



DESIGN AND TECHNOLOGY

0445/11

Paper 1 Product Design

October/November 2019

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.

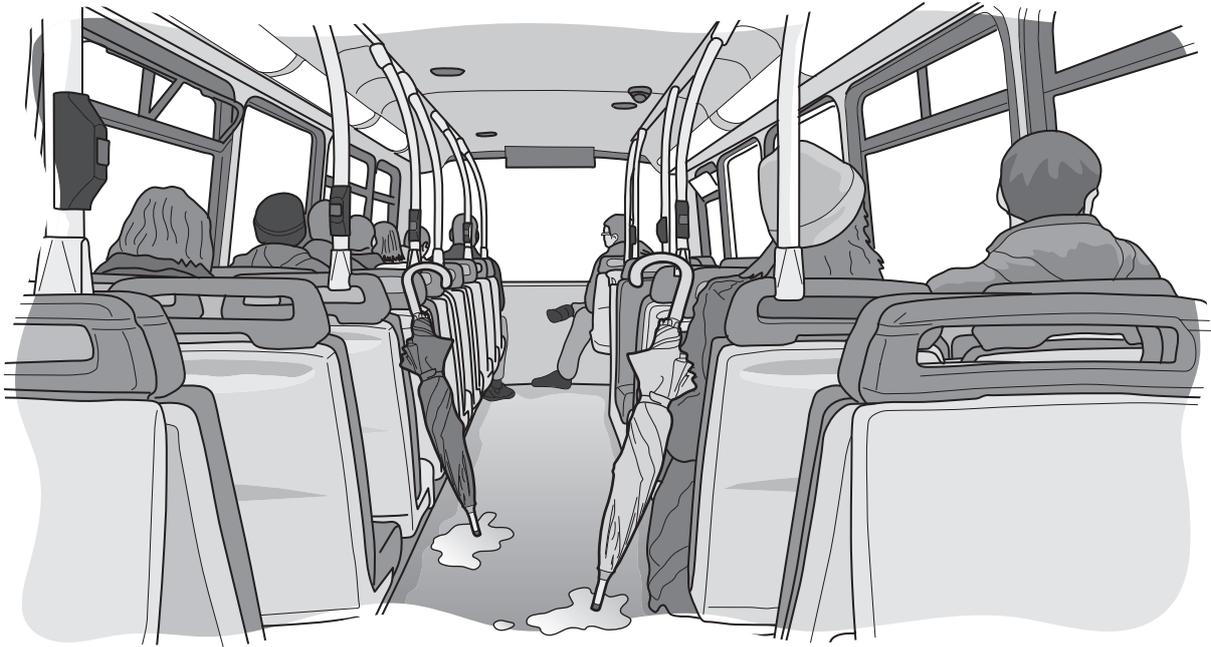
The total of the marks for this paper is 50.



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

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

- 1 There is often nowhere to store wet umbrellas when travelling by bus on a rainy day.



Design a storage system, to be located on a bus, that will hold up to six wet umbrellas.

- (a) List **four** additional points about the function of such a storage system that you consider to be important. [4]
- (b) Use sketches and notes to show **two** places on a bus where such a storage system could be located. [4]
- (c) Develop and sketch **three** ideas for the storage system. [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]

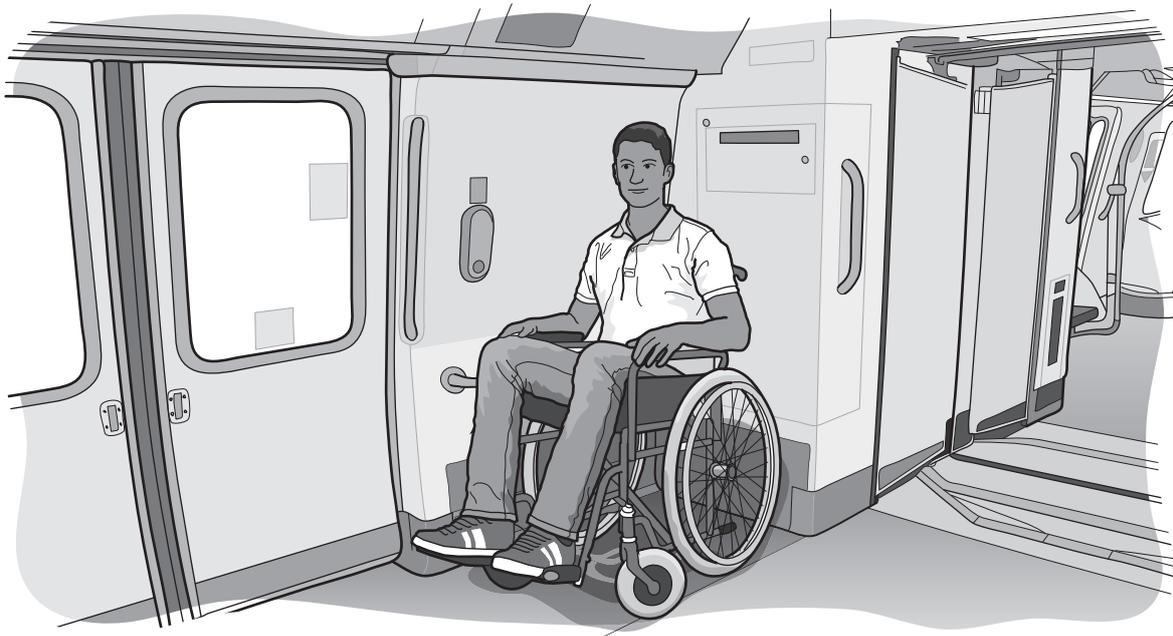
- 2 Children often need to be given refreshments when they are travelling on a long journey by car.



Design point of sale packaging that will hold a bottle of water, a packet of crisps and a banana so that they can be carried together by a child. The packaging should also act as a tray when the child is eating in the car.

- (a) List **four** additional points about the function of such packaging that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways in which handles can be created on packaging. [4]
- (c) Develop and sketch **three** different ideas for the packaging. [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 Wheelchair passengers on trains are able to sit in a designated space. However, there is a danger of the wheelchair moving even with its own brake on.



Design a system of holding a wheelchair, with the person sitting in it, in a fixed position while the train is moving.

- (a) List **four** additional points about the function of such a system that you consider to be important. [4]
- (b) Use sketches and notes to show **two** securing mechanisms that can be fastened and released easily. [4]
- (c) Develop and sketch **three** ideas for the system. [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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