

Candidate Name

Centre Number

Candidate
Number

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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS****General Certificate of Secondary Education****D&T: RESISTANT MATERIALS TECHNOLOGY****1956/3****PAPER 3 FOUNDATION TIER**

Thursday

16 JUNE 2005

Afternoon

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.

Question 5, product analysis, is based on the theme 'Domestic Bedside Lighting' printed in the specification.

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

FOR EXAMINER'S USE	
Question 1	
Question 2	
Question 3	
Question 4	
Question 5	
TOTAL	

This question paper consists of 12 printed pages.

- 1 Fig. 1 shows a child's toy made from softwood. The toy will be made in a school workshop.

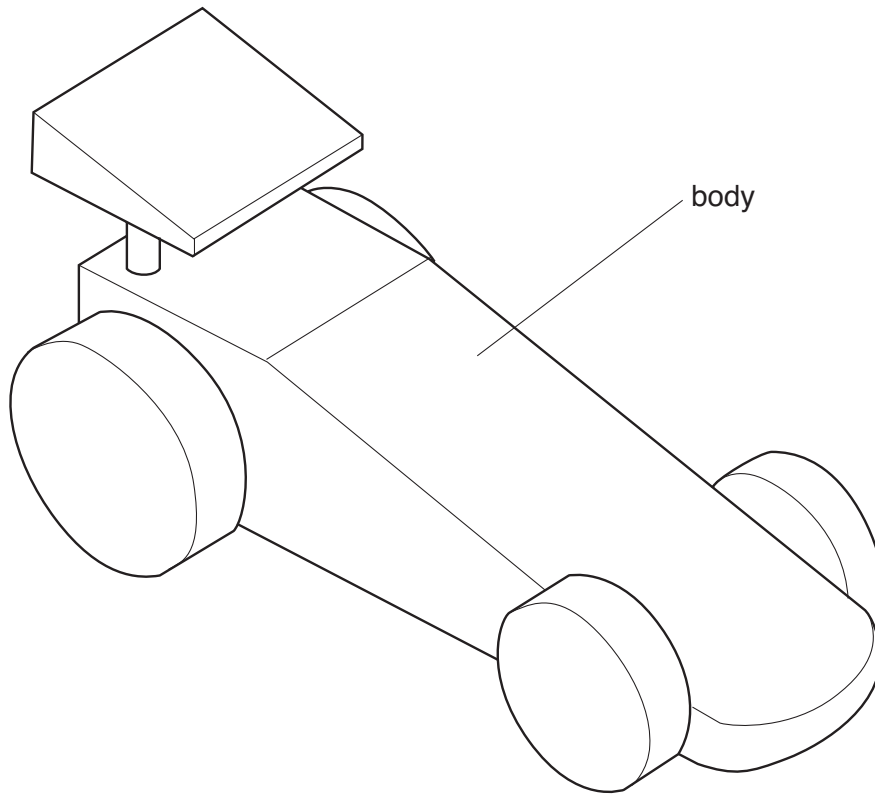


Fig. 1

- (a) (i) Name a suitable softwood that could be used for the body of the toy.

_____ [1]

- (ii) State **one** reason for your choice of softwood.

_____ [1]

- (b) Complete the table by naming the tools or equipment you would use to make the body of the toy.

Stage	Process	Tools or Equipment
1	Mark out the shape	
2	Cut out the shape	
3	Round the front of the toy	Disc sander

[2]

- (c) State **one** safety precaution you would take when using a disc sander to round the front of the toy.

_____ [1]

- (d) Fig. 2 shows the front view of the toy.
Complete Fig. 2 to show how the wheels could be attached to the body of the toy.
The wheels must be allowed to move freely.

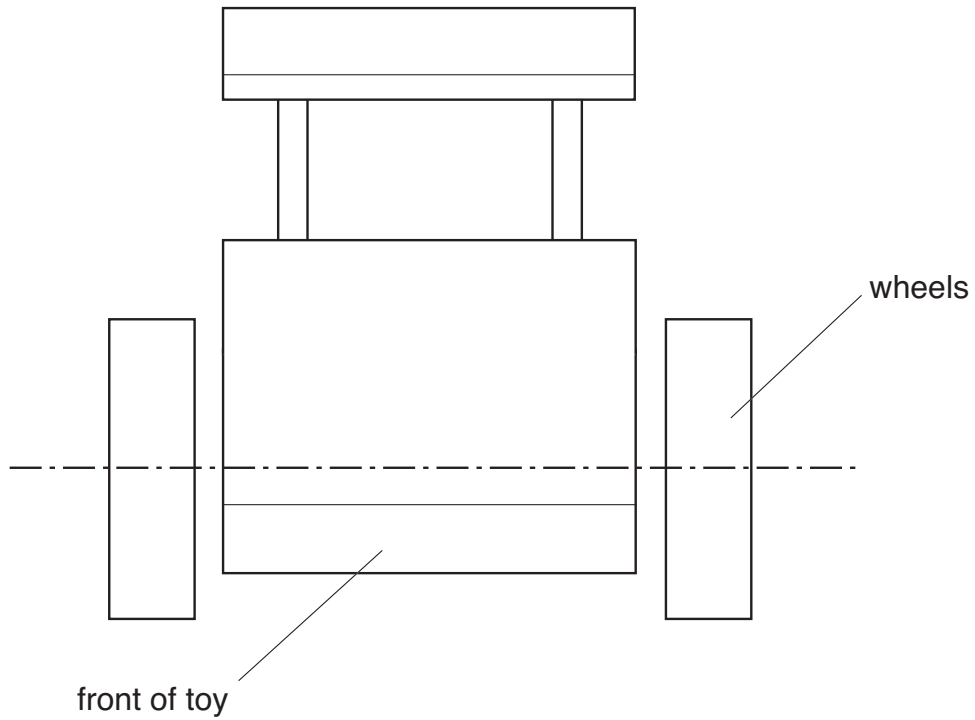


Fig. 2

[3]

- (e) Add sketches and notes to Fig. 3 to show **one** improvement you could make to the toy.

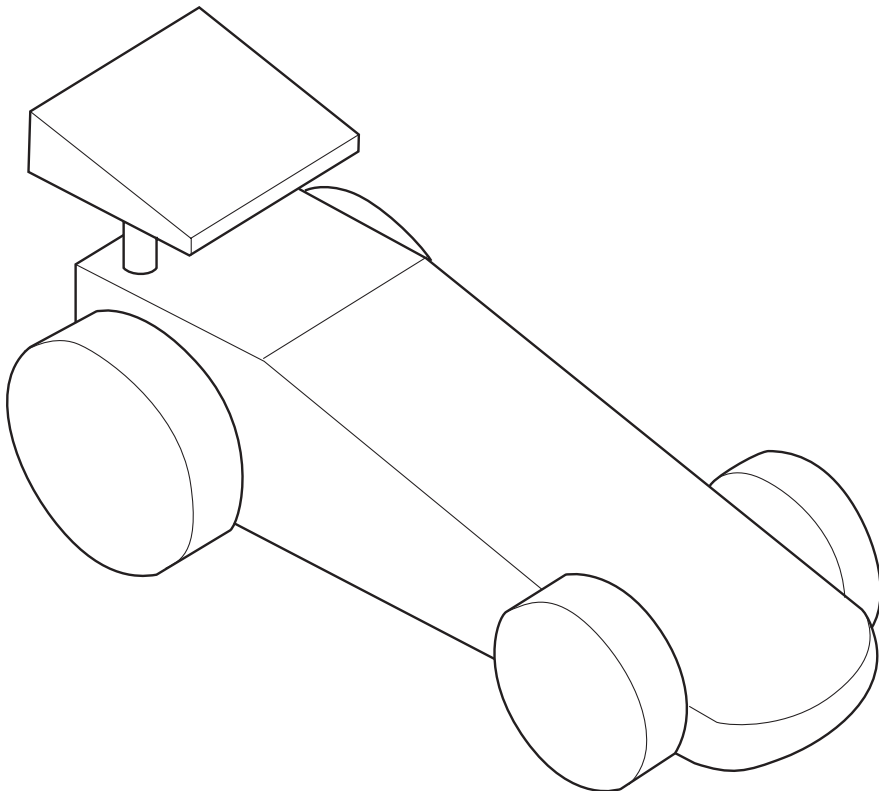


Fig. 3

[2]

- 2 Fig. 4 shows a design for a trophy made from 1 mm thick sheet metal.



Fig. 4

- (a) Name a suitable non-ferrous metal for the trophy.

[1]

- (b) Use sketches and notes to show how you would bend the metal to shape.

[3]

- (c) After the metal has been cut and filed to shape, the edges need to be made smooth. Name **one** method which could be used to make the edges of the metal smooth.

_____ [1]

- (d) Explain why a lacquered finish would be applied to the trophy.

_____ [1]

- (e) State **one** reason why the trophy needs to be attached to a base.

_____ [1]

- (f) Name a suitable hardwood that could be used for the base.

_____ [1]

- (g) Use sketches and notes to show how you would attach the trophy to the hardwood base.

[2]

3 Fig. 5 shows an educational toy made from beech.



Fig. 5

(a) State two properties of beech, other than strength, which make it suitable for the manufacture of the toy.

1 _____ [1]

2 _____ [1]

The toy could be improved by colouring the shapes. One method would be to paint them.

(b) Name one other method of colouring the shapes.

_____ [1]

Fig. 6 shows the holes drilled ready for the dowel rods to be glued in.

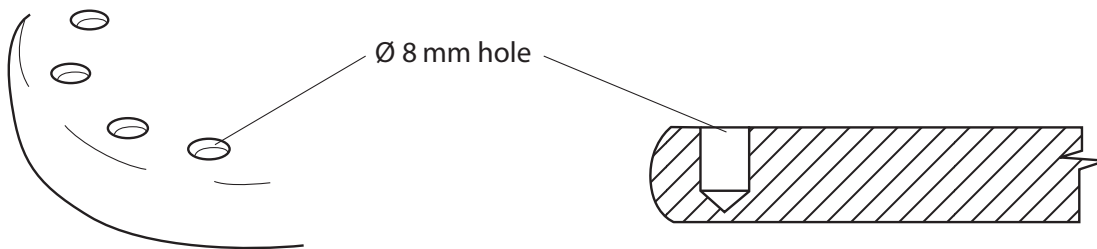


Fig. 6

(c) Describe how you would drill all the holes to the correct depth.

_____ [1]

Fig. 7 shows the square hole in the top of the toy.

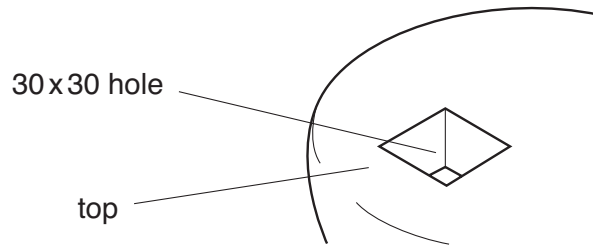


Fig. 7

(d) Complete the table below to show **two** further stages needed to produce the square hole in the top of the toy.

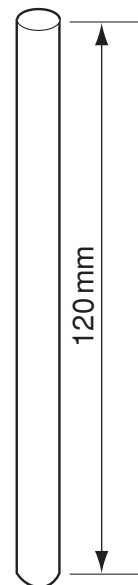
Stage	Process
1	Drill a \varnothing 25 mm hole
2	
3	

[2]

Twelve dowels of equal length connect the top and base of the toy.

(e) Use sketches and notes to design a jig for the \varnothing 8 mm dowels so that:

- all dowels are sawn to the same length;
- the dowel is held securely whilst sawing.



[4]

4 Fig. 8 shows an office chair.



Fig. 8

(a) State two ways in which ICT could be used during the design of the chair.

1 _____

2 _____

[2]

(b) The office chair is manufactured and sold as a self-assembly product.

(i) State two advantages to the consumer of buying a self-assembly product.

1 _____

2 _____ [2]

(ii) State two advantages to the manufacturer of making self-assembly products.

1 _____

2 _____ [2]

(c) Name one tool that the consumer of a self assembly product might need to use to assemble the product.

_____ [1]

Many products display the following British Standards Institute (BSI) symbol.



(d) Explain the purpose of this symbol.

_____ [1]

The manufacturer uses a just in time (JIT) production system.

(e) Give two advantages to the manufacturer of using a JIT production system.

1 _____

2 _____

[2]

- 5 This question is based on the theme of Domestic Bedside Lighting. Fig. 9 shows two different industrially manufactured bedside lights. The lampshades and fittings have been removed.

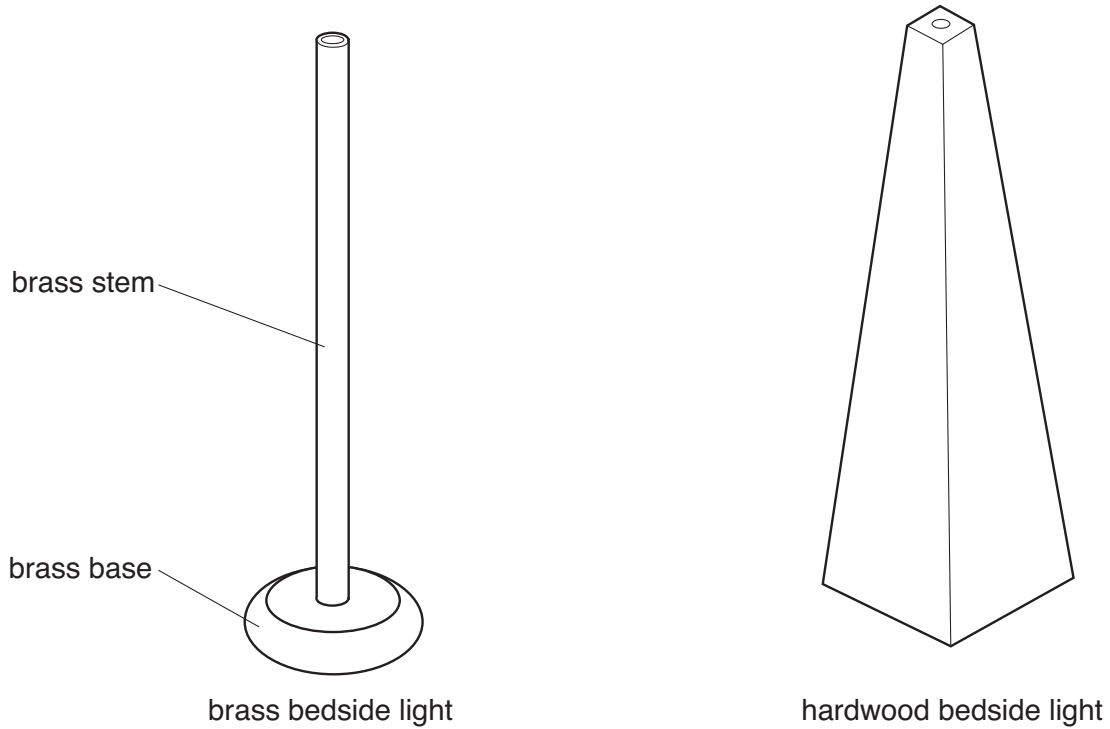


Fig. 9

Part of a specification for a bedside light is shown below.

A bedside light must:

- be electrically safe;
- have a surface finish that would protect it.

(a) Add **two** more points to the specification.

- _____
- _____ [2]

(b) Suggest **two** possible problems a consumer might encounter when using a bedside light.

- 1 _____
- _____
- 2 _____
- _____

[2]

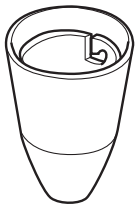
- (c) State **one** method of permanently attaching the stem to the base of the brass bedside light.

[1]

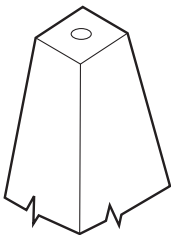
- (d) Other than the cost of the material, suggest **one** reason why the brass bedside light would be more expensive to manufacture in quantity than the hardwood bedside light.

[1]

- (e) Fig. 10 shows the top of the hardwood bedside light and a plastic bulb holder. Use sketches and notes to show how the bulb holder could be attached to the top of the hardwood bedside light.

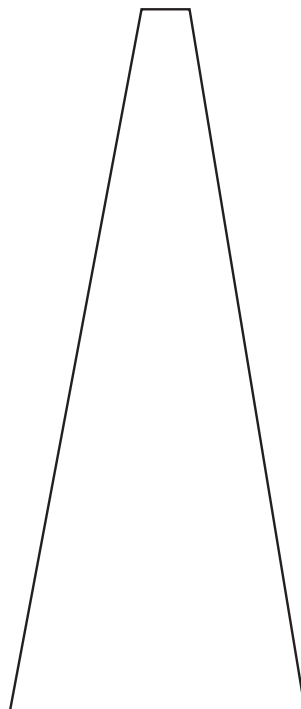


bulb holder

top of the hardwood
bedside light**Fig. 10**

[2]

- (f) Complete the drawing below to show how provision could be made for the electric cable in the hardwood bedside light.



[2]

Copyright Acknowledgement:

The British Standards Kitemark symbol was used with permission from the British Standards Institute.