



General Certificate of Education
Advanced Level Examination
June 2013

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

PROD3

Unit 3 Design and Manufacture

Tuesday 4 June 2013 9.00 am to 11.00 am

For this paper you must have:

- an AQA 12-page unlined answer book
- normal writing and drawing instruments
- an Insert Sheet (enclosed).

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.
- If you choose to answer a question which has several parts, you should answer **all** parts of this question.
- 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.

Answer **three** questions.

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

Section 1

Question 1

0 1 Select **four** of the following material classifications.

Name a specific material for **each** classification and for **each** material suggest a suitable application and explain why it is appropriate.

- Ferrous metal
- Non-ferrous metal
- Hardwood
- Thermoplastic
- Thermosetting plastic

(4 x 7 marks)

Question 2

0 2 Pollution and the use of natural resources and energy are aspects of production that affect sustainability.

With reference to **two different** products explain how the designer could ensure that each product is sustainable. *(2 x 14 marks)*

Question 3

0 3 The photographs on the Insert Sheet show two pairs of different products, lemon squeezers (**Figures 1–3**) and corkscrews (**Figures 4–7**).

Select **one** of the pairs of products. Analyse how both function and aesthetics have influenced the design, use of materials and manufacture of **each** of the two products in the pair.

(2 x 14 marks)

Section 2

Question 4 Answer all parts of this question.

0 | 4 *The technology on the inside of a product informs the way it should look on the outside.*

With reference to a specific product explain the relevance of this statement. (10 marks)

0 | 5 With reference to your own experience of designing and manufacture, explain how a combination of all three elements given below can be used to ensure the production of a successful product.

- Development of design proposal
- Prototype manufacture
- Evaluation and appraisal

(18 marks)

Question 5

0 | 6 For **each** of the following materials name a suitable applied finish, explain how it has been achieved and describe its purpose in a particular application.

- Sheet aluminium
- Planed square edge (P.S.E.) softwood
- Mild steel
- Sheet MDF

You should use diagrams where necessary.

(4 x 7 marks)

Turn over for the next question

Turn over ►

Question 6

0	7
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Two methods of processing materials for the manufacture of products are described below.

- Fabrication – where materials are joined together
- Redistribution – where materials are reshaped without loss

Compare and contrast these two methods, describing them both in detail. In your answer you should consider the relative advantages and disadvantages in product manufacture.

(28 marks)

END OF QUESTIONS