



DESIGN AND TECHNOLOGY

0445/12

Paper 1 Product Design

May/June 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.

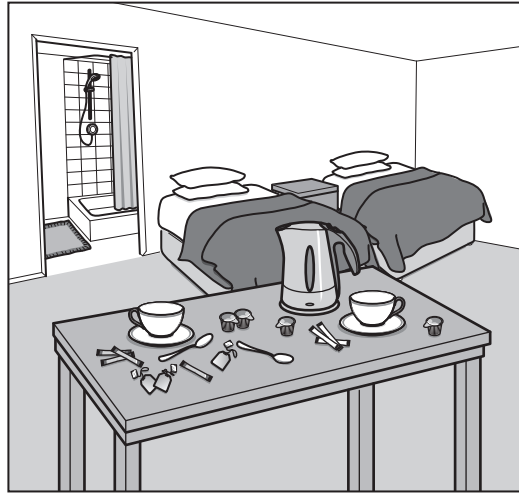
The number of marks is given in brackets [] at the end of each question or part question.

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.

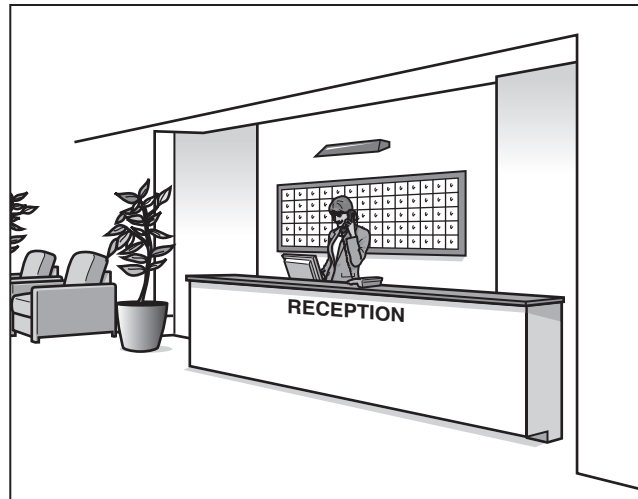
- 1 Hotels provide drink making items for guests to use in a hotel bedroom.



Design a portable unit that will organise the drink making items.

- (a) List **four** additional points about the function of such a portable unit that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods of protecting the portable unit against water damage. [4]
- (c) Develop and sketch **three** ideas for the portable unit. [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]

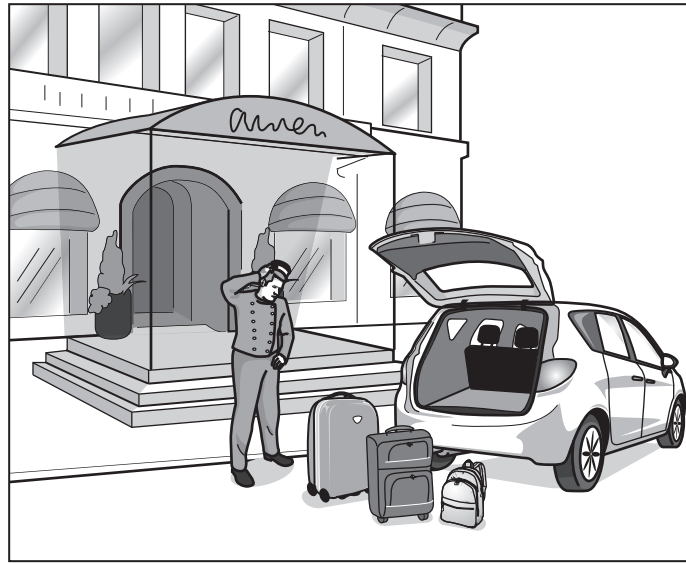
2 Guided walks are offered by some hotels.



Design a promotional unit that attracts attention to the guided walks on offer. The unit should arrive at the hotel in flat-pack form, ready to be assembled by the hotel staff.

- (a) List **four** additional points about the function of such a promotional unit that you consider to be important. [4]
- (b) Use sketches and notes to show **two** different methods that could be used to attract the attention of hotel guests. [4]
- (c) Develop and sketch **three** ideas for the promotional unit. [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 Hotel staff need to move heavy cases when guests arrive.



Design a mobile device which will allow up to three cases to be moved up steps, at the same time, by one person.

- (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** different mechanisms which could lift heavy objects. [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]

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