



General Certificate of Education  
Advanced Level Examination  
June 2010

# Design and Technology: PROD3 Product Design (3-D Design)

## 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.

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Answer **three** questions.

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

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### Section 1

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#### Question 1

0	1
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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)

0	2
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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
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You **must** use sketches in your answer to identify key features. (14 marks)

#### Question 2

0	3
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Designers use a variety of techniques to generate and develop design ideas and to communicate the method of manufacture of a product.

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 × 7 marks)

#### Question 3

0	4
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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 × 14 marks)

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**Section 2**

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**Question 4**

0	5
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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 × 1 mark)*

0	6
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Explain how the new technology/modern material has improved the function and use of each of the products you have named in part 

0	5
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*(4 × 6 marks)*

**Question 5**

0	7
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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**

**Turn over ►**

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**Question 6**

0	8
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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)*

0	9
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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**