

Candidate Name

Centre Number

Candidate
Number

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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS****General Certificate of Secondary Education****DESIGN AND TECHNOLOGY
(RESISTANT MATERIALS TECHNOLOGY)****1956/3****PAPER 3 FOUNDATION TIER****Specimen Paper 2003**

1 hour

Candidates answer on the question paper.

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 mm unless stated otherwise.

Question 5, product analysis, is based on the theme 'Garden Furniture' printed in the specification.

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

| FOR EXAMINER'S USE | |
|--------------------|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| TOTAL | |

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

1 Fig. 1 shows front and back views of a mild steel nameplate and stake used in a garden centre.

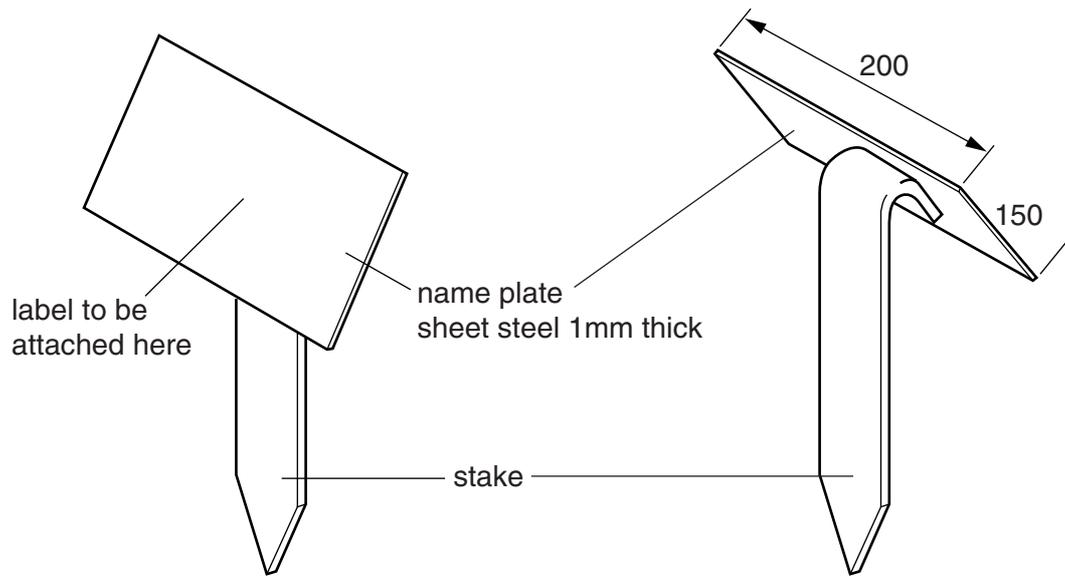


Fig. 1

(a) Fig. 2 shows the end of the stake. The point that goes into the ground is marked out ready to shape.

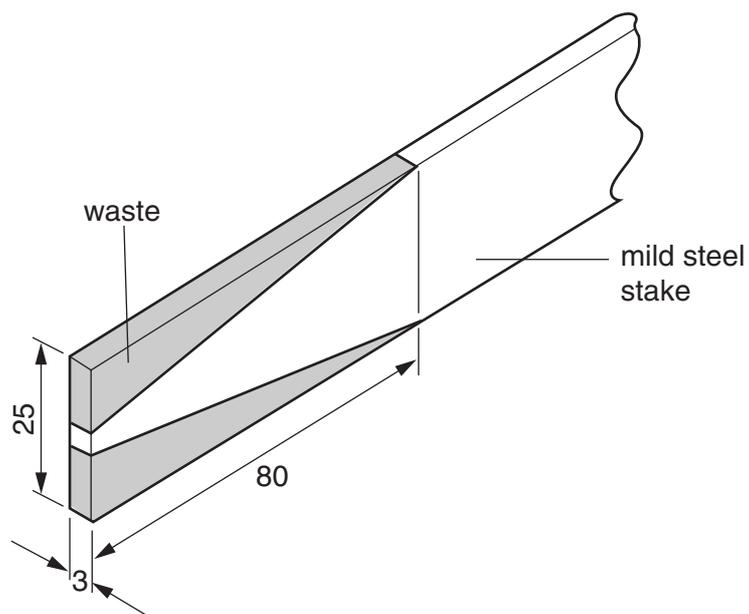


Fig. 2

Name the correct tool used to:

- (i) mark out the lines _____ [1]
- (ii) saw off the waste metal _____ [1]
- (iii) smooth the edge to the finished shape _____ [1]

(b) (i) State **one** permanent method of joining the nameplate to the stake.

_____ [1]

(ii) State **one** temporary method of joining the nameplate to the stake.

_____ [1]

(c) (i) Explain why **unprotected** mild steel is not suitable for outdoor use.

_____ [1]

(ii) Explain how mild steel could be protected.

_____ [1]

(d) A label showing the name of the plant is to be attached to the nameplate.

Design a method of attaching the label to the nameplate so that it can be changed easily.

[3]

- 2 A manufacturer has produced the desk tidy shown in Fig. 3 to hold pens, pencils and felt-tip pens.

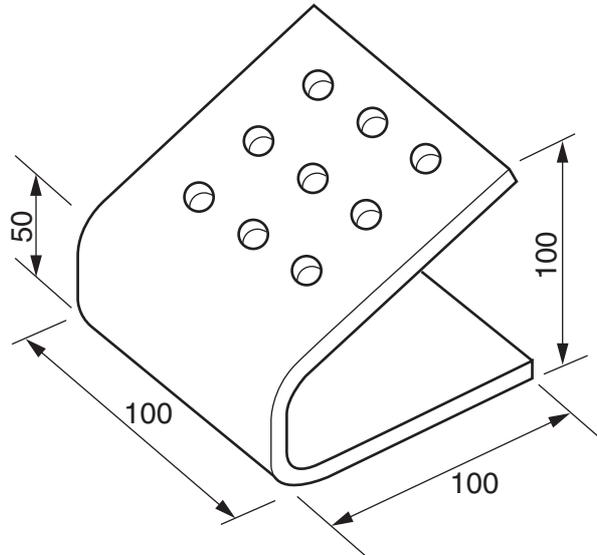


Fig. 3

- (a) State **two** items of information you would need to find out before starting to design the desk tidy.

1 _____ [1]

2 _____ [1]

- (b) (i) State **two** reasons for the desk tidy 's failure as a design solution.

1 _____ [1]

2 _____ [1]

- (ii) Use notes and sketches to show **two** modifications you would make to improve this design.

[4]

(c) Describe **two** ways by which you could evaluate the desk tidy.

1 _____ [1]

2 _____ [1]

- 3 Fig. 4 shows the basic design for a wooden toy tractor.
As the tractor is pulled or pushed along, the driver moves up or down.

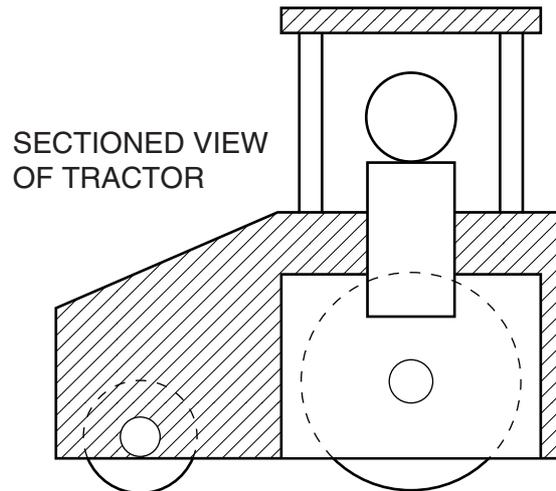


Fig. 4

- (a) (i) On Fig. 4 draw a mechanism that would make the driver move up and down. [3]
- (ii) Name the mechanism you have drawn.
_____ [1]
- (iii) Draw a mechanism that could make the driver rise slowly and fall rapidly when pulled along.

[1]

- (iv) Name the mechanism you have drawn.

[1]

- (v) Explain **one** disadvantage of using this type of mechanism.

[1]

- (b) Twenty tractors are to be manufactured.
The roof and body of the tractor are to be joined by means of wooden dowel.
The positions for the dowel are shown in Fig. 5.

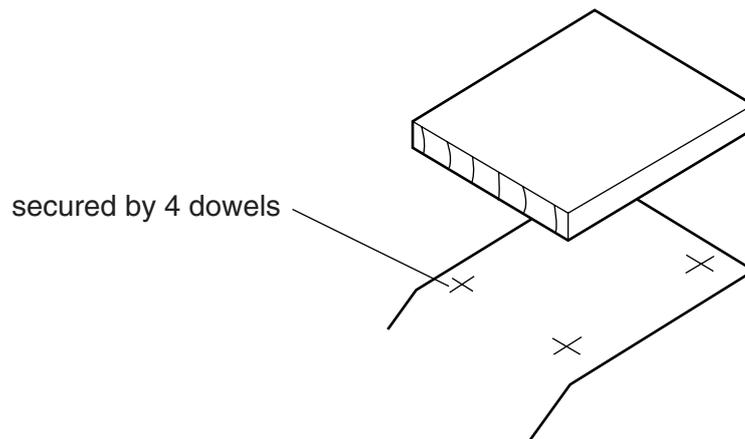


Fig. 5

Use notes and sketches to design a jig that would enable the holes to be drilled quickly and accurately in the roof **and** body of the tractor.

[3]

- 4 Fig. 6 shows a TV and Hi-Fi unit made from a manufactured board with a spray painted finish. The unit will be produced as a flat pack ready for home assembly from the lengths of manufactured board shown.

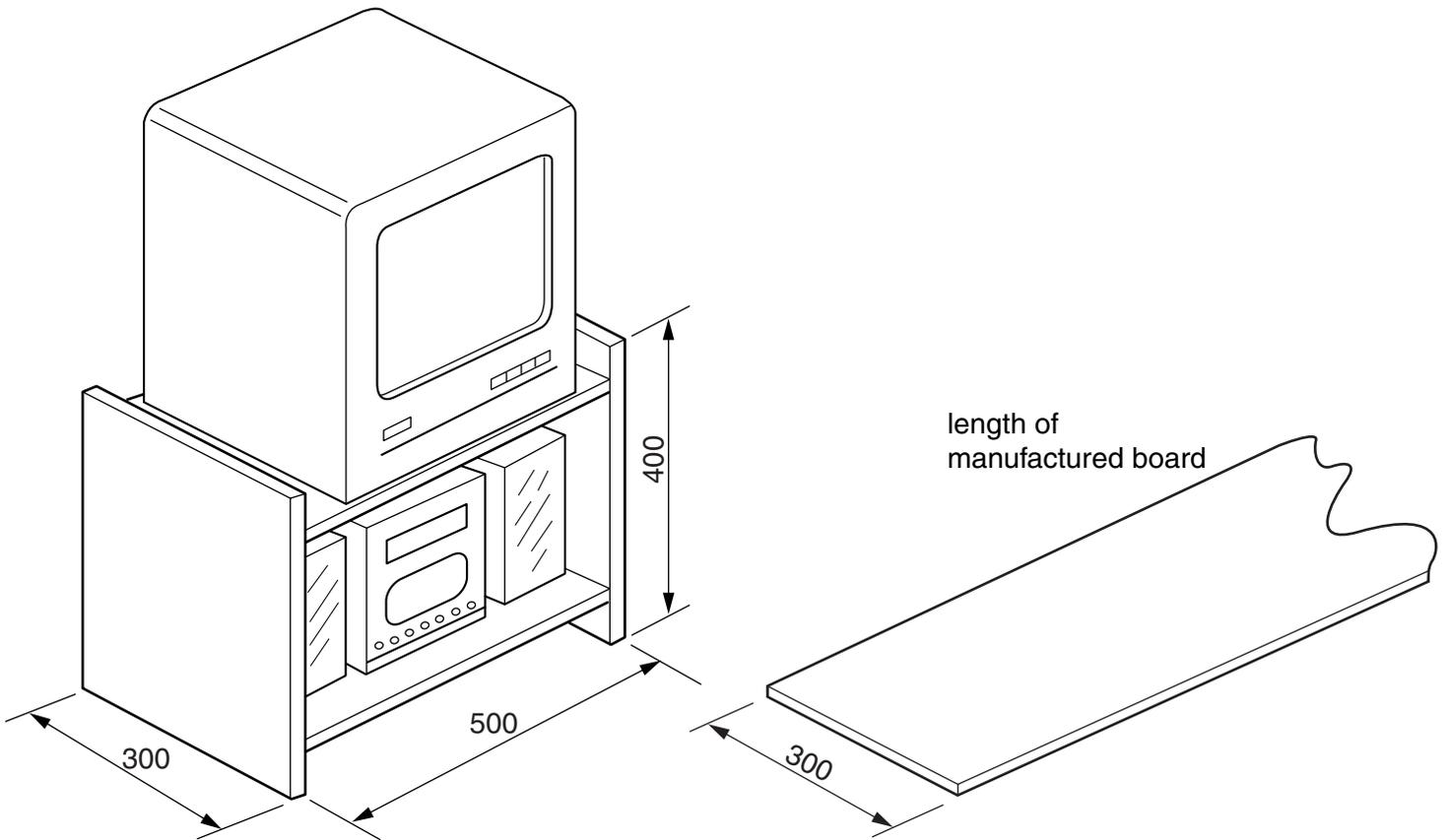


Fig. 6

- (a) State **two** advantages of using robots to apply the spray paint finish.

1 _____ [1]

2 _____ [1]

- (b) Explain how the use of manufactured boards rather than solid wood to produce furniture can help the environment.

[2]

- (c) Name and sketch a knock-down (K-D) fitting suitable for joining any parts of the unit together.

[3]

- (d) The table below gives two of the stages involved in producing the TV and Hi-Fi unit. Complete the table.

| Stage | Process |
|-------|--|
| 1 | Cut the sides, top and shelf to length |
| 2 | |
| 3 | |
| 4 | |
| 5 | Package unit ready for sale |

[3]

5 This question is based on the theme 'Garden Furniture'.

Fig. 7 shows two chairs suitable for use in a garden.

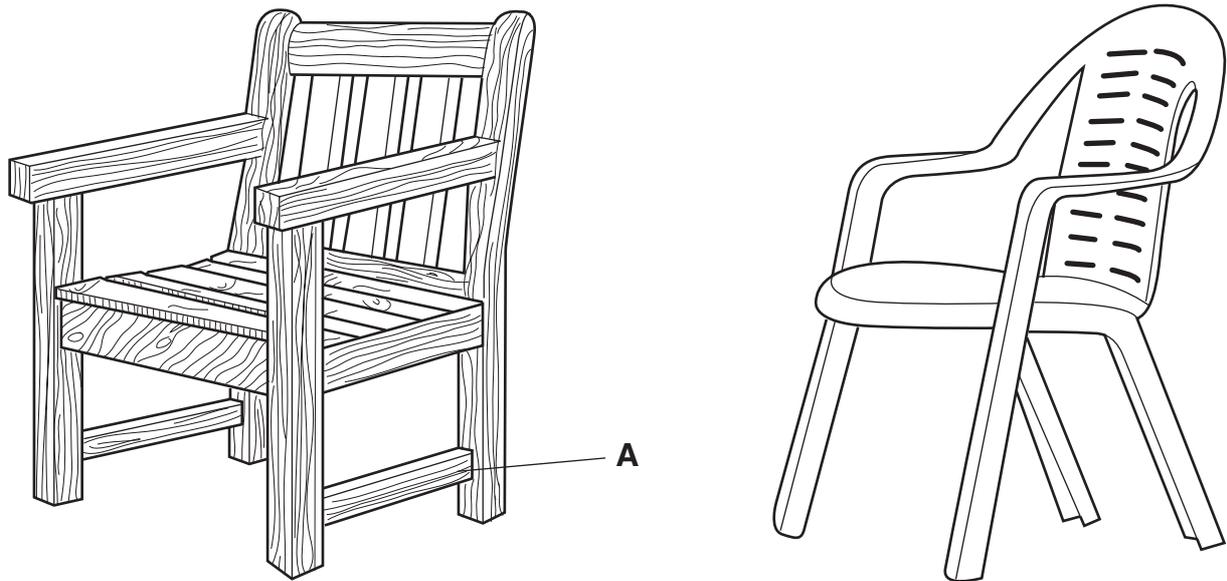


Fig. 4

(a) (i) Name a solid wood suitable for outdoor use.

_____ [1]

(ii) Name a suitable construction that could be used to join the leg and rail at A.

_____ [1]

(b) (i) State **two** reasons why a consumer might choose to buy the wooden chair.

1 _____ [1]

2 _____ [1]

(ii) State **two** reasons why a consumer might choose to buy the plastic chair.

1 _____ [1]

2 _____ [1]

(c) Explain how anthropometric data would have been used in the design of both chairs.

[2]

(d) Use notes and sketches to describe **one** improvement you would make to the design of **either** the plastic **or** wooden chair.

[2]

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