



DESIGN AND TECHNOLOGY

0445/12

Paper 1 Product Design

October/November 2018

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.

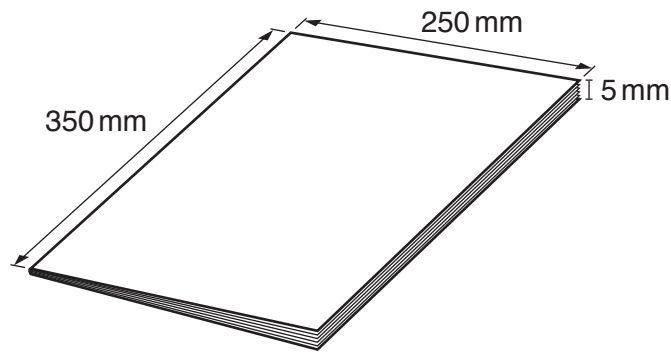
- 1 Many hotels provide newspapers and magazines in a lounge area for guests to read.



Design a unit to store and keep tidy newspapers and magazines.

- (a) List **four** additional points about the function of such a unit that you consider to be important. [4]
- (b) Show **two** different methods which could be used to allow such a unit to be rotated to allow easy access from all sides. [4]
- (c) Develop and sketch **three** ideas for the 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]

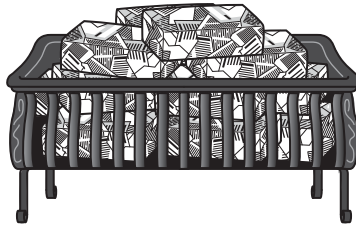
- 2 A newspaper shop owner wishes to promote a new magazine.



Design a floor standing unit which can display one magazine and hold up to 20 magazines. The unit should be easily taken apart for storage.

- (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** different methods of holding a magazine open at a specific page. [4]
- (c) Develop and sketch **three** ideas for the 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 Old newspapers can be shredded, soaked in water and then compressed into a brick shape ready to burn on a fire when they have dried out.



Design a device which will compress old shredded newspapers into a brick shape.

- (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 which could be used to gain mechanical advantage. [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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