

Monday 30 January 2012 – Afternoon

GCSE DESIGN AND TECHNOLOGY Resistant Materials

A564/01 Technical Aspects of Designing and Making

Candidates answer on the Question Paper.

OCR supplied materials:

None

Other materials required:

None

Duration: 1 hour 15 minutes



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions in Section A **and** Section B.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **60**.
- All dimensions are in millimetres.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- This document consists of **16** pages. Any blank pages are indicated.

Section A

Answer **all** questions

1 Fig. 1 shows views of a wall-mounted coat rack made from 1.6 mm thick mild steel sheet.

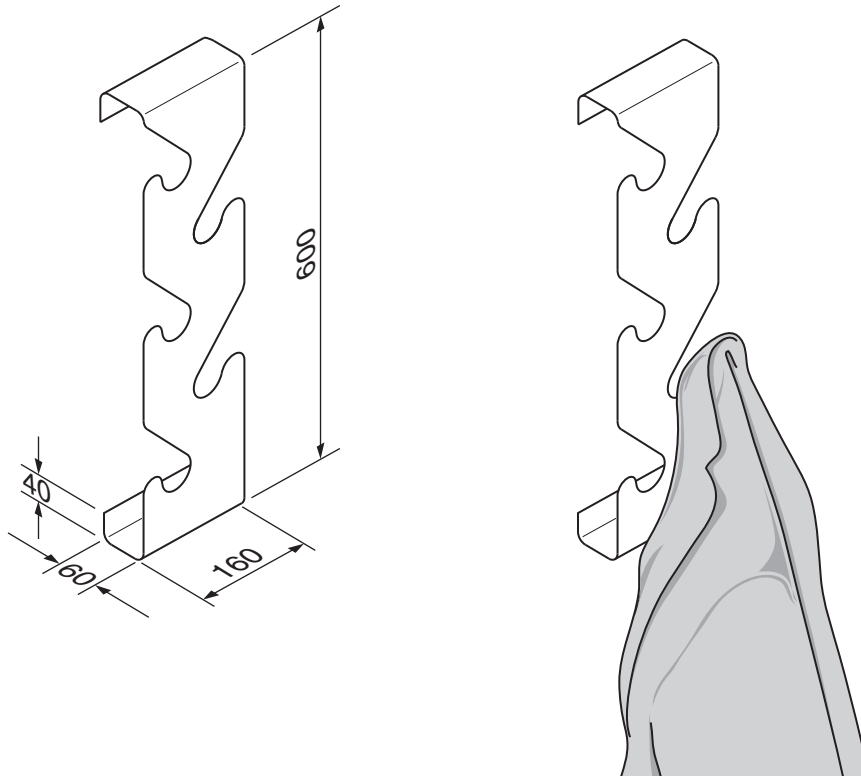


Fig. 1

- (a) Give **one** reason why a template was useful when marking out the shape of the coat rack.
..... [1]
- (b) Give **one** reason why mild steel sheet must be clamped down when drilling holes through it.
..... [1]
- (c) State **one** suitable finish, other than paint, for the coat rack.
..... [1]
- (d) The coat rack could also be made from anodised aluminium sheet.
Give **two** benefits of using anodised aluminium sheet for the coat rack.
1
2 [2]

- (e) Fig. 2 shows details of the bends made in the coat rack. Use sketches and notes to show how **one** end could be bent to the shape shown.

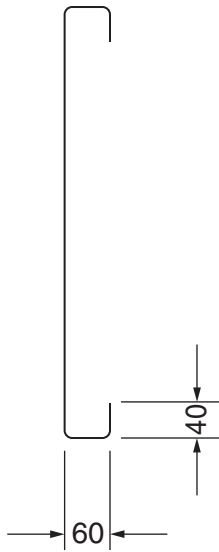


Fig. 2

[3]

- (f) Some metals need to be annealed before they are bent into shape. State the purpose of annealing.

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

- (g) Use sketches and notes to show how the coat rack could be attached to a wall.

[3]

[Total:12]

- 2 Fig. 3 shows details of a desk tidy made from 3 mm thick MDF. The desk tidy is manufactured as flat-pack for self-assembly.

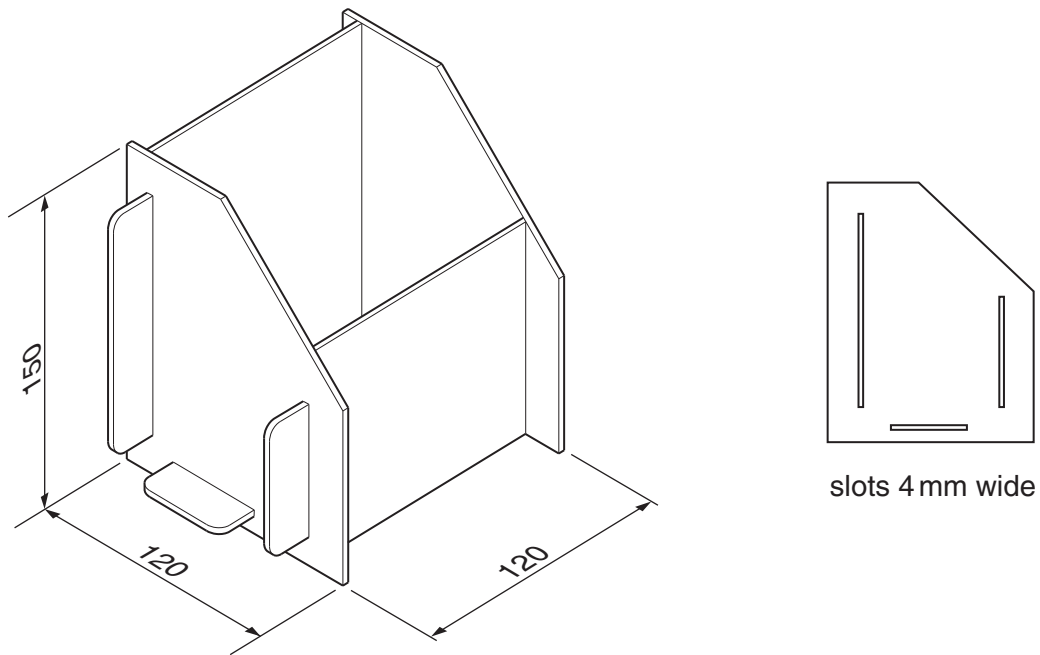


Fig. 3

- (a) Name a specific modelling sheet material, other than card, that could be used to make a model of the desk tidy.

..... [1]

- (b) When assembled, the desk tidy will **not** be glued together. Use sketches and notes to show how the front, back **or** base could be 'locked' in position when assembled.

[2]

(c) Describe **three** main stages in cutting out **one** of the slots shown in Fig. 3.

- 1
- 2
- 3 **[3]**

(d)* Discuss the benefits of flat-pack, self-assembly products.

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[6]
[Total:12]

3 Fig. 4 shows a child's moneybox. The body of the moneybox is made from vacuum formed plastic.

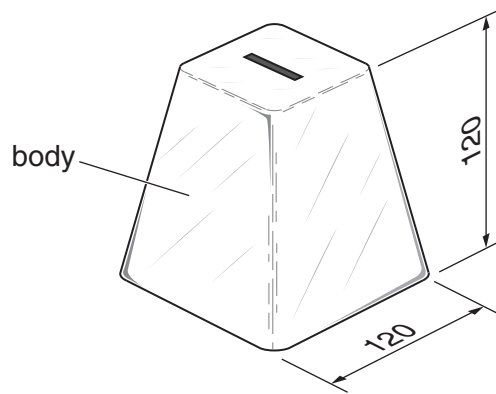


Fig. 4

(a) Name a suitable plastic, other than acrylic, for the body of the moneybox.

..... [1]

(b) Fig. 5 shows the former used when vacuum forming the plastic.

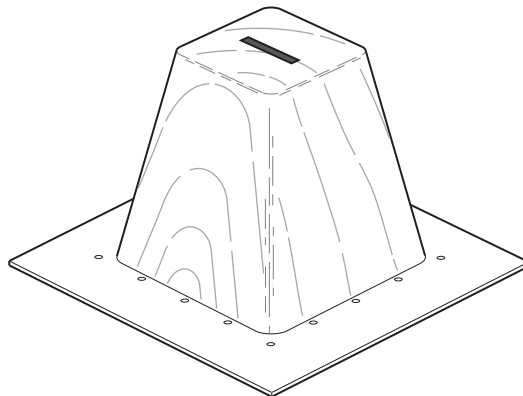


Fig. 5

State **two** features of the former that will ensure that the plastic can be vacuum formed successfully.

1

2 [2]

(c) Complete the table below by giving **four** more stages when vacuum forming the plastic.

Vacuum forming stages	
1	Position former in vacuum forming machine
2	
3	
4	
5	
6	Remove plastic from machine

[4]

(d) Use sketches and notes to show how a base could be fitted to the body of the moneybox.
The base must:

- be fitted securely to the body of the moneybox
- allow access to the saved money.

Include details of materials and constructions used.

[5]

[Total:12]

Section B

Answer all questions

- 4 Fig. 6 shows an incomplete design for a storage unit for jewellery. The storage unit has top and bottom trays that pivot at corner A. The storage unit is made from a quality hardwood in a school workshop.

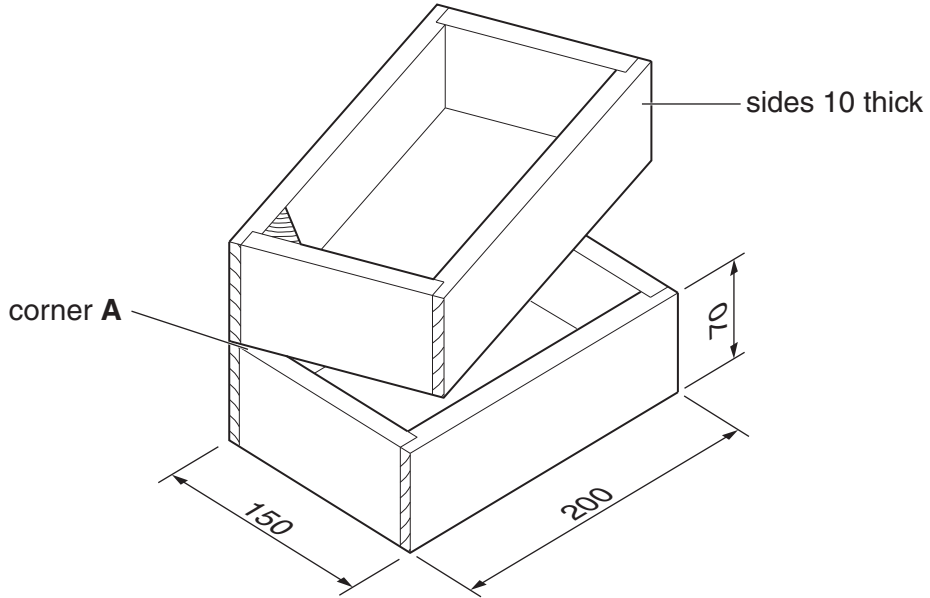


Fig. 6

- (a) Describe **two** aesthetic features you could expect to find in quality hardwoods.

1

2 [2]

- (b) Use sketches and notes to show how the top and bottom trays could be connected by means of a pivot at corner A. Give the specific name of materials and important sizes used in the construction.

[3]

(c) Use sketches and notes to show a design for a 'lift-off' lid that could be fitted to the top tray of the storage unit. Give details of materials used, their sizes and construction.

[3]

(d) Explain how CAM could be used to engrave the word '*Jewellery*' on the lid.

.....

.....

.....

.....

..... [4]

[Total:12]

- 5 Fig. 7 shows two toboggans.
Toboggan **A** is made from injection moulded polypropylene.
Toboggan **B** is made from beech and is fabricated.

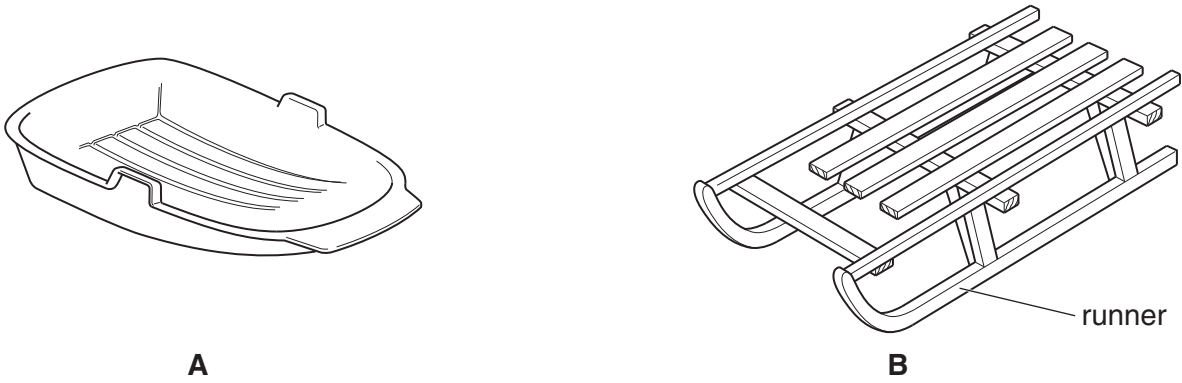


Fig. 7

- (a) State **one** way in which toboggan **A** could be considered safer in use than toboggan **B**.

..... [1]

- (b) Toboggan **B** has a metal strip fixed to the underside of the runner to improve performance. Name a suitable ferrous metal that could be used for the strip.

..... [1]

- (c) Use sketches and notes to show a modification to **either** toboggan **A** or toboggan **B** that would enable it to be pulled along.

[2]

Additional Page

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