

Candidate Name

Centre Number

Candidate  
Number

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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS****General Certificate of Secondary Education****DESIGN AND TECHNOLOGY  
(INDUSTRIAL TECHNOLOGY)****1959/1****PAPER 1 FOUNDATION TIER****Specimen Paper 2003**

1 hour 15 minutes

Candidates answer on the question paper.

**TIME** 1 hour 15 minutes**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.

Marks will be awarded for the use of correct conventions.

Dimensions are in millimetres unless stated otherwise.

Total marks for this paper is 50.

FOR EXAMINER'S USE	
<b>1</b>	
<b>2</b>	
<b>3</b>	
<b>4</b>	
<b>5</b>	
<b>TOTAL</b>	

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

1 Fig. 1 shows a children's garden swing. It is made from a number of different materials.

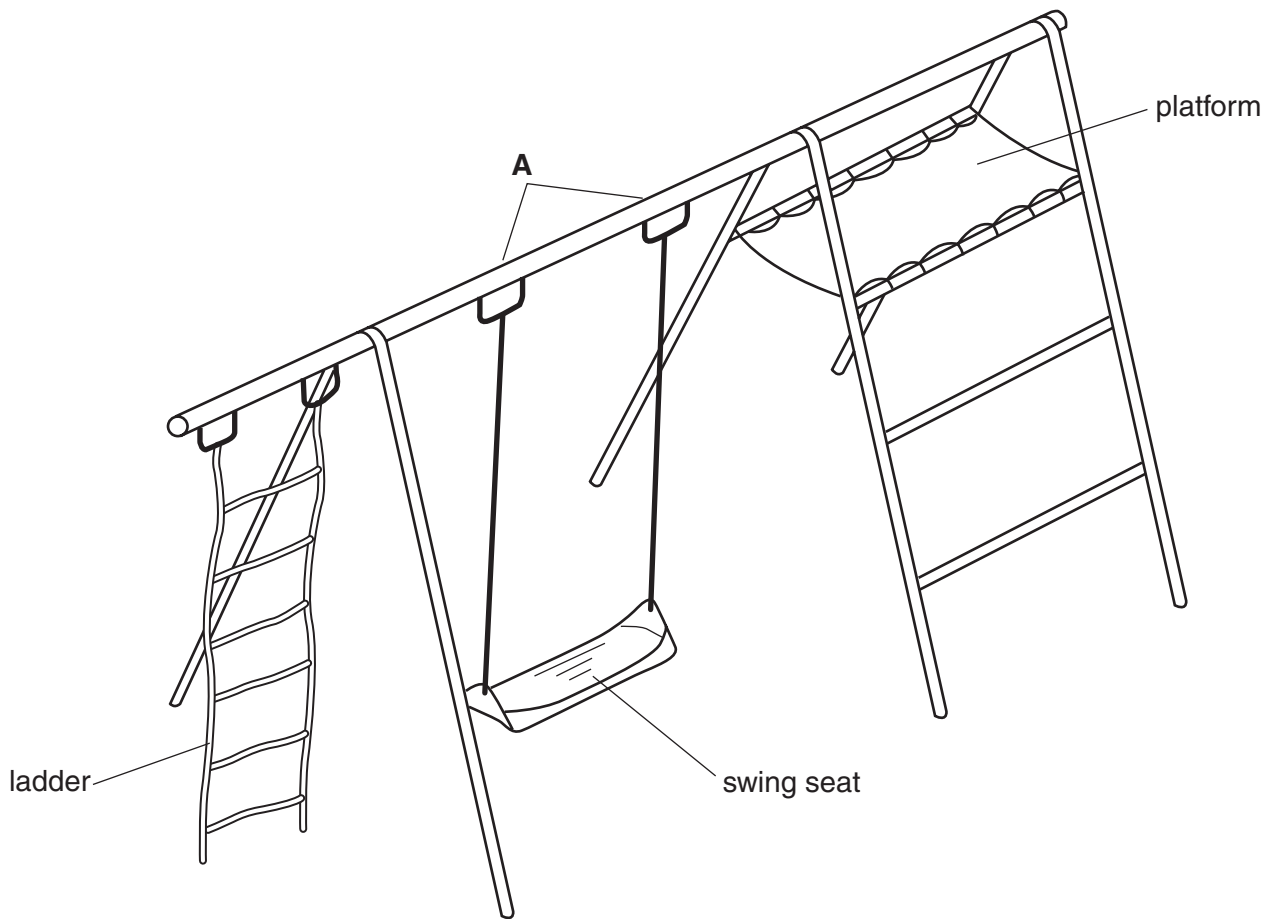


Fig. 1

(a) Complete the table by choosing a suitable material from the list given below.

STEEL, ALUMINIUM, POLYPROPYLENE, STAINLESS STEEL, PVC, NYLON ROPE

PART	MATERIAL
Swing Frame	
Swing Seat	
Chain	
Platform	
Ladder	

[5]

**(b)** State what would happen to steel if it were not protected.

\_\_\_\_\_ [1]

**(c)** State a suitable protective finish for the frame.

\_\_\_\_\_ [1]

**(d)** Name a metal that does not need a protective finish.

\_\_\_\_\_ [1]

**(e)** Explain how the steel brackets at A could be fixed to the bar.

\_\_\_\_\_ [1]

**(f)** Explain what is meant by a 'temporary fitting'.

\_\_\_\_\_  
\_\_\_\_\_ [1]

2 Fig. 2 shows the details of a road sign.

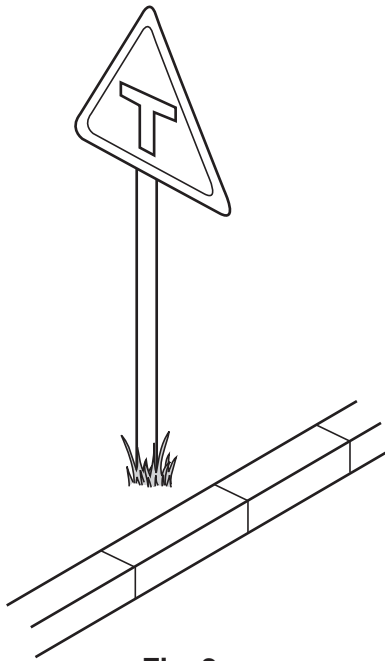


Fig. 2a

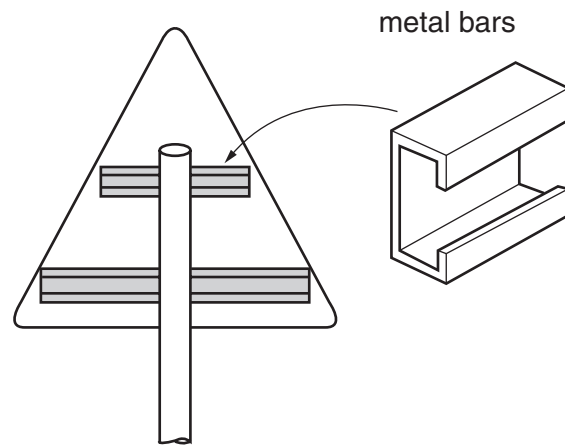


Fig. 2b

(a) State a suitable material that the road sign could be made from.

\_\_\_\_\_ [1]

(b) Fig. 2b shows two metal bars attached to the back of the road sign. Give **one** reason why they are used.

\_\_\_\_\_ [1]

(c) State a suitable method of fixing the bar to the sign.

\_\_\_\_\_ [1]

(d) State **two** possible finishes that could be applied to the steel post.

(i) \_\_\_\_\_ [1]

(ii) \_\_\_\_\_ [1]

**(e) (i)** A plastic plug is made to seal the end of the post. State a suitable method of production.

\_\_\_\_\_ [1]

**(ii)** State a suitable plastic material for the plug.

\_\_\_\_\_ [1]

**(f)** In the space below, show with notes and labelled sketches how the sign could be attached to the post.

[3]

3 Fig. 3a and 3b show a simple book support that can be fixed to a book shelf.

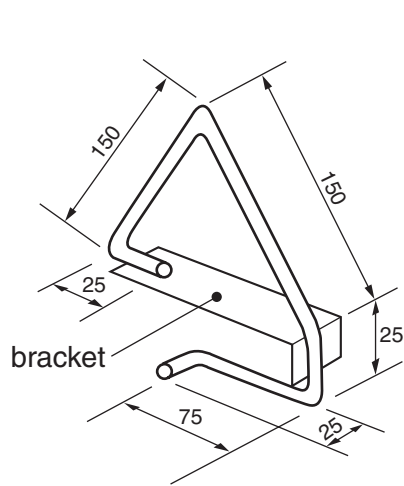


Fig. 3a

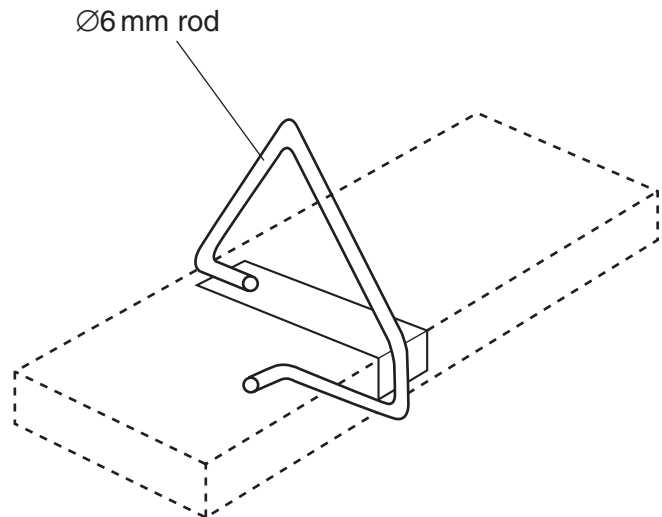


Fig. 3b

(a) (i) How much 6 mm diameter rod will be needed to make **one** book support?

\_\_\_\_\_ [1]

(ii) How much  $\text{Ø}6$  mm rod will be needed to make **50** book supports? (assume there is no waste)

\_\_\_\_\_ [1]

(b) Describe a suitable method of joining the  $\text{Ø}6$  mm rod to the bracket.

\_\_\_\_\_ [1]

(c) Give **two** reasons for applying a finish to the book support.

(i) \_\_\_\_\_ [1]

(ii) \_\_\_\_\_ [1]

- (d) During the making of the book support the manufacturer has to take account of 'spring back'. Explain what this means.

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[2]

- (e) Using notes and labelled sketches show how the prototype for 50 identical book supports could be manufactured.

[3]

4 Fig. 4 shows a wall mounted television support arm.

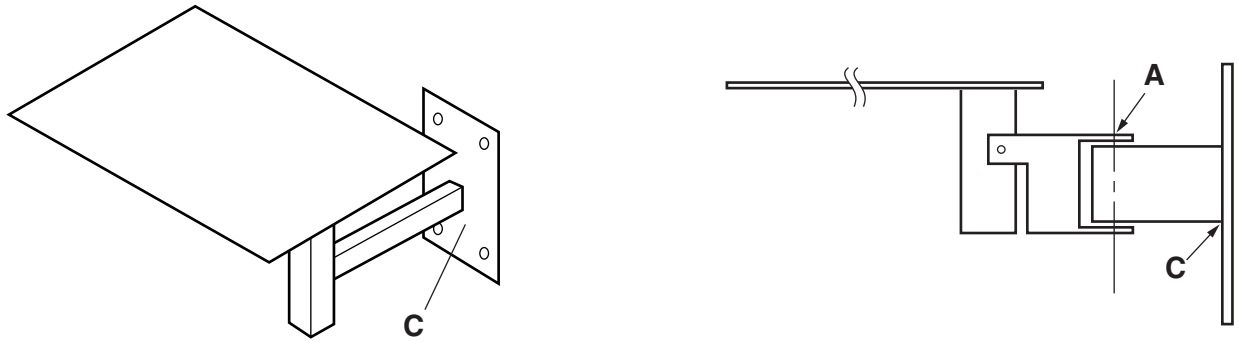


Fig. 4

(a) Using notes and labelled sketches show how the pin forming pivot **A** is held in place.

[3]

(b) The design at **C** is potentially weak. Draw and label a diagram to show how it could be strengthened.

[2]



- (c) Using notes and labelled sketches show how the angle of the viewing platform can be adjusted.

[3]

- (d) Using notes and labelled sketches show how the surface of the platform can be strengthened to stop it from bending.

[2]

5 Fig. 5 shows a manufacturers design sketch of a bicycle lamp.

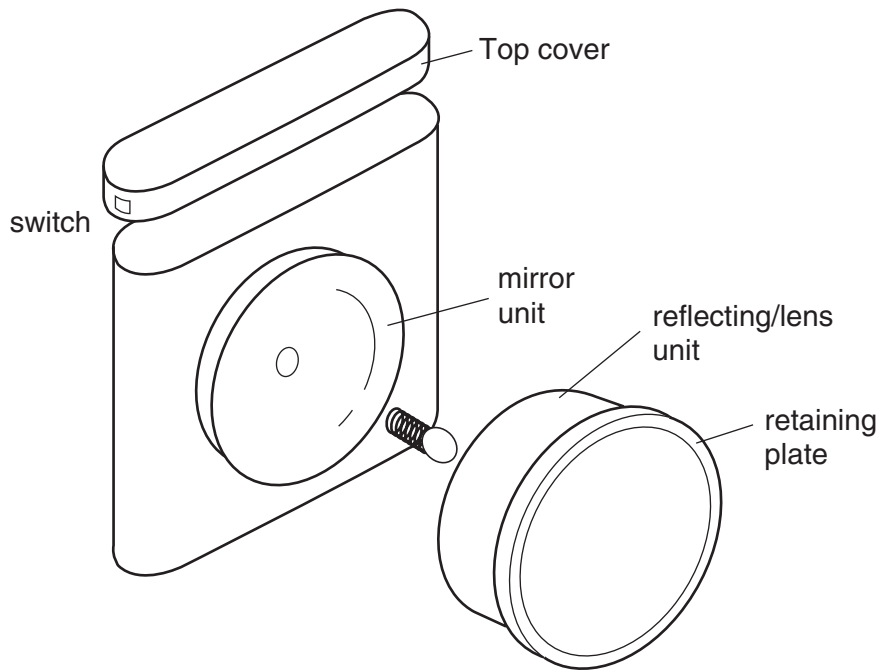


Fig. 5

(a) List **five** points to be included in a design specification.

- (i) \_\_\_\_\_
  - (ii) \_\_\_\_\_
  - (iii) \_\_\_\_\_
  - (iv) \_\_\_\_\_
  - (v) \_\_\_\_\_
- [5]

(b) The main parts could be made from thin sheet steel.

(i) Give **one** advantage of using the material.

\_\_\_\_\_  
\_\_\_\_\_ [1]

(ii) Give **one** disadvantage of using the material.

\_\_\_\_\_  
\_\_\_\_\_ [1]

**(c)** Other methods of manufacture are likely to use plastics.

**(i)** State a suitable method of production.

\_\_\_\_\_ [1]

**(ii)** State a suitable plastic for this method of production.

\_\_\_\_\_ [1]

**(d)** State a suitable material for the electrical switch contacts.

\_\_\_\_\_ [1]

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**Oxford Cambridge and RSA Examinations**  
**General Certificate of Secondary Education**

**DESIGN AND TECHNOLOGY (INDUSTRIAL TECHNOLOGY)**  
**PAPER 1 FOUNDATION TIER**

**1959/1**

**MARK SCHEME**

**Specimen Paper 2003**

<b>Question</b>	<b>Answer</b>	<b>Total Marks Available</b>
<b>1(a)</b>	Swing frame – steel Swing seat – polypropylene Chain – stainless steel Platform – PVC Ladder – nylon rope	<b>5</b>
<b>1(b)</b>	Corrode	<b>1</b>
<b>1(c)</b>	Paint, powder coating, galvanising.	<b>1</b>
<b>1(d)</b>	Aluminium, brass, copper or suitable metal.	<b>1</b>
<b>1(e)</b>	Welding, bolts.	<b>1</b>
<b>1(f)</b>	A fitting that can be easily removed or replaced as required, possibly for maintenance.	<b>1</b>
		<b>Total 10</b>

<b>2(a)</b>	Aluminium, GRP.	<b>1</b>
<b>2(b)</b>	Strength – to reinforce/ stiffen, fixing location.	<b>1</b>
<b>2(c)</b>	Pop rivets, snap fastenings or other suitable method.	<b>1</b>
<b>2(d)</b>	<b>Two from:</b> Powder coating, paint, galvanising.	<b>2</b>
<b>2(e) (i)</b>	Injection moulding	<b>1</b>
<b>(ii)</b>	Polypropylene	<b>1</b>
<b>2(f)</b>	Suitable method Communication	<b>3</b>
		<b>Total 10</b>

<b>Question</b>	<b>Answer</b>	<b>Total Marks Available</b>
<b>3(a) (i)</b>	450mm	<b>1</b>
<b>(ii)</b>	22500mm	<b>1</b>
<b>3(b)</b>	Welding, brazing.	<b>1</b>
<b>3(c)</b>	<b>Two from:</b> Stop corrosion, Aesthetics, coding.	<b>2</b>
<b>3(d)</b>	Suitable description relating to the need to bend the metal further than the desired angle to compensate for the spring reaction of the metal.	<b>2</b>
<b>3(e)</b>	Suitable method Use of word JIG Communication	<b>3</b>
		<b>Total 10</b>

<b>4(a)</b>	Suitable method – e.g. circlip, Nylock nuts etc. (2 marks) Communication (1 mark)	<b>3</b>
<b>4(b)</b>	Some indication of a fillet/ web	<b>2</b>
<b>4(c)</b>	Suitable method e.g. knurled thumb screw.(2 marks) Communication	<b>3</b>
<b>4(d)</b>	e.g. fold edges	<b>2</b>
		<b>Total 10</b>

<b>Question</b>	<b>Answer</b>	<b>Total Marks Available</b>
<b>5(a)</b>	<b>Five from:</b> Waterproof, conform to BS, durable, removable from bicycle, battery size, standard bulb size, corrosion resistant, compact etc.	<b>5</b>
<b>5(b) (i)</b>	e.g. can be press formed, welded, cheap etc.	<b>1</b>
<b>(ii)</b>	e.g. corrosion, sharp edges etc.	<b>1</b>
<b>5(c) (i)</b>	Injection moulded	<b>1</b>
<b>(ii)</b>	Polypropylene	<b>1</b>
<b>5(d)</b>	Brass	<b>1</b>
		<b>Total 10</b>

**Total marks: 50**