

General Certificate of Education Advanced Level Examination June 2010

# Design and Technology: Product Design (3-D Design)

PROD3

# Unit 3 Design and Manufacture

Wednesday 16 June 2010 1.30 pm to 3.30 pm

For this paper you must have:

- an AQA 8-page unlined answer book which is provided separately
- normal writing and drawing instruments.

# Time allowed

2 hours

# Instructions

- Use black ink or black ball-point pen. Use pencil and coloured pencils only for drawing.
- Write the information required on the front of your answer book. The **Examining Body** for this paper is AQA. The **Paper Reference** is PROD3.
- Answer three questions.
- Answer one question from each of Sections 1 and 2 and one other question from either section.
- Do all rough work in your answer book. Cross through any work you do not want to be marked.

# Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 84.
- You will be marked on your ability to:
- use good English
  - organise information clearly
  - use specialist vocabulary where appropriate.

# Advice

• Illustrate your answers with sketches and/or diagrams wherever you feel it is appropriate.

# PROD3

#### Answer three questions.

Answer one question from each of Sections 1 and 2 and one other question from either Section.

#### Section 1

#### Question 1

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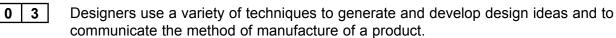
1 Explain what you understand by the term *iconic design*.

In your answer you should refer to at least **four** criteria that could be used to define a product as being an *iconic design.* (14 marks)

2 Describe a product that you believe to be an example of *iconic design* and show how the product meets the criteria you have given in part **0 1**.

You **must** use sketches in your answer to identify key features. (14 marks)

#### **Question 2**



Using specific examples, explain when and why a designer may make use of **four** of the following.

- Free hand isometric sketching
- Flow charts
- Orthographic projection
- Computer Aided Design (CAD)
- Prototypes
- Moodboards

 $(4 \times 7 \text{ marks})$ 

#### **Question 3**

0 4

Designers must consider sustainability and the effects of the manufacture and use of products on the environment.

With reference to **two** *dissimilar* products, explain where concern for environmental issues has been an important factor in determining the design.

Where appropriate you should make reference to the following in your answer:

- the use of raw materials
- the manufacture of the product
- the use and function of the product
- the final disposal of the product.

 $(2 \times 14 \text{ marks})$ 

### Section 2

### **Question 4**

0 5

The application of new technology and the use of modern materials have changed the function and use of many of today's products.

For **each** of the following:

- infra-red or Bluetooth technology
- smart materials
- Integrated Circuit (IC)/microchip
- re-chargeable battery technology

name a specific product that makes use of this new technology/modern material.

 $(4 \times 1 \text{ mark})$ 



Explain how the new technology/modern material has improved the function and use of each of the products you have named in part 05. (4 × 6 marks)

#### **Question 5**

**0 7** Modern manufacturing relies heavily upon Information Communication Technology (ICT) to improve production and satisfy consumer demand.

With reference to a specific industry, explain in detail why computers are vital to

- manufacturing
- marketing and supply.

(28 marks)

#### Turn over for the next question

#### **Question 6**

**0 8** Ergonomics and anthropometrics are both critical factors in the success of any product.

For a specific product of your choice, explain how the designer has considered ergonomics and anthropometrics to make it both comfortable and easier to use. *(18 marks)* 



Consumer safety is a vital consideration in product design.

For **one** of the following, explain what issues must be considered to ensure safe use of the product.

- Electric drill
- Hair straighteners
- Kettle
- Desk lamp
- Iron

(10 marks)

END OF QUESTIONS