

FOR OFFICIAL USE

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Total
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NATIONAL
QUALIFICATIONS
2008

WEDNESDAY, 14 MAY
1.00 PM – 2.00 PM

CRAFT AND DESIGN
STANDARD GRADE
Credit Level

Fill in these boxes and read what is printed below.

Full name of centre

--

Town

--

Forename(s)

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Surname

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Date of birth

Day Month Year

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Scottish candidate number

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Number of seat

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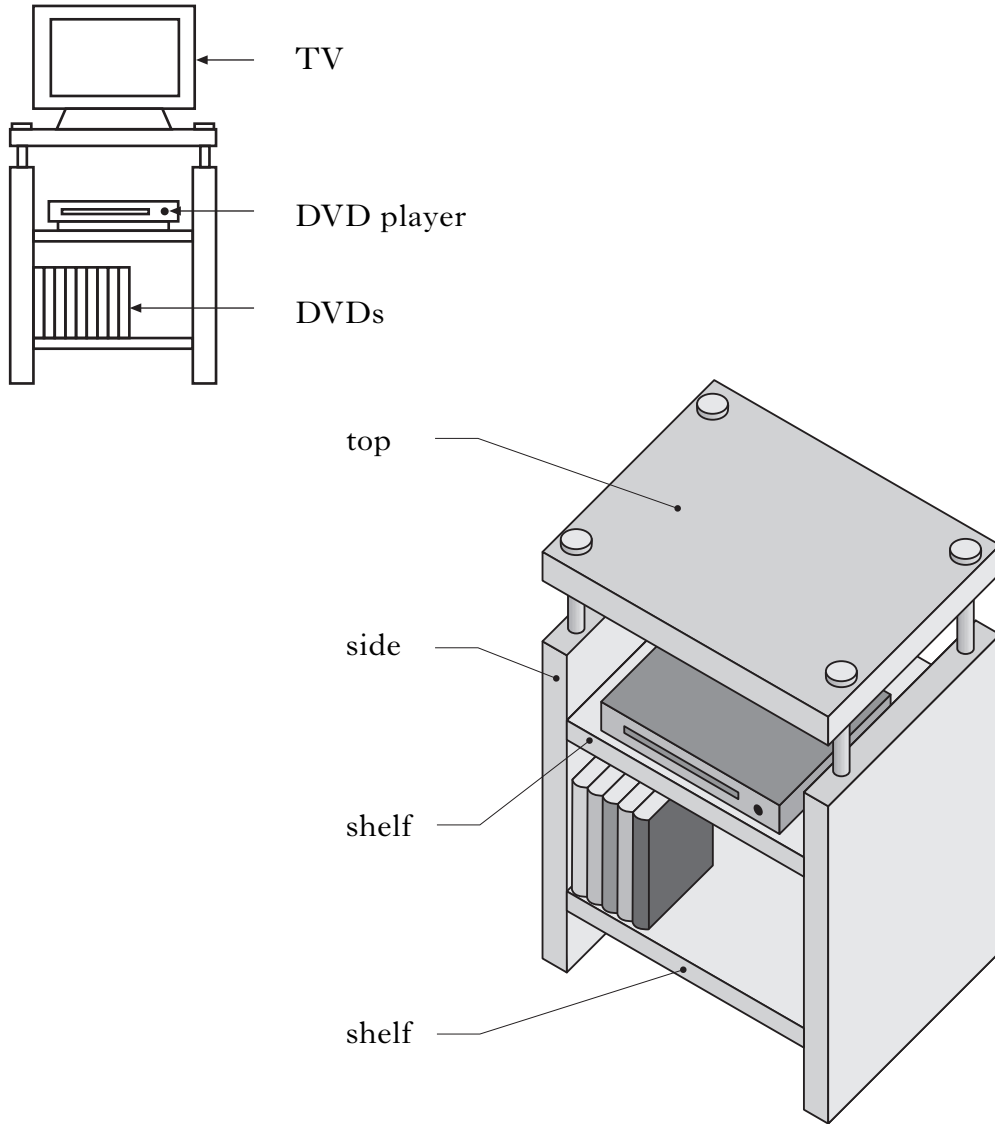
- 1 Answer all the questions.
- 2 Read every question carefully before you answer.
- 3 Write your answers in the spaces provided.
- 4 Do **not** write in the margins.
- 5 All dimensions are given in millimetres.
- 6 Before leaving the examination room you must give this book to the invigilator. If you do not, you may lose all the marks for this paper.



ATTEMPT ALL QUESTIONS

DO NOT
WRITE IN
THIS
MARGIN

1. A TV unit made from MDF is shown below.



(a) Materials were investigated during the design of the unit.

State **two** further design issues that could be investigated.

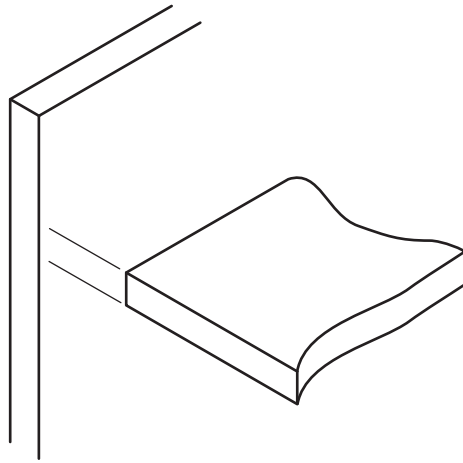
(i) _____

(ii) _____

1
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1
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1. (continued)

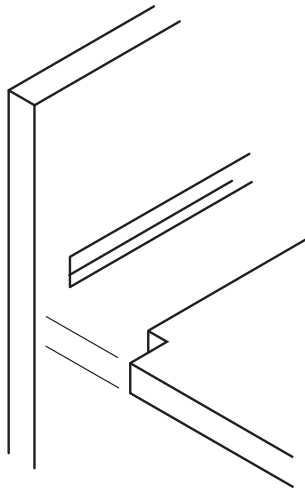
(b) A butt joint was considered for the unit as shown below.



State a reason why this joint was rejected.

1
0

(c) The joint shown below was used to join the shelves to the sides.



(i) State the name of this joint.

1
0

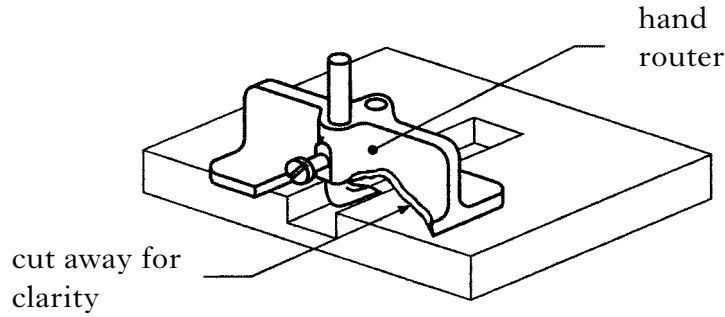
(ii) State an aesthetic reason for using this joint.

1
0

1. (continued)

(d) A hand router was used to finish the bottom of the joint.

(i) With reference to the sketch below, describe how you would set this tool to finish the joint to a depth of 10 mm.



2
1
0

(ii) State **one** reason why a hand router, rather than a chisel, would be more suitable for “finishing” the bottom of the joint.

1
0

2. The office chair shown below was designed with ergonomics in mind.



(a) (i) State the meaning of the term “ergonomics”.

1
0

(ii) An ergonome was used during the design of the chair.

Describe an “ergonome”.

1
0

(iii) State the purpose of an ergonome.

1
0

(iv) State **one** ergonomic feature of the chair.

1
0

(b) The chair has been designed to be used by adults in the 5th to 95th percentile range.

(i) State the percentile used when deciding how wide the back of the chair should be.

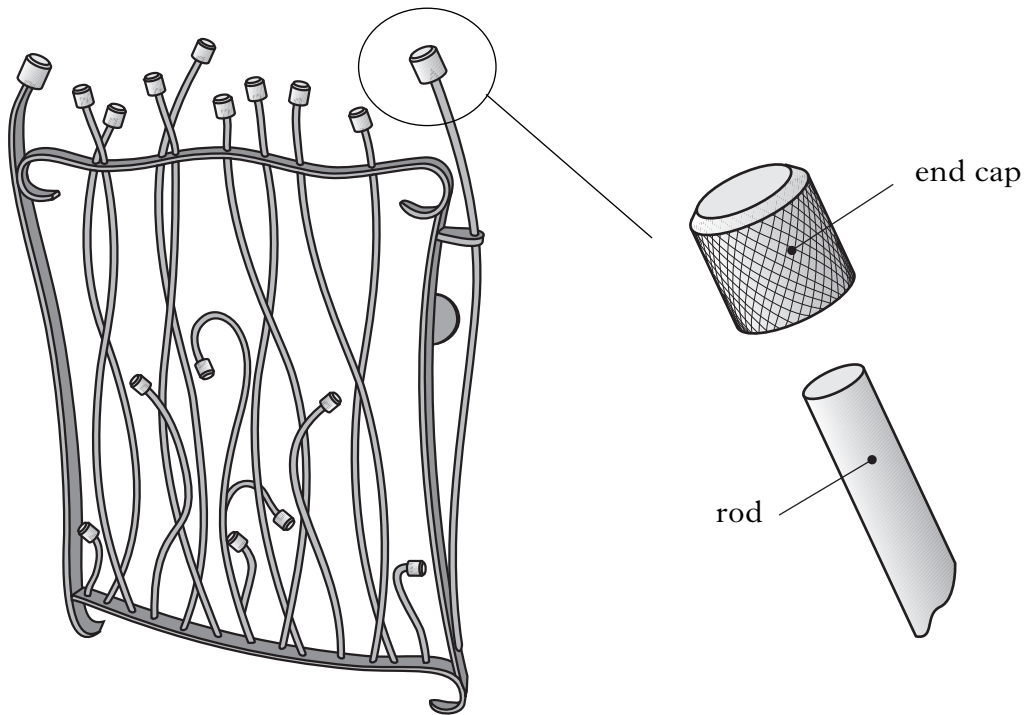
1
0

(ii) State a reason for your answer.

1
0

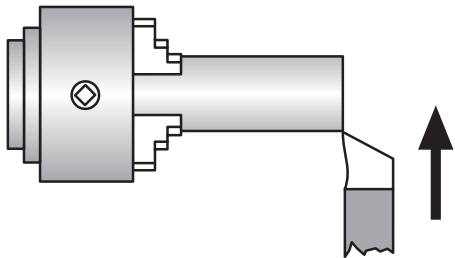
[Turn over

3. A metal gate is shown below.



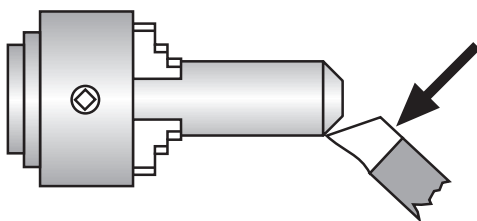
(a) The end caps were manufactured using a metal lathe.

(i) State the names of the turning processes shown below.



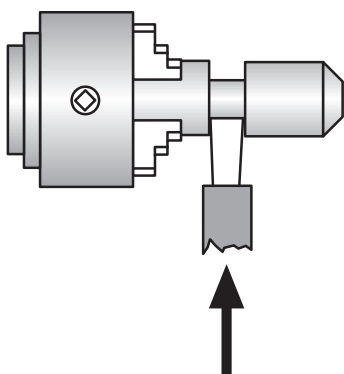
Process A _____

1
0



Process B _____

1
0



Process C _____

1
0

3. (a) (continued)

- (ii) State **two** reasons why a change in lathe speed may be necessary when turning metal.

1 _____

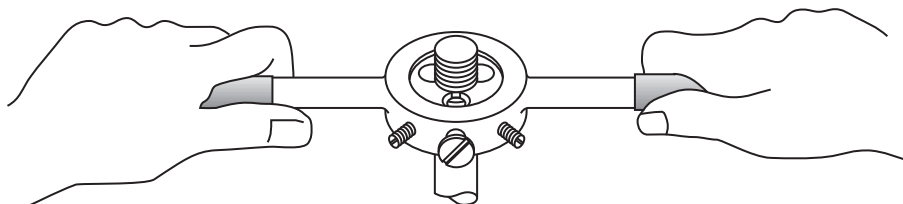
2 _____

1
0
1
0

- (b) One end of each rod is threaded.

- (i) State the diameter of rod required for an M6 thread to be cut.

1
0



- (ii) State how the end of the rod should be prepared before threading.

1
0

- (iii) State the name of the tool used to cut the thread on the end of the rod.

1
0

- (iv) State **two** procedures that would ensure a high quality thread is cut.

1 _____

2 _____

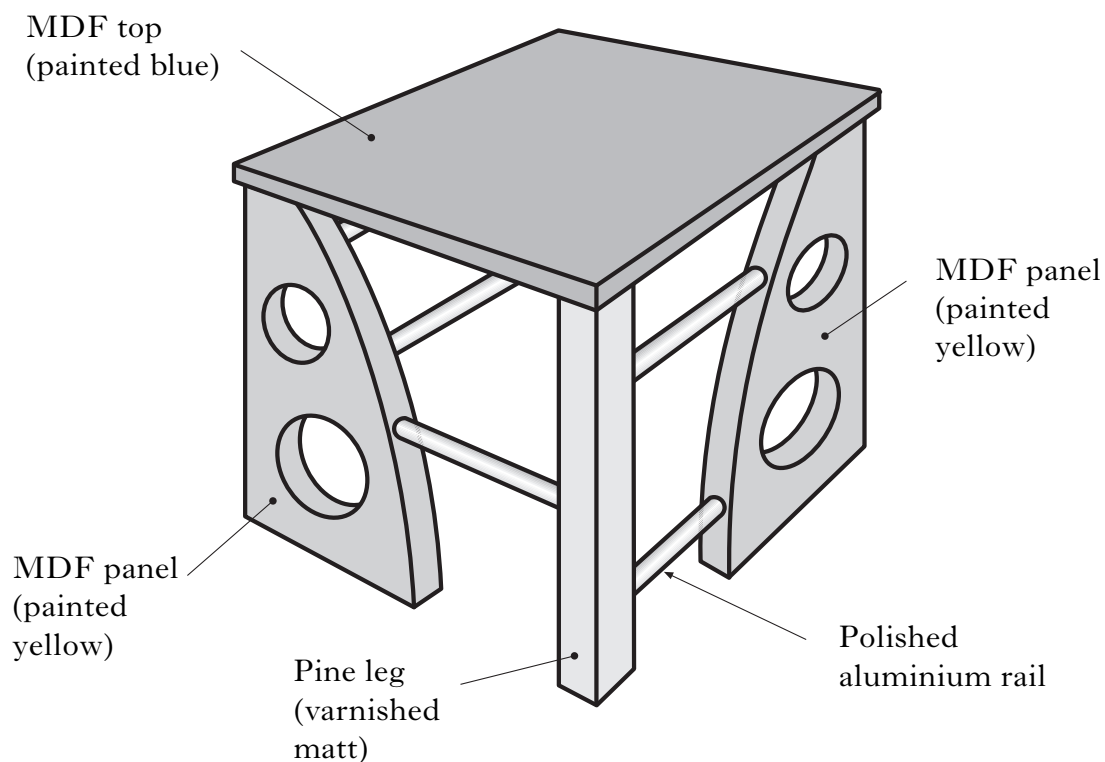
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- (v) The thread between the end cap and the rod was found to be a tight fit.

Describe an adjustment that could be made to the tool to ensure a good fitting thread.

2
1
0

4. A pupil's design for a table is shown below.



(a) The pupil used the theme of “architecture” to help generate ideas.

State another method used to generate ideas.

1
0

(b) The target market was investigated during the design of the table.

State what is meant by the “target market”.

1
0

(c) Aesthetics was considered during the design of the table.

Contrast is one aspect of aesthetics.

(i) State **two** examples of contrast used in the design of the table.

1 _____

2 _____

1
0
1
0

4. (c) (continued)

(ii) State a reason why designers use contrast in design.

1
0

(d) A scale model of the table was made.

(i) State **two** reasons for making a scale model.

Reason 1 _____

Reason 2 _____

1
0
1
0

(ii) State a suitable material that could have been used to make the scale model.

1
0

(e) A working drawing was produced.

State **two** pieces of information that would be found on a working drawing.

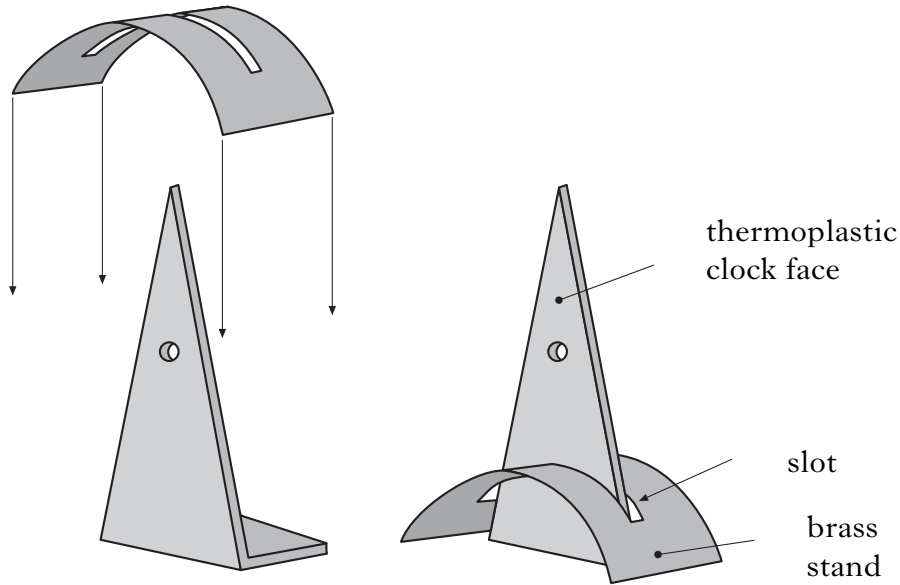
1 _____

2 _____

1
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1
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[Turn over

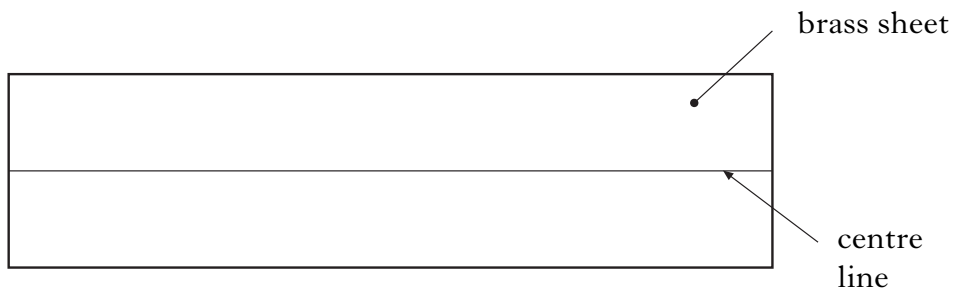
5. A clock is shown below.



(a) The stand is made from brass sheet. Brass is an alloy.

State the meaning of the term “alloy”.

(b) Odd-leg callipers were used to mark the centre line of the slot on the brass sheet as shown below.



Describe a method of setting the odd-leg callipers to half the width of the brass sheet without the use of a rule. Sketches may be used to illustrate your answer.

1
0

2
1
0

5. (continued)

- (c) A hide mallet and former were used to shape the brass sheet.

State a reason for using a hide mallet in preference to a ball peen hammer.

1
0

- (d) The brass sheet *work hardened* when shaped. It was *annealed* to make it *malleable*.

Explain the terms *work hardened*, *annealed* and *malleable*.

1 Work hardened _____

2 Annealed _____

3 Malleable _____

1
0
1
0
1
0

- (e) The clock face is made from a thermoplastic.

State what is meant by the term “thermoplastic”.

1
0

- (f) State **two** benefits of using a thermoplastic for the clock face.

1 _____

2 _____

1
0
1
0

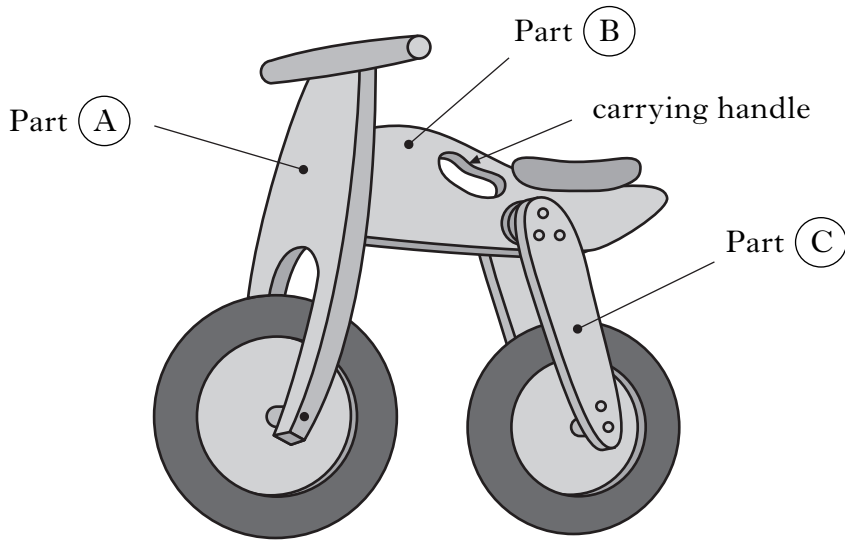
- (g) Thirty clocks are to be made.

State **one** method that would speed up production.

1
0

[Turn over

6. A child's toy bike is shown below.



(a) Parts (A), (B) and (C) are made from plywood.

State **two** reasons for this choice of material.

- 1 _____
- 2 _____

1
0
1
0

(b) State the name of a **machine** tool that could be used to cut the shape of Part (A).

1
0

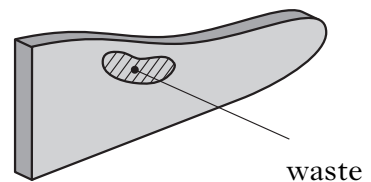
(c) An incomplete sequence of operations for the manufacture of the carrying handle is shown.

(i) State the operation carried out at step 2.

Step 1 mark out waste using a template

Step 2 _____

Step 3 remove waste using a coping saw



1
0

6. (c) (continued)

- (ii) Describe how a coping saw is adjusted when cutting the outline shape of the carrying handle.

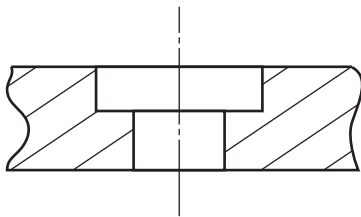
2
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- (d) Part (C), the rear forks, were made in pairs.

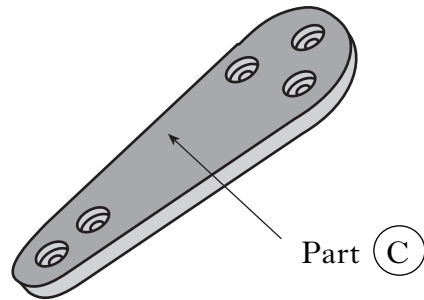
State **one** method of ensuring that both parts are identical.

1
0

- (e) Holes of the type shown below are made in the rear forks.



Sectional view of hole



The tools shown below were used to drill the holes in the rear forks.



Tool 1



Tool 2

- (i) State the full name of each tool.

Tool 1 _____

Tool 2 _____

1
0
1
0

6. (e) (continued)

(ii) State a reason why tool 2 was used before tool 1 when drilling the holes.

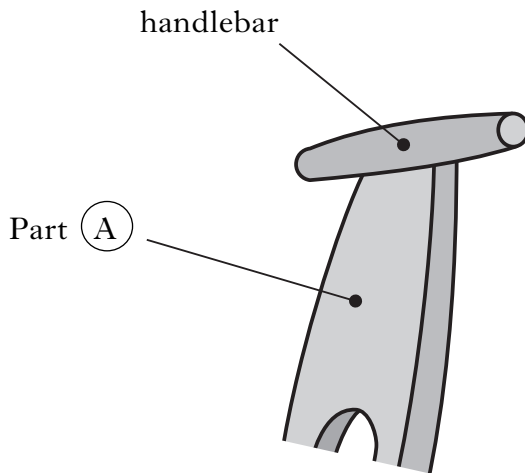
1
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(f) Name and sketch a suitable method of joining the handlebar to Part (A).

Name of jointing method _____

1
0

Sketch of jointing method



1
0

(g) The bike was finished in primary colours.

State one reason for using primary colours.

1
0

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