



Cambridge IGCSE™

DESIGN & TECHNOLOGY

0445/12

Paper 1 Product Design

May/June 2020

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

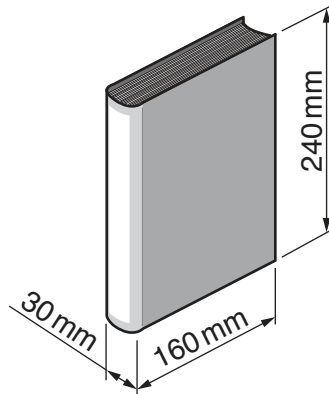
- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [].
- All dimensions are in millimetres.

This document has 4 pages. Blank pages are indicated.

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

1 Problem:

A library wishes to display a set of six books.



Design a unit to display the set of six books. The unit should display the **front cover** of each book.

- (a) List **four** additional points about the function of such a unit that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods that would stop books falling off such a unit. [4]
- (c) Develop and sketch **three** ideas for the unit. [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 Problem:

A library wishes to display a children's adventure book called 'Island of Treasure'.



Design a counter-top display which will feature the 'Island of Treasure' book. Your design should include some form of movement to attract children.

- (a) List **four** additional points about the function of such a counter-top display that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods that can be used to create movement in such a counter-top display. [4]
- (c) Develop and sketch **three** ideas for the counter-top display. [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]

3 Problem:

A library wishes to display books on a rotating book stand.



Design a book stand that automatically rotates to display the books.

- (a) List **four** additional points about the function of such a rotating book stand that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods which could be used to reduce the speed of a rotating shaft. [4]
- (c) Develop and sketch **three** ideas for the rotating book stand. [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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