



DESIGN AND TECHNOLOGY

0445/13

Paper 1 Product Design

October/November 2017

1 hour 15 minutes

Candidates answer on the pre-printed A3 Answer Sheets.

Additional Materials: Standard drawing equipment and coloured pencils.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces on **both** printed Answer Sheets.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **one** question.

Write/draw your answers in the spaces provided on the Answer Sheets.

You may use a calculator.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

The total of the marks for this paper is 50.

This document consists of **4** printed A4 pages and **2** A3 Inserts.

Answer **one** question only on the A3 pre-printed answer sheets provided.

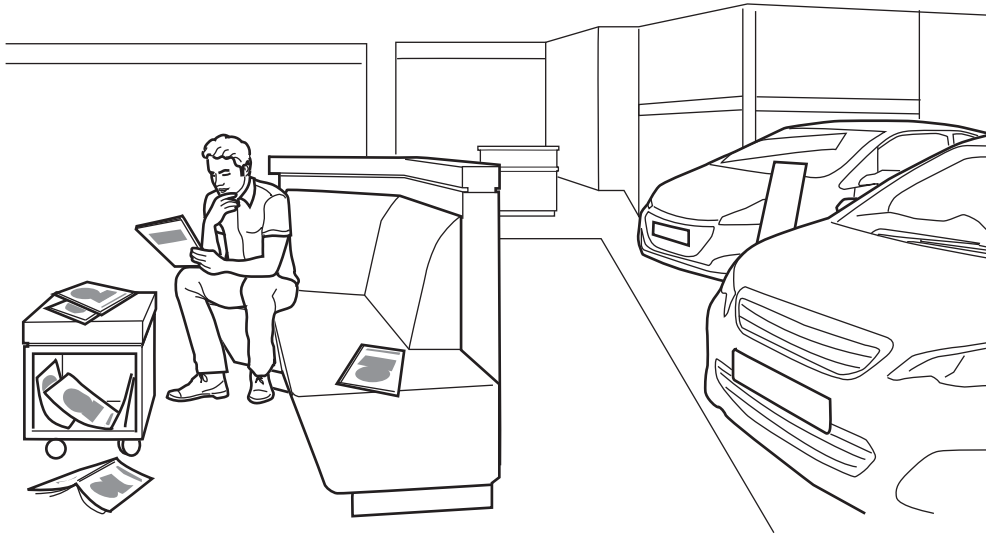
- 1 Car owners use a variety of cleaning materials when cleaning their cars.



Design a holder that will keep car cleaning items in one place ready for use.

- (a) List **four** additional points about the function of such a holder that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods of allowing water to drain from the bottom of the holder. [4]
- (c) Develop and sketch **three** ideas for the holder. [12]
- (d) Evaluate your ideas and justify why you have chosen **one** idea to develop more fully. [8]
- (e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method used to manufacture **one** part of your solution. [6]

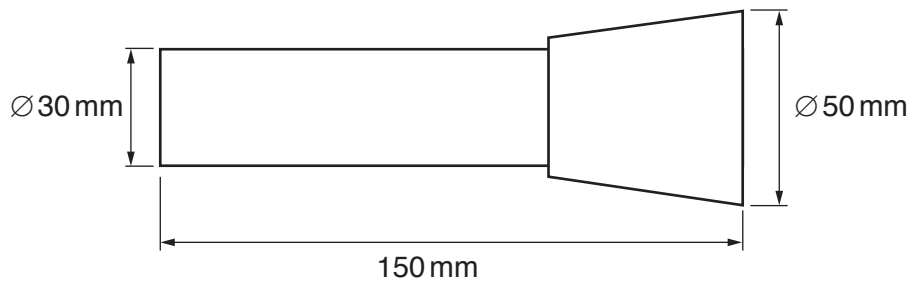
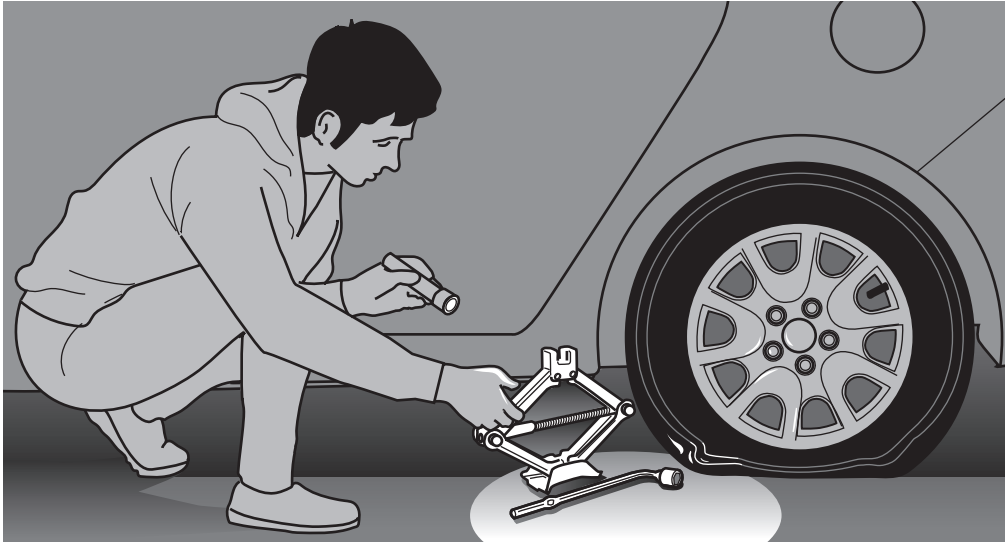
2 In car showrooms, brochures can get scattered around and look untidy.



Design a holder to display car brochures neatly. The holder should be made from lightweight materials so that it can be posted to car dealers.

- (a) List **four** additional points about the function of such a holder that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods of joining lightweight materials temporarily. [4]
- (c) Develop and sketch **three** ideas for the holder. [12]
- (d) Evaluate your ideas and justify why you have chosen **one** idea to develop more fully. [8]
- (e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method used to manufacture **one** part of your solution. [6]

- 3 It can be difficult to carry out tasks at night when holding a torch at the same time.



Design a device that would hold a standard torch of the type shown so that tasks could be carried out with both hands.

- (a) List **four** additional points about the function of such a device that you consider to be important. [4]
- (b) Use sketches and notes to show **two** mechanisms that could be used in adjustable devices. [4]
- (c) Develop and sketch **three** ideas for the device. [12]
- (d) Evaluate your ideas and justify why you have chosen **one** idea to develop more fully. [8]
- (e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method used to manufacture **one** part of your solution. [6]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cie.org.uk after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.