



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

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DESIGN AND TECHNOLOGY

9705/01

Paper 1

October/November 2008

3 hours

Additional Materials: Answer Booklet/Paper
A3 Drawing paper (3 sheets)
A range of design drawing equipment

* 5 6 5 3 4 4 8 9 7 8 *

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.
Write your answers and working on the separate Answer Booklet/Paper provided.
Write your name, Centre number and candidate number on all the work you hand in.
Write in dark blue or black pen.
You may use a soft pencil, or coloured pencils/pens as appropriate, for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO NOT WRITE ON ANY BARCODES.

Section A

Answer **one** question.

Section B

Answer **one** question.

Section C

Answer **one** question on plain A3 paper.

You are advised to spend **30 minutes** on each of Sections A and B and **2 hours** on Section C.

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.
All dimensions are in millimetres.

This document consists of **10** printed pages and **2** blank pages.



Section A

Answer **one** question from this section.

- 1 Fig. 1 shows a house number which is to be made in a school workshop.

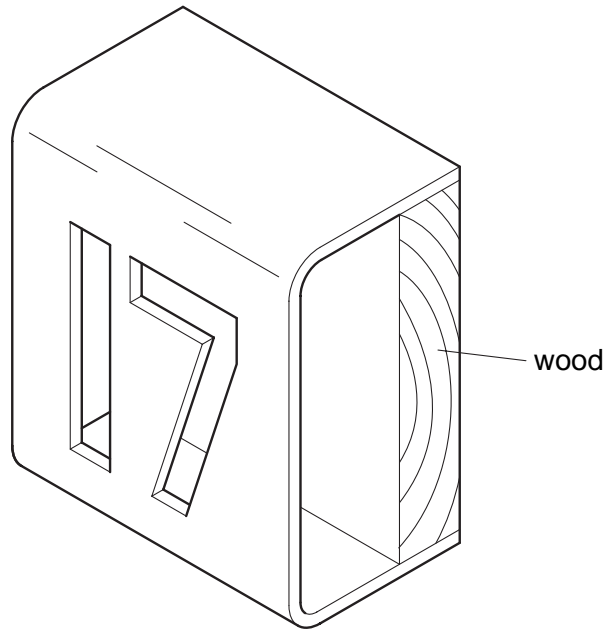


Fig. 1

- (a) Name a suitable sheet material for making the bent part of the design and give **one** reason for your choice. [2]
- (b) Use notes and sketches to describe:
- (i) how the numbers could be cut out and the edges of the sheet material finished and polished; [6]
 - (ii) how the sheet material could be bent to the required shape; [6]
 - (iii) how the sheet material could be joined to the wood so that it could be easily removed. [6]

You must give details about the tools, equipment and processes involved and the safety precautions that have to be undertaken at each stage.

- 2 Fig. 2 shows a gate latch which is to be made in a school workshop.

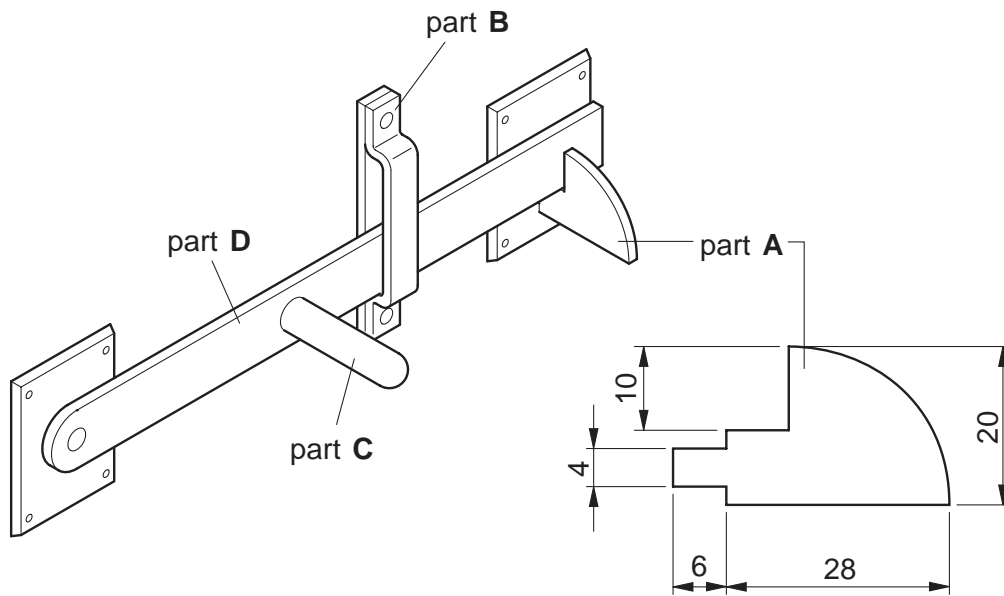


Fig. 2

- (a) Name a suitable metal for making the gate latch and give **one** reason for your choice. [2]
- (b) Use notes and sketches to describe:
- (i) how part **A** could be cut out and the edges of the metal finished and polished; [6]
 - (ii) how a jig could be used to bend part **B**; [6]
 - (iii) how part **C** could be joined to part **D** so that it could be easily removed. [6]

You must give details about the tools, equipment and processes involved and the safety precautions that have to be undertaken at each stage.

- 3 Fig. 3 shows a magazine storage box which is to be made in a school workshop.

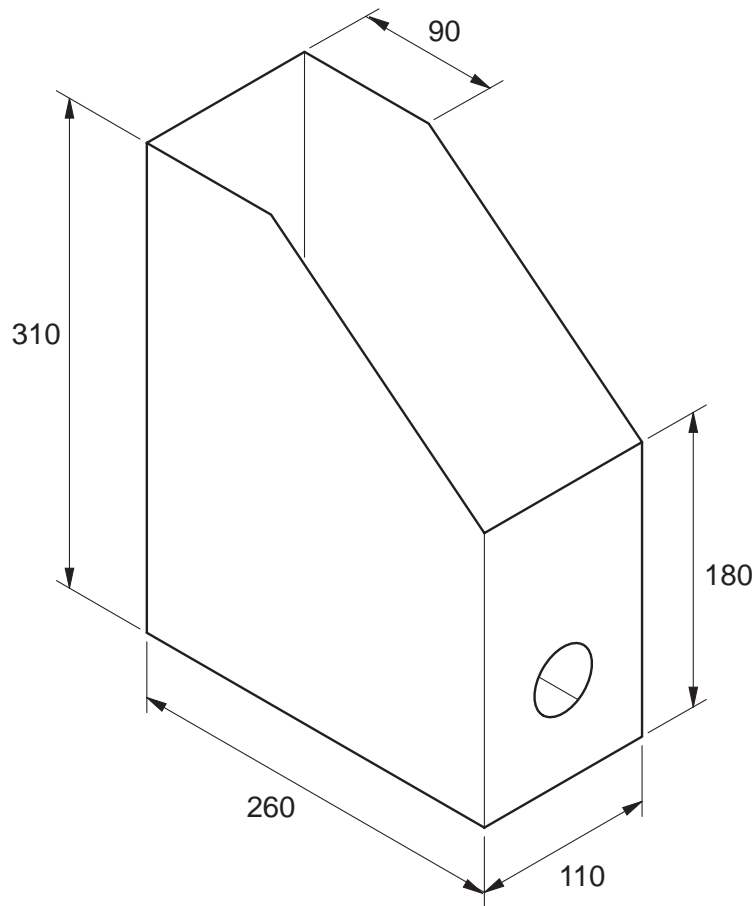


Fig. 3

- (a) Name a suitable card for making the storage box and give **one** reason for your choice. [2]
- (b) Sketch, to an appropriate scale, the one piece development (net) required to make the storage box. [6]
- (c) Use notes and sketches to describe:
- (i) a method of joining the storage box together which enables it to be easily assembled without the use of glue or other additional materials; [6]
 - (ii) how CAM (computer aided manufacture) could be used to cut out the development (net) of the storage box. [6]

You must give details about the tools, equipment and processes involved and the safety precautions that have to be undertaken at each stage.

Section B

Answer **one** question from this section.

- 4 A hotel requires stools for an outdoor eating area. The stools will be used on a range of surfaces including sand, grass, and concrete paving.

A range of stool designs is shown in Fig. 4.

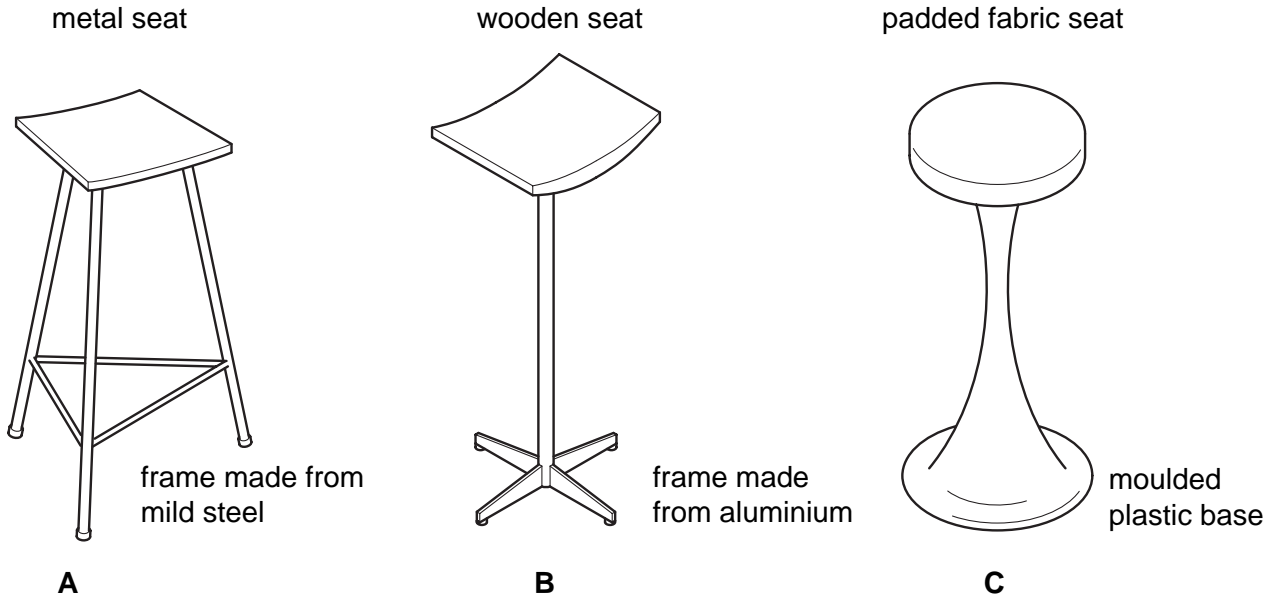


Fig. 4

- (a) Explain why design **A** has rails at the bottom joining the legs together. [2]
- (b) The use of ferrous metal in design **A** has caused problems.
Describe **two** problems that could occur when a ferrous metal is used outside. [4]
- (c) Explain how the two problems that you have identified in (b) could be overcome. [6]
- (d) Discuss the suitability of the three stool designs for use by the hotel. Your answer should:
- (i) analyse the given situation and identify three relevant issues raised by the question; [3]
 - (ii) explain why you consider these three issues to be relevant; [3]
 - (iii) contain specific examples/evidence as support for your conclusions. [2]

5 Fig. 5 shows a design for packaging and carrying a glass bottle.

The packaging is made from card.

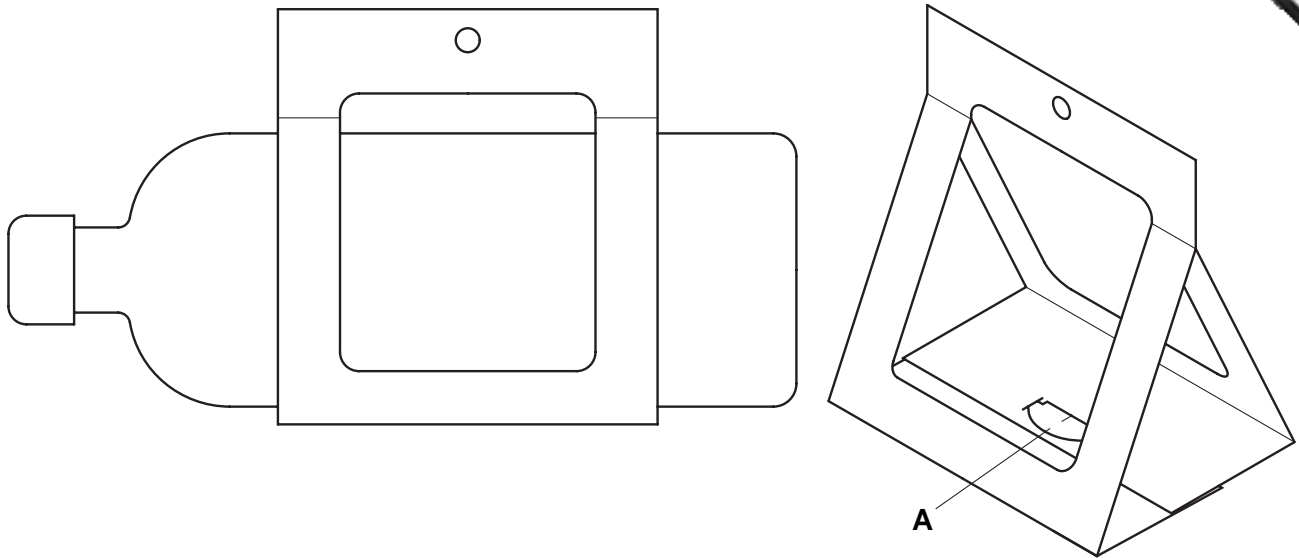


Fig. 5

- (a) Explain the function of the design feature shown at **A**. [2]
- (b) Describe **two** problems with the design. [4]
- (c) Explain how the two problems that you have identified in (b) could be overcome. [6]
- (d) Discuss how manufacturers and retailers address the issues associated with the disposal of packaging. Your answer should:
- (i) analyse the given situation and identify three relevant issues raised by the question; [3]
 - (ii) explain why you consider these three issues to be relevant; [3]
 - (iii) contain specific examples/evidence as support for your conclusions. [2]

- 6 Fig. 6 shows a range of methods that can be used to support shelves.

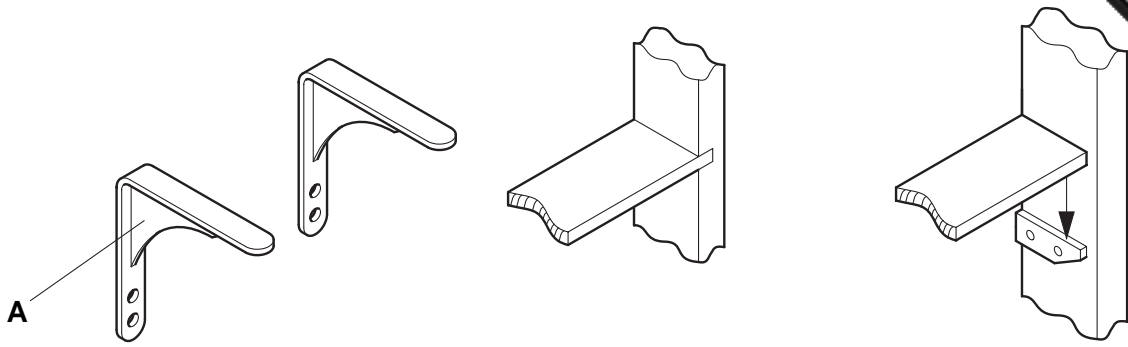


Fig. 6

- (a) Explain the function of the design feature shown at **A**. [2]
- (b) Describe **two** problems that could occur with wooden shelves when they are full of books. [4]
- (c) Explain how the two problems that you have identified in (b) could be overcome. [6]
- (d) Discuss the merits of testing designs and materials before manufacturing a product. Your answer should:
- (i) analyse the given situation and identify three relevant issues raised by the question; [3]
 - (ii) explain why you consider these three issues to be relevant; [3]
 - (iii) contain specific examples/evidence as support for your conclusions. [2]

Section C

Answer **one** question from this section.

You should use one side of A3 plain paper for **each** of the five parts (a) – (e) of the question that you choose to answer.

Where you are asked to **develop** an idea you must show using bold sketches and notes the development, reasoning and composition of a range of ideas into a single design proposal. You must give details about materials, construction and other relevant technical aspects.

- 7 Fig. 7 shows an incomplete idea for a trolley to transport a garden rubbish bin. Most of the trolley is made from metal. The wheels have a 12 mm hole in their centre.

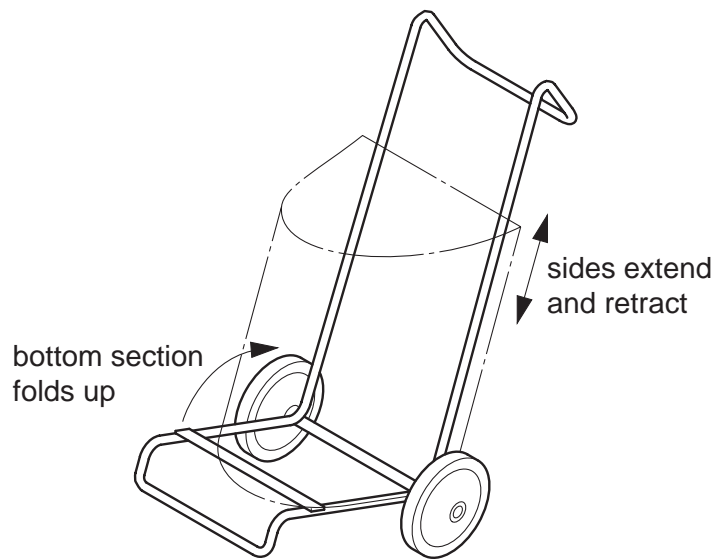


Fig. 7

- (a) Using notes and sketches, **develop** the idea to show a design feature which attaches the wheels to the trolley and allows them to be easily removed. [16]
- (b) Using notes and sketches, **develop** the idea to show a design feature which allows the bottom section of the trolley to fold up when not in use. [16]
- (c) Using notes and sketches, **develop** the idea to show a design feature which allows the sides to extend and retract so that the handle can be fixed at different heights. [16]
- (d) Using notes and sketches, **develop** the idea to show a design feature which securely attaches different size bins to the trolley. [16]
- (e) Produce a pictorial rendered drawing of the complete trolley which shows all of the features that you have designed in (a) – (d). [16]

- 8 Fig. 8 shows an incomplete design for a promotional desk top calendar which a company 'Group C Design' will post to its clients in a flat-pack form. Most of the calendar is made from A4 card.

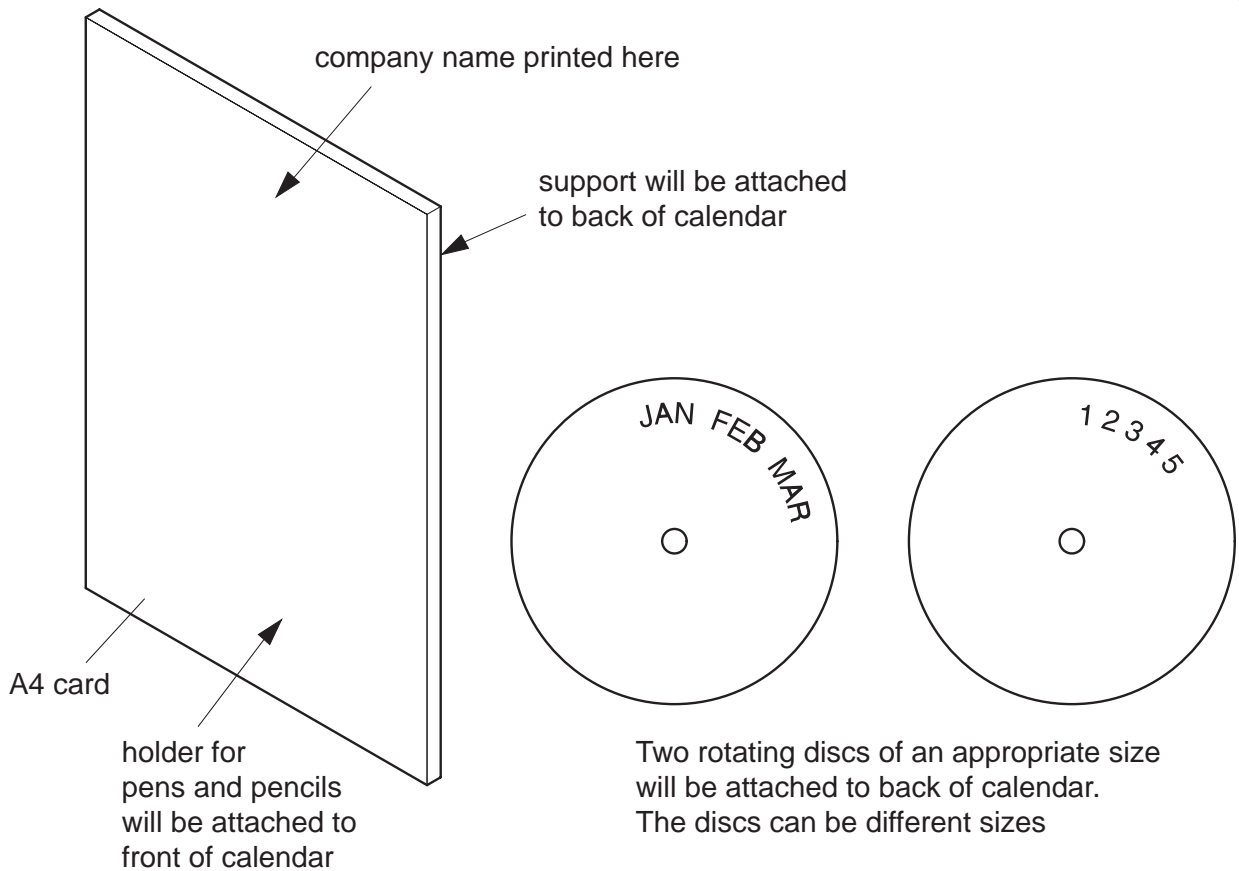


Fig. 8

- (a) Using notes and sketches, **develop** design features which will attach the discs to the back of the calendar and allow different dates to be seen on the front of the calendar as the discs rotate. [16]
- (b) Using notes and sketches, **develop** a design for a holder for pens and pencils which can be easily attached to the front of the calendar without the use of glue or other additional materials. [16]
- (c) Using notes and sketches, **develop** a design for a support which folds out from the back of the calendar and locks securely in place to prevent the calendar falling backwards. [16]
- (d) Using notes and sketches, **develop** a design for the company's name 'Group C Design' which will be printed at the top of the calendar. [16]
- (e) Produce an exploded pictorial rendered drawing of the complete calendar which shows all of the features that you have designed in (a) – (d). [16]

- 9 Fig. 9 shows an incomplete idea for a mechanical toy. Most of the toy is made from wood.

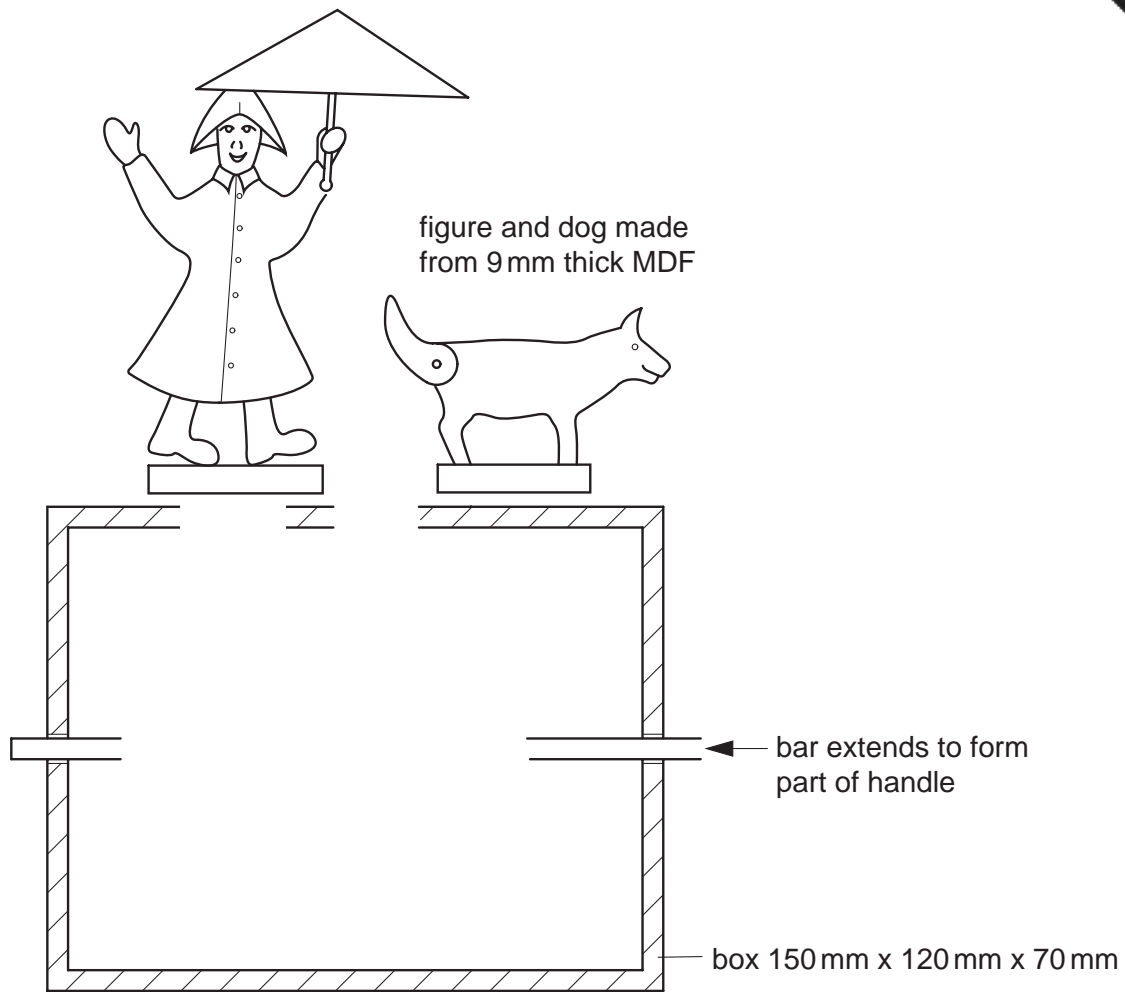


Fig. 9

- (a) Using notes and sketches, **develop** the idea to show a design feature which makes the figure go round when the handle is turned. [16]
- (b) Using notes and sketches, **develop** the idea to show a design feature which makes the tail of the dog go up and down when the handle is turned. [16]
- (c) Using notes and sketches, **develop** a design for the box. The front and back of the box must be enclosed. The front must be made from a see-through material and the back must be removable. [16]
- (d) Using notes and sketches, **develop** a design for the handle. The handle must be comfortable to use and include a feature which prevents the bar being pulled out of the box. [16]
- (e) Produce a pictorial rendered drawing of the complete mechanical toy which shows all of the features that you have designed in (a) – (d). [16]

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