Candidate Name	Centre Number	Candidate Number

OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
General Certificate of Secondary Education

DESIGN AND TECHNOLOGY (INDUSTRIAL TECHNOLOGY)

1959/2

PAPER 2 HIGHER 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	
1	
2	
3	
4	
5	
TOTAL	

This specimen question paper consists of 10 printed pages and 2 blank pages.

Registered Charity Number: 1066969
[Turn over

1 Fig. 1 shows a wall mounted television support arm.

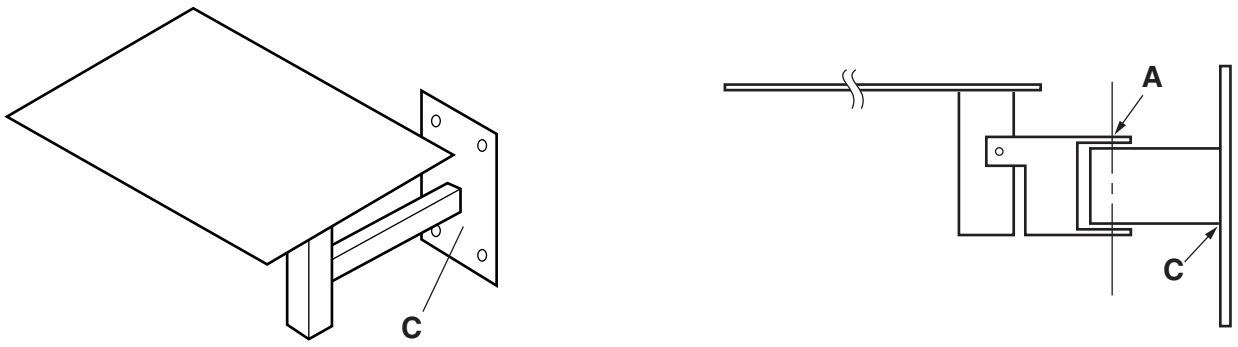

Fig. 1

(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]

2 Fig. 2 shows a manufacturers design sketch of a bicycle lamp.

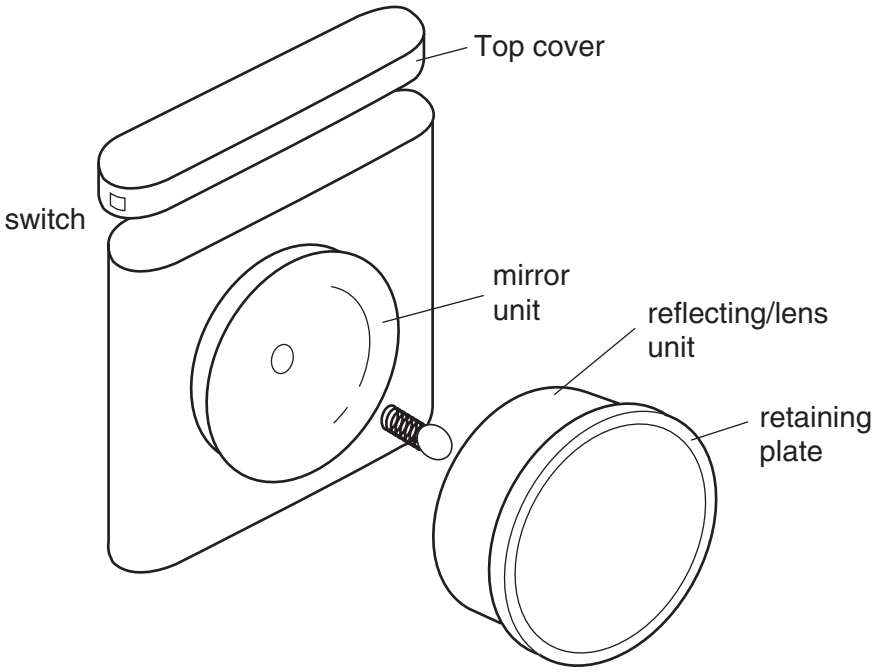

Fig. 2

(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]

3 Fig. 3 shows a castoring wheel found on a light-weight mobile scaffold tower.

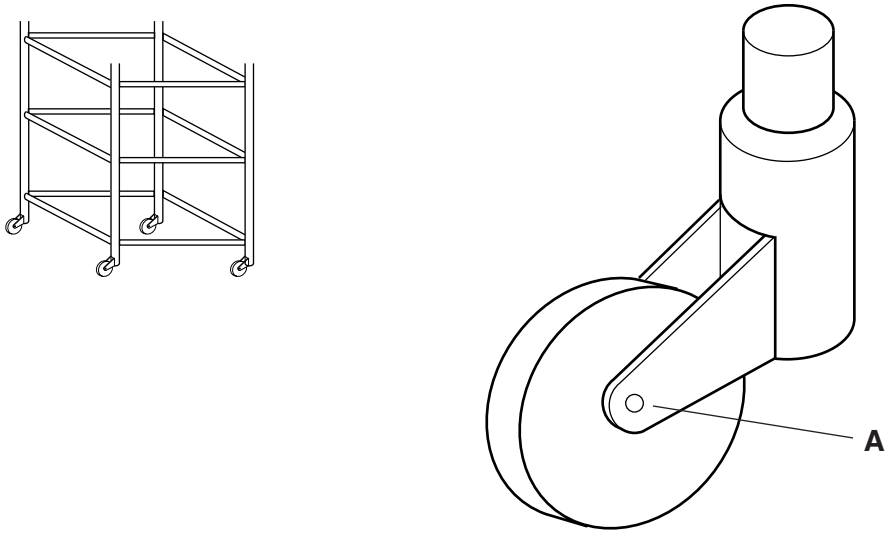

Fig. 3

(a) State a suitable material for the light-weight scaffold tower.

_____[1]

(b) State one safety feature that should be included in the design.

_____[1]

(c) Using a labelled sketch show how the tower can be strengthened.

[2]

(d) Using notes and labelled sketches show how the axle **A** can be held in place.

[3]

(e) Using notes and labelled sketches show how the height of the castoring unit can be adjusted to allow for uneven floors.

[3]

4 Fig. 4 shows the details of a Tumble Mill. Semi precious stones are put in the plastic drum with water and fine abrasive grit. The action of the water and grit polishes the stones.

Tumble Mill

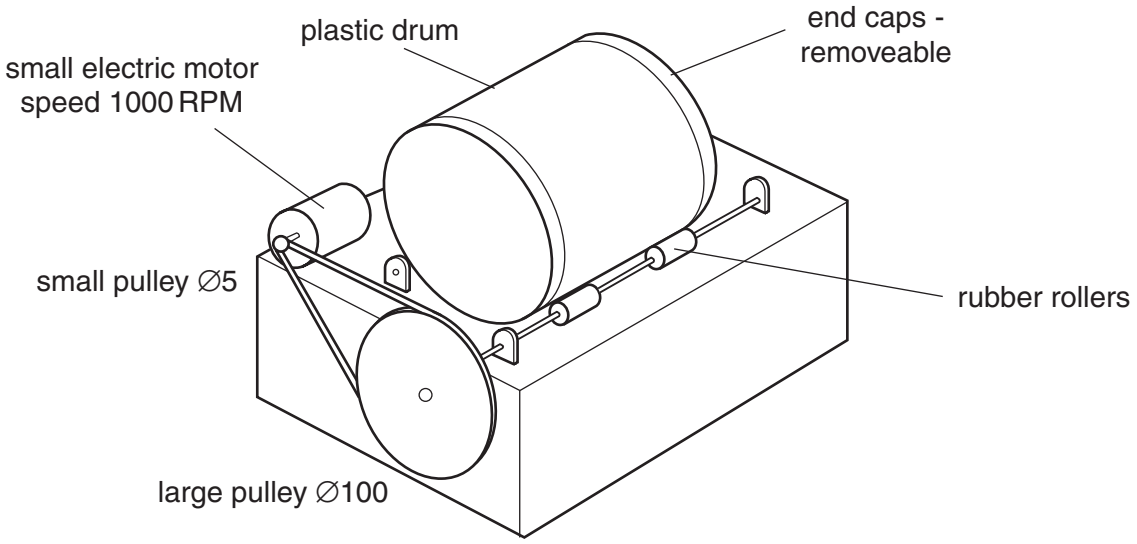

Fig. 4

(a) (i) State the industrial method used to produce the drum.

_____[1]

(ii) State the industrial method used to produce the end caps'.

_____[1]

(iii) State an important design feature of these end caps'.

_____[1]

(b) Identify **one** possible safety hazard with the design.

_____[1]

(c) In the space below calculate the speed of the large pulley.

[2]

(d) The drive belt has stretched and now slips. Using notes and labelled sketches show how this problem can be solved.

[4]

5 Consumers, designers, retailers and manufacturers often refer to '**quality**' in the design and manufacture of their products.

(a) Explain what '**quality of design**' means.

[5]

(b) Explain what '**quality of manufacture**' means.

[5]

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MARK SCHEME

Specimen Paper 2003

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

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

Question	Answer	Total Marks Available
3(a)	Aluminium	**1**
3(b)	Brake	**1**
3(c)	Triangulation	**2**
3(d)	Suitable method (2 marks) Communication (1 mark)	**3**
3(e)	Suitable method (2 marks) Communication (1 mark)	**3**
		Total 10

4(a)	**(i)**	Extrusion	**1**
	(ii)	Injection moulding	**1**
	(iii)	e.g. water tight	**1**
4(b)		e.g. no guard, electrical safety with water, etc.	**1**
4(c)		50RPM	**2**
4(d)		Suitable sketch e.g. adjustable bracket on motor (jockey wheel). (3 marks) Communication (1 mark)	**4**
			Total 10

5(a)	e.g. relate to ergonomics, aesthetics, colour, texture, form, weight, size, durability, cost etc.	**5**
5(b)	e.g. relate to surface finish, fit, assembly, material, accuracy, etc.	**5**
		Total 10

Total marks: 50

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