



Cambridge IGCSE™

DESIGN & TECHNOLOGY

0445/12

Paper 1 Product Design

May/June 2024

1 hour 15 minutes



You must answer on the two pre-printed A3 answer sheets

You will need: Two A3 pre-printed answer sheets (enclosed)
Standard drawing equipment
Coloured pencils

INSTRUCTIONS

- Answer **one** question.
- Use an HB pencil for any drawings and a black or dark blue pen for any writing.
- Write your name, centre number and candidate number in the space on **both** pre-printed answer sheets.
- Answer in the space provided on the answer sheets.
- Do **not** use an erasable pen, staples, paper clips, glue or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You may use standard drawing equipment, including coloured pencils.
- At the end of the examination, hand in your named A3 answer sheets. Do **not** fasten them together and do **not** punch holes in the sheets or tie with string.

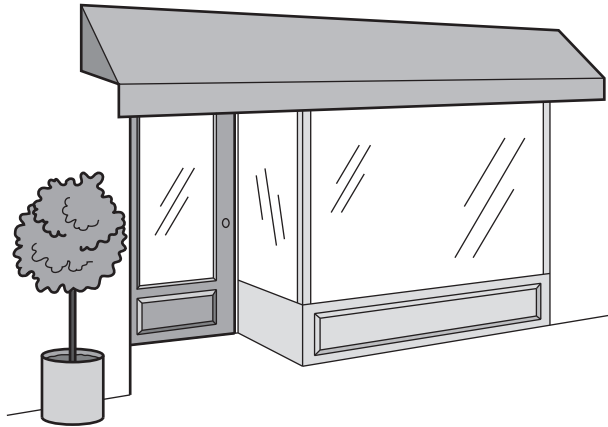
INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [].
- All dimensions are in millimetres unless otherwise stated.

This document has 4 pages.

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

- 1 Cakes are often displayed in a shop window to attract people to buy them.

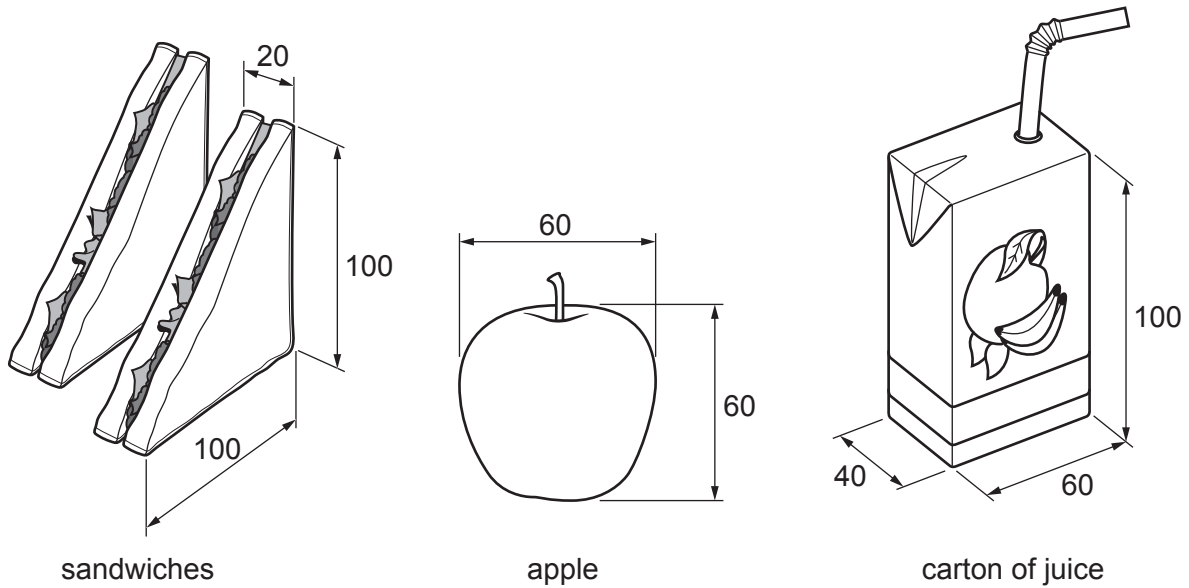


each cake $\text{Ø}60 \times 80$ high

Design a unit to display cakes. The display unit must have three different height surfaces and be easy to dismantle.

- (a) List **four** additional points about the function of such a display unit that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods that would allow parts of a display unit to be easily joined and dismantled. [4]
- (c) Develop and sketch **three** separate ideas for the unit to display cakes. [12]
- (d) Evaluate your three ideas. Choose **one** idea to develop further and justify your choice. [8]
- (e) Draw, using a method of your own choice, a full solution to the design problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for the solution you have drawn in part (e) and give reasons for your choice. [4]
- (g) Outline a method that could be used to manufacture **one** part of your solution drawn in part (e). Include the names of the tools used. [6]

2 A shop sells individual items of food and drink for a packed lunch.

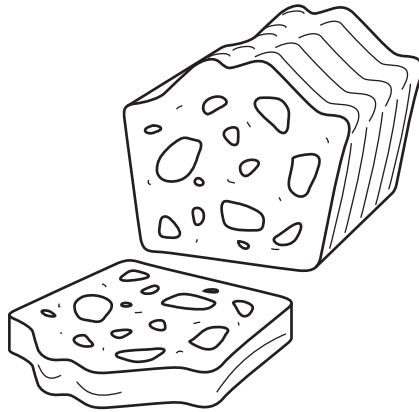


Design a package for the three lunch items shown above.

The package must be made from thin sheet material, keep the food items separate and be assembled without the use of an adhesive.

- List **four** additional points about the function of such a package that you consider to be important. [4]
- Use sketches and notes to show **two** methods of joining thin sheet material without the use of an adhesive. [4]
- Develop and sketch **three** separate ideas for the package for lunch items. [12]
- Evaluate your three ideas. Choose **one** idea to develop further and justify your choice. [8]
- Draw, using a method of your own choice, a full solution to the design problem. Include construction details and important dimensions. [12]
- Suggest **two** suitable specific materials for the solution you have drawn in part (e) and give reasons for your choice. [4]
- Outline a method that could be used to manufacture **one** part of your solution drawn in part (e). Include the names of the tools used. [6]

- 3 A café wishes to serve slices of cake in different thicknesses.



slices of cake:
 small: 8 mm thick
 medium: 12 mm thick
 large: 16 mm thick

Design a handheld device that can be adjusted to cut slices of cake to different thicknesses. The device must display the thickness of the slice being cut.

- (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** methods of displaying numbers on a handheld device. [4]
- (c) Develop and sketch **three** separate ideas for the handheld device that can be adjusted to cut slices of cake to different thicknesses. [12]
- (d) Evaluate your three ideas. Choose **one** idea to develop further and justify your choice. [8]
- (e) Draw, using a method of your own choice, a full solution to the design problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for the solution you have drawn in part (e) and give reasons for your choice. [4]
- (g) Outline a method that could be used to manufacture **one** part of your solution drawn in part (e). Include the names of the tools used. [6]

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