five** questions from this section.*

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

*Each question carries 8 marks.*

1. Describe **two** key properties of a named natural material and **two** key properties of a named synthetic material. 2 x [2]

Identify a specific product where **one** of these materials has been used and explain why the material was chosen. [4]

2. *Quantitative* and *qualitative* testing are important aspects to consider when selecting a material or materials for a specific product.

Explain what you understand by **each** of these terms. 2 x [4]

3. A production plan consists of important stages in the manufacture of a product.

Describe **four** main elements of a production plan for a product of your choice. 4 x [2]

4. Design specifications are used by designers to identify key criteria in the development of new products.

(a) Describe the important features of a design specification. [2]

(b) For a named product, list **three** primary specification criteria and **three** secondary specification criteria. 2 x [3]

5. The design and manufacture of products can involve the use of ICT.

Explain how ICT is used for *research, modelling, prototyping* and *manufacturing*. 4 x [2]

6. Bought-in or standardised part-assembled components are used by manufacturers in the production of products.

(a) Explain what is meant by bought-in or standardised part-assembled components. [4]

(b) State **two** advantages to the manufacturer of using bought-in or standardised part-assembled components. 2 x [2]

7. Describe the features and benefits of the following Intellectual Property rights to the owner.

(a) Copyright. [4]

(b) Registered Trade Mark. [4]

8. Concurrent engineering is a process used in the manufacture of products.

(a) Explain what you understand by concurrent engineering. [4]

(b) State **two** advantages of concurrent engineering to the designer and manufacturer. 2 x [2]

**SECTION B**

*Answer **one** question from this section.*

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

*Each question carries 30 marks.*

9. *Design can be described as a process of change and increasingly has to meet environmental and technological challenges.*

In relation to a product you have used, discuss how the designer has addressed environmental and technological challenges. [30]

10. Developments in both modern materials and components have influenced the design of products with benefits for the designer, manufacturer and consumer.

Discuss these developments and benefits in relation to named products. [30]

11. With reference to a particular product or products, describe the process of quality control and discuss its importance to the manufacturer, consumer and the environment. [30]