Candidate Name	Centre Number	Candidate Number

OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS

General Certificate of Secondary Education

D&T: Resistant Materials Technology 1956/1
D&T: Resistant Materials Technology (Short Course) 1056/1

PAPER 1 FOUNDATION TIER

Thursday **26 MAY 2005** Morning 1 hour

Candidates answer on the question paper.
No additional materials are required.

TIME 1 hour

INSTRUCTIONS TO CANDIDATES

Write your name, Centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets [ ] at the end of each question or part question.

Dimensions are given in millimetres unless stated otherwise.

Total marks for this paper is **50**.

FOR EXAMINER'S USE	
1	
2	
3	
4	
5	
TOTAL	

This question paper consists of 11 printed pages and 1 blank page.

Registered Charity Number: 1066969
[Turn over

For Examiner's Use

1 Fig. 1 shows a puppet made mainly from 6 mm thick manufactured board.
Strings to make the puppet move are attached to the head and the body and to each foot.

Fig. 1

(a) Complete the table by describing what each of the tools or items of equipment could be used for when making the puppet.

Tools and equipment	Where the tools and equipment could be used when making the puppet
Scroll saw or coping saw	
Files	
Glasspaper	
Drill	
PVA adhesive (glue)	

[5]

(b) Ten puppets are to be made in a school workshop.
State one reason why templates would be useful when making ten puppets.

_____ [1]

(c) Fig. 2 shows the parts of the wooden handle to which the four strings of the puppet are to be attached.

Fig. 2

(i) Name a suitable method of joining the par ts of the handle together .

_____ [1]

(ii) Describe ho w the handle could be made more comf ortable to hold.

_____

_____ [1]

(iii) On Fig. 2 use sketches and notes to show how one of the strings from either the head, body or f oot could be attached to the handle . [2]

2 Fig. 3 shows two views of a clock.
The clock will be used to teach young children how to tell the time.
The clock hands are moved by the teacher.

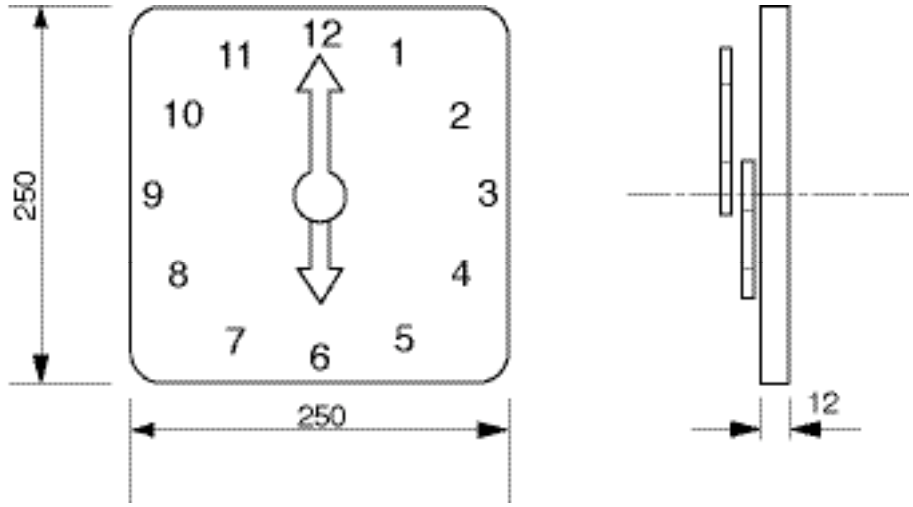
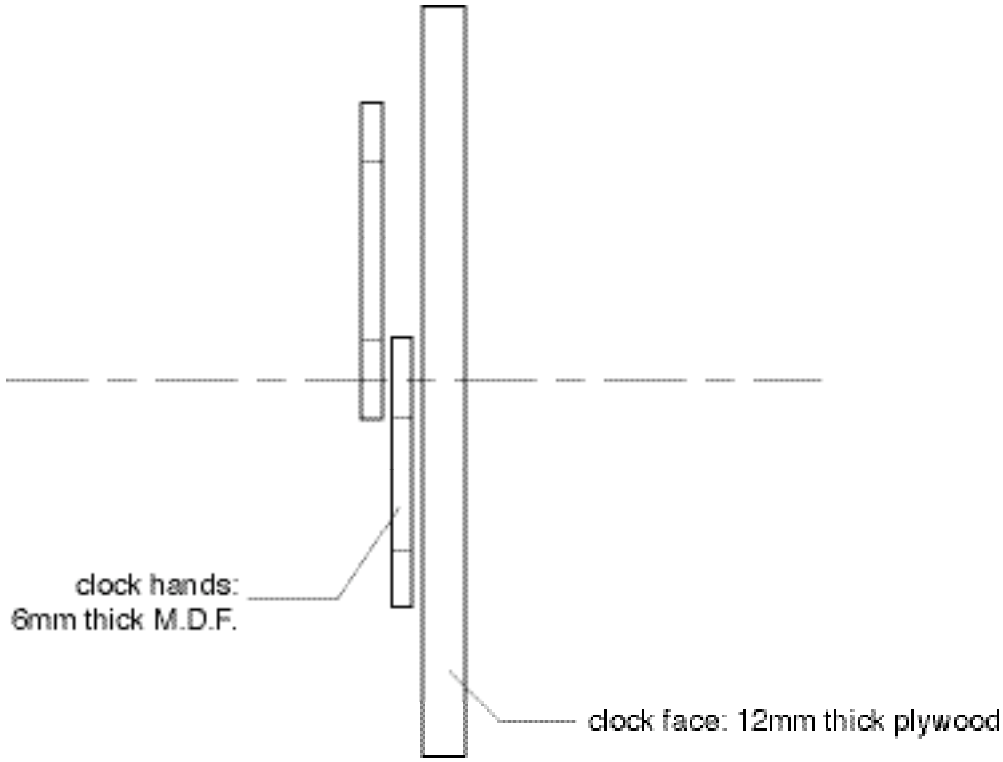


Fig. 3

(a) Add sketches and notes to the drawing below to show how the hands could be fitted to the clock face.
The teacher must be able to move the clock hands.



[3]

(b) The numbers could be painted onto the clock face.
The y could also be made from self-adhesive vinyl plastic using Computer Aided Design (CAD) and Computer Aided Manuf acture (CAM).

State two advantages of using CAD/CAM to design and make the numbers rather than painting them onto the clock face.

Advantage 1 _____ [1]

Advantage 2 _____ [1]

(c) The clock shown in Fig. 3 must be able to stand on a table as shown below.
Use sketches and notes to show how the clock could be made to stand on its own.
Include details of materials, fittings and methods of construction used.

An image has been removed due to third party copyright restrictions

Details:

An image of a clock on a table

[5]

3 Fig. 4 shows views of a 3 mm thick aluminium coat hanger that fits over the top of a door.

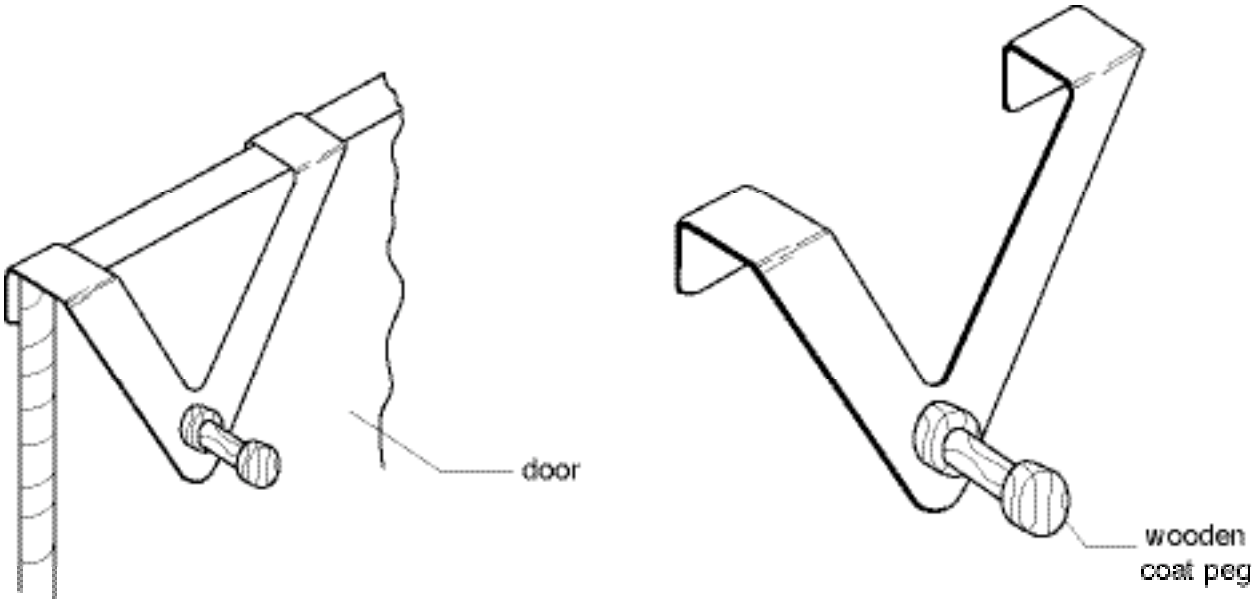


Fig. 4

(a) State **two** reasons why aluminium is a suitable metal for the coat hanger.

1 _____[1]

2 _____[1]

(b) Use sketches and notes to show how the wooden coat peg could be fixed to the aluminium coat hanger.

[2]

(c) State **two** reasons why you should make a card model of the coat hanger before making it in aluminium.

1 _____[1]

2 _____[1]

(d) Fig. 5 shows the development [net] of the coat hanger. This design wastes aluminium.

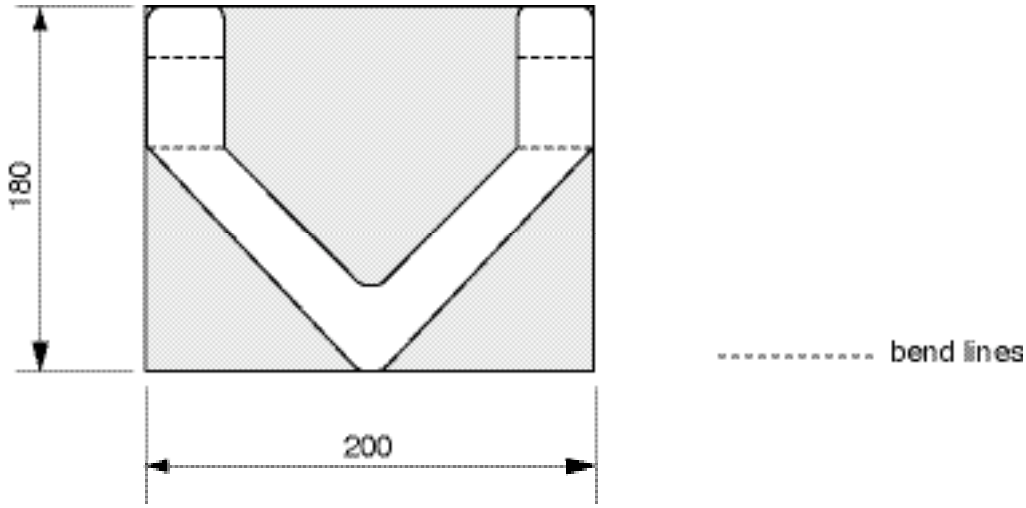


Fig. 5

Use sketches and notes to show a modified design for a coat hanger that will also fit over the top of a door. The modified design **must** not waste as much aluminium.

[4]

4 Fig. 6 shows a plastic notelet holder. The notelet holder is produced in quantity by injection moulding.

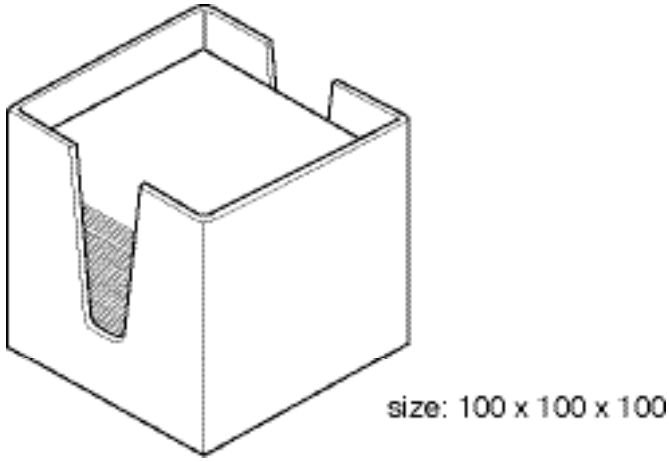


Fig. 6

(a) Explain why injection moulding is only cost-effective when products are manufactured in large quantities.

_____

_____

_____[2]

(b) Quality control is an important part of manufacturing.
Describe **two** quality control checks that could be carried out during the manufacture of the injection moulded notelet holder.

1 _____

_____[1]

2 _____

_____[1]

(c) The notelet holder could also be made from a single piece of 3 mm thick sheet plastic. Fig. 7 shows the development [net] for a notelet holder to be made from sheet plastic.

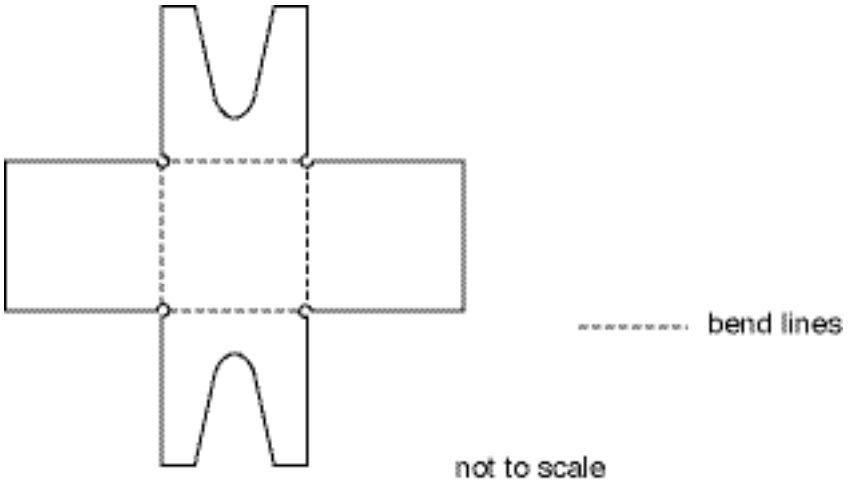


Fig. 7

(i) Describe how CAD/CAM could be used to help in the design and manufacture of this notelet holder.

_____

_____

_____[2]

(ii) Name the software and computer-controlled machine you would use.

Software _____[1]

Computer-controlled machine _____[1]

(d) Both designs of notelet holder are to be manufactured in quantity.
Explain why injection moulding is a more environmentally-friendly process than making the notelet holder from sheet plastic.

_____

_____

_____

_____[2]

5 Fig. 8 shows a tray that is used in a care home for elderly people.

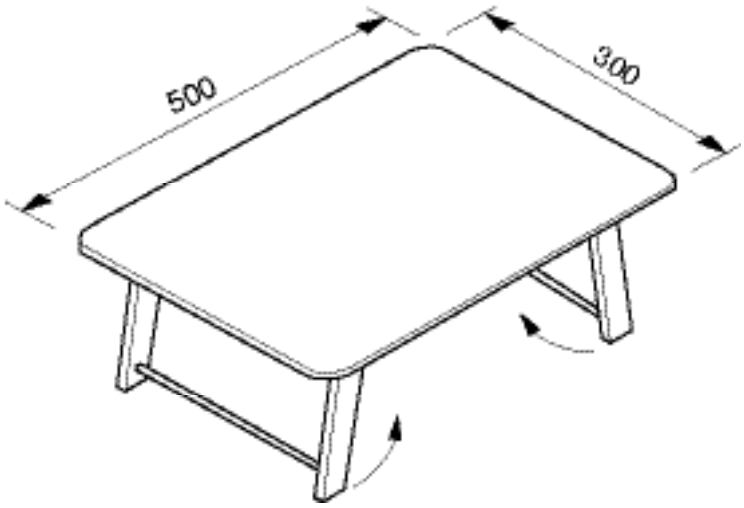


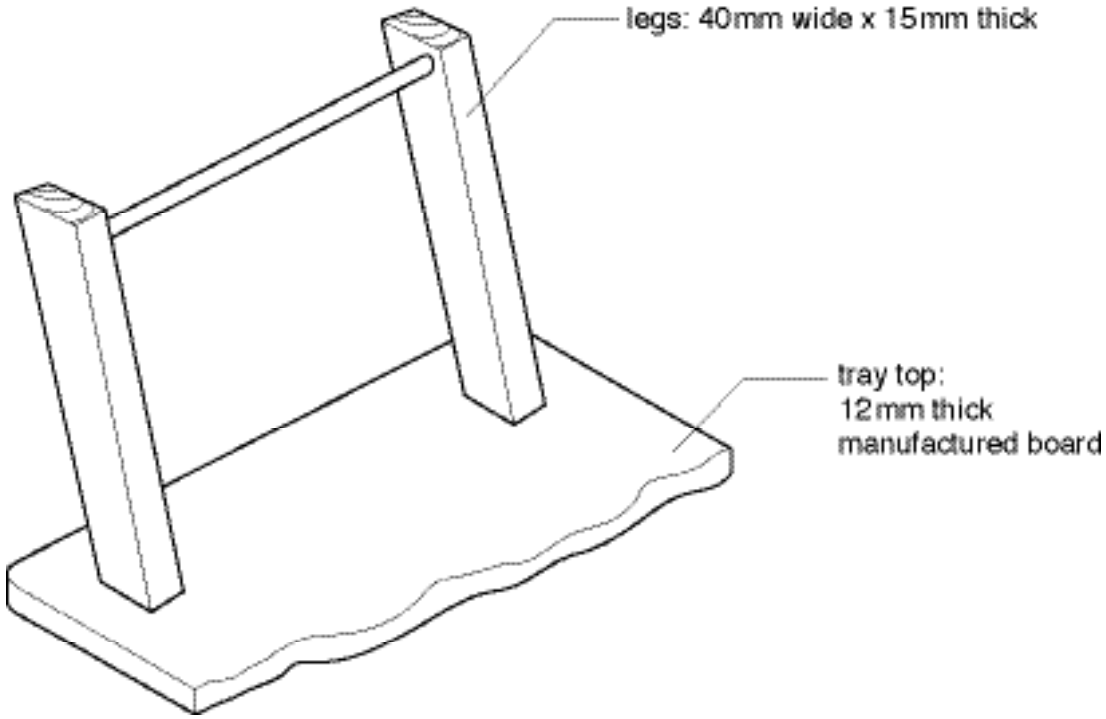
Fig. 8

(a) Explain how the designer has used anthropometric data in the design of the tray.

_____

_____ [1]

(b) Fig. 9 shows the underside of the tray.
Add sketches and notes to Fig. 9 to show how the legs could be made to fold up against the tray top for ease of storage.



[3]

Fig. 9

(c) Use sketches and notes to show **two** functional improvements to the tray.

[4]

(d) The tray top could also be made from plastics material.
State **two** advantages of using a plastics material for the tray top rather than a manufactured board.

1 _____[1]

2 _____[1]

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