



GCE AS/A level

1111/01



S15-1111-01

DESIGN AND TECHNOLOGY – DT1

Product Design

A.M. TUESDAY, 2 June 2015

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. Products may have pre-finished surfaces produced during manufacture or have surface finishes applied by the consumer.
 - (a) Name a product which has a surface finish produced by the manufacturer, the type of finish and **two** reasons why it is appropriate. [4]
 - (b) Name a product which has a surface finish applied by the consumer, the type of finish and **two** reasons why it is appropriate. [4]

2.
 - (a) Describe the main features of a high volume (mass) production system. [4]
 - (b) Explain **four** benefits of a high volume production system to the manufacturer. 4 × [1]

3. Products that are certified by the British Standards Institute (BSI) have passed specific tests before use by the consumer.

Name **four** products that are BSI certified and describe a specific test that **each** needs to pass. 4 × [2]

4. Materials may be classified as natural, synthetic or regenerated.

For any **two** of these, name a specific material, its particular properties and its applications. 2 × [4]

5. Product designers use information from both primary research and secondary research to inform their designing.
- (a) Describe the kind of information identified through **primary research**. [4]
 - (b) Describe the kind of information identified through **secondary research**. [4]
6. Explain the following terms:
- (a) Reverse Engineering as used within design and production. [4]
 - (b) Concurrent Engineering as used within product development. [4]
7. (a) Explain the terms **qualitative** and **quantitative** performance criteria when used in a design specification. $2 \times [2]$
- (b) Within the specification for a named product, state **two** examples of **qualitative** performance criteria and **two** examples of **quantitative** performance criteria. $2 \times [2]$
8. With reference to the production of a particular product or material, explain what is meant by quality control and state why it is important to the manufacturer. [8]

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. With reference to at least **two** different products, explain why both **styling** and **image creation** are important in product development, commenting on the importance of these factors to the consumer. [30]

10. Technological developments have had an inevitable impact on the design and manufacture of products.

Explain how technological developments have improved the manufacture, function, and appeal of named products. [30]

11. Designers create products using their knowledge and understanding of materials, production methods and market needs.

Discuss the validity of this statement in relation to a specific product or range of products. [30]

END OF PAPER