



Cambridge International AS & A Level

CANDIDATE
NAME

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CENTRE
NUMBER

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DESIGN & TECHNOLOGY

9705/01

Paper 1 AS Level Written Paper

For examination from 2025

SPECIMEN PAPER

2 hours 15 minutes

You must answer on the question paper.

You will need: Standard drawing equipment
Coloured pencils
Calculator

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use a pencil or coloured pencils for any sketches, drawings or rough working.

INFORMATION

- The total mark for this paper is 100.
- 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 **22** pages. Any blank pages are indicated.

Answer **all** questions.

1 (a) Fig. 1.1 shows a tray used to carry food and drink.

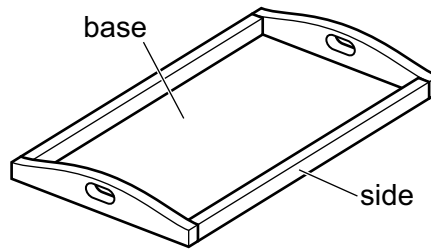


Fig. 1.1

(i) Name **one** specific composite material that could be used for the base of the tray.

..... [1]

(ii) Name **one** specific type of hardwood that could be used for the sides of the tray.

..... [1]

(iii) Explain **one** property of the hardwood named in part (a)(ii) that makes it suitable for the use.

.....
.....
.....
..... [2]

(b) (i) Name a smart material.

..... [1]

(ii) Describe how the smart material named in part (b)(i) could be used in a product.

.....
.....
.....
.....
.....
..... [3]

2 Fig. 2.1 shows a traditional drawing board and a CAD (computer aided design) system.

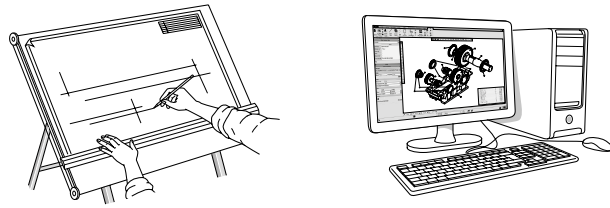


Fig. 2.1

(a) Explain **two** advantages of introducing CAD to a design studio.

- 1
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 -
 -
 -
 -
 -
 -
 -
 -
 -
- 2
-
 -
 -
 -
 -

[4]

(b) Designers use different presentation techniques.

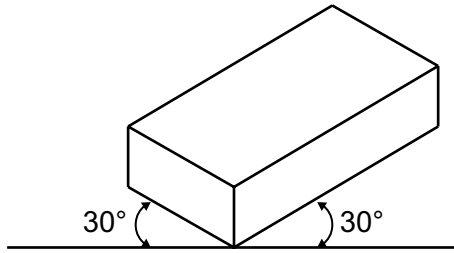


Fig. 2.2

(i) Identify the presentation technique shown in Fig. 2.2.

..... [1]

(ii) Name **one** other presentation technique that could be used by designers.
Explain **one** reason why this presentation technique would be used by a designer.

presentation technique

explanation of reason

.....
.....
.....
.....
.....

[3]

3 Fig. 3.1 shows a prototype model of a package for cookies.

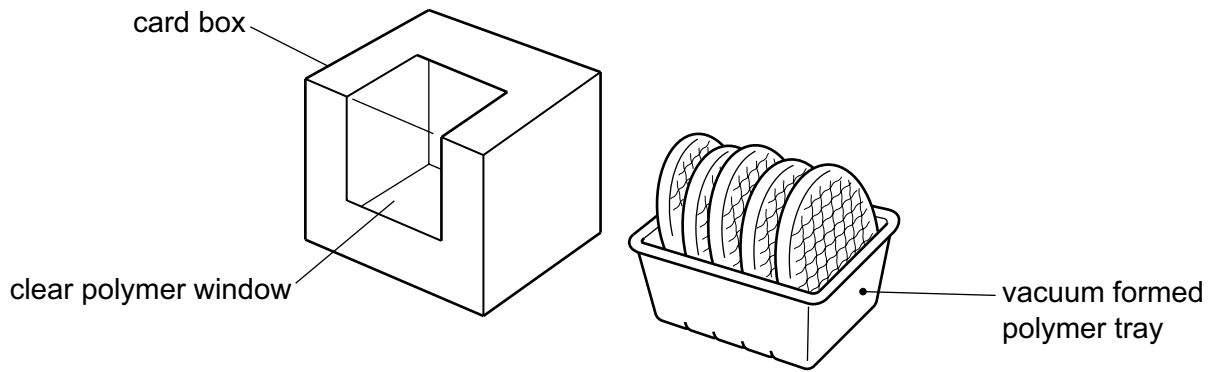


Fig. 3.1

- (a) Use sketches and notes to describe a method of making the card box from a single sheet of card. Include a method of attaching the clear polymer window. In your response, you should give details of any tools, equipment and processes involved and the safety precautions undertaken.

- (b) Explain **two** features that would need to be considered when designing the former required to make the vacuum formed polymer tray.

1

.....

.....

.....

2

.....

.....

.....

[4]

- (c) Explain why the designer would have considered the following when designing the package for cookies.

- (i) research

.....

.....

.....

..... [2]

- (ii) sustainability

.....

.....

.....

..... [2]

- (iii) aesthetics

.....

.....

.....

..... [2]

(d) (i) Define what is meant by good design.

.....
..... [1]

(ii) Give **one** example of how the package for cookies shows good design.

.....
.....
.....
..... [2]

4 Fig. 4.1 shows a child's trolley that is used by children when learning to walk.

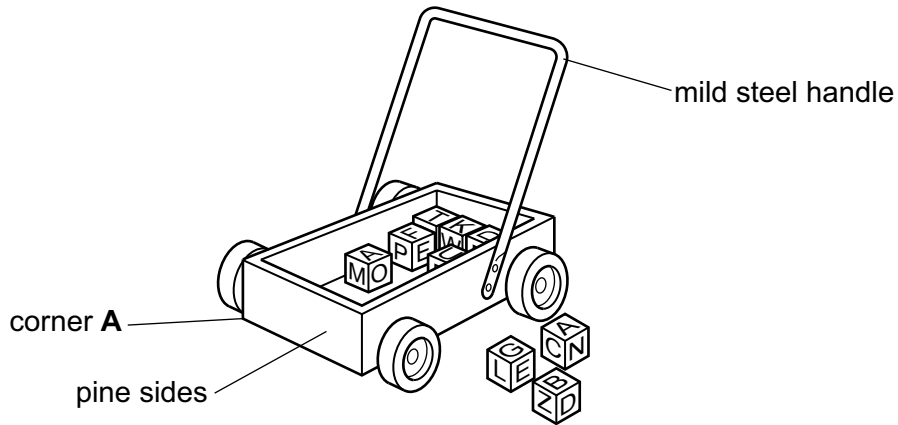


Fig. 4.1

(a) Explain **two** ways in which the safety of the user has been considered in the design of the child's trolley.

1

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.....

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.....

.....

.....

.....

.....

.....

[4]

(b) Explain how a designer would use an iterative approach when designing a product such as the child's trolley.

.....

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.....

[2]

(c) Use sketches and notes to describe **one** temporary and **one** permanent method of joining corner **A** of the child's trolley.

(i) temporary joining method

[3]

(ii) permanent joining method

[3]

- (d) Suggest a suitable finish for the mild steel handle of the child's trolley. Justify your choice of finish giving reasons for your choice.

finish

justification

.....
.....
.....
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.....

[4]

- (e) Explain **two** ways a safe working environment could be maintained during the manufacture of the child's trolley.

1

.....
.....

2

.....
.....

[4]

5 Fig. 5.1 shows a power drill.

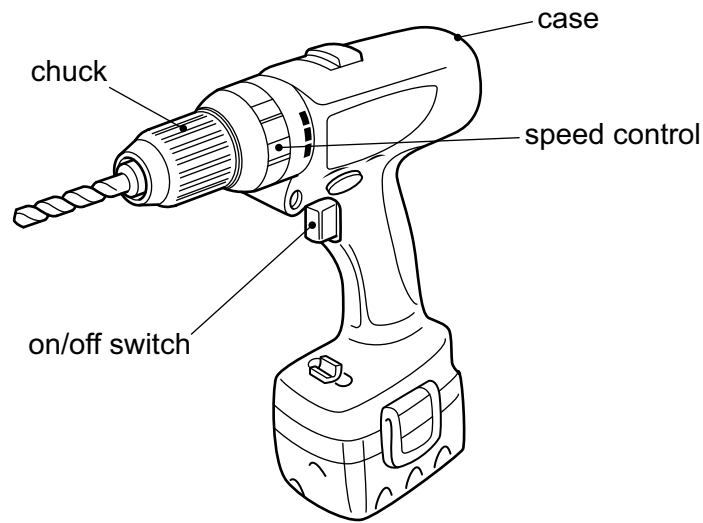


Fig. 5.1

(a) Explain why the power drill:

(i) has a range of speeds

.....
.....
..... [2]

(ii) is powered by a rechargeable battery

.....
.....
..... [2]

(iii) has a case made from a polymer.

.....
.....
..... [2]

(b) The power drill shown in Fig. 5.1 is to be used to drill holes through different materials.

(i) State the form of energy needed as an input for the power drill.

.....
..... [1]

(ii) Describe the output of the power drill.

.....
..... [1]

(iii) Explain how amplification is important to drill through different materials.

.....
.....
.....
..... [2]

(iv) Name **one** component that can be used in the amplification.

.....
..... [1]

(c) Use sketches and notes to show **two** examples of how ergonomics has been used in the design of the power drill.

(i) example 1

[3]

(ii) example 2

[3]

- (d) Fig. 5.2 shows the charging unit for the power drill battery. A light emitting diode (LED) is used to indicate when the battery is being charged.

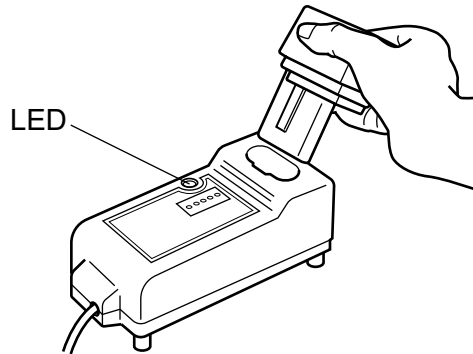


Fig. 5.2

- (i) Sketch the symbol that would be used to show an LED in a circuit diagram.

[1]

- (ii) State **one** reason why an LED is suitable for indicating a battery is being charged.

.....

..... [1]

- 6 Fig. 6.1 shows a drinking cup that has been modified to avoid spillage when used by people with unsteady hand movements.



cup with a weighted base

Fig. 6.1

Use sketches and notes to describe how the design of **one** other product could be modified to be more inclusive, allowing it to be used by a wider range of users.

Your answer should:

- identify the product you propose to modify
- use sketches and notes, including appropriate conventions and specialist vocabulary, to show how you propose to modify the product to be more inclusive
- include an analysis of how the modification meets the needs of a wider range of users.

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