

FOR OFFICIAL USE

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Q1		Q4	
Q2		Q5	
Q3		Q6	

Total
Mark

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0600/31/01

NATIONAL
QUALIFICATIONS
2013

MONDAY, 20 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)

--

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

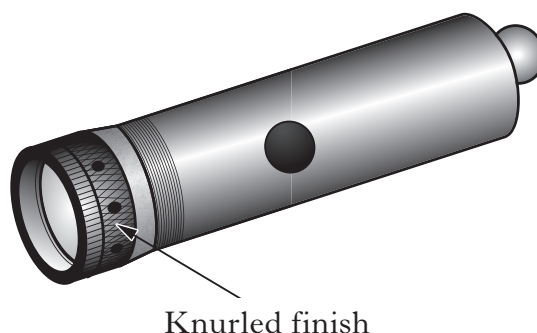
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- 1 Answer all the questions.
- 2 Read every question carefully before you answer.
- 3 Write your answers in the spaces provided.
- 4 Do **not** write in the margins.
- 5 All dimensions are given in millimetres.
- 6 Before leaving the examination room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



ATTEMPT ALL QUESTIONS

1. A torch is shown below.



- (a) The torch body is made from aluminium.

State **two** properties of aluminium that makes it a suitable material.

1 _____

2 _____

- (b) State a functional reason for the knurled finish.

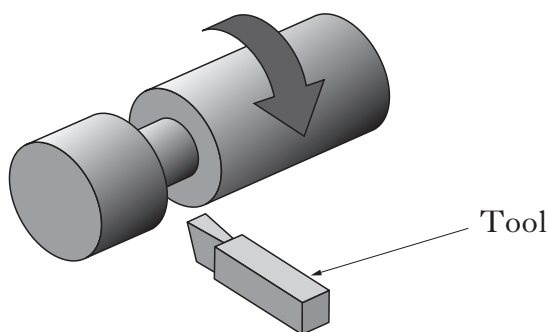
- (c) The torch body was manufactured using a metal lathe.

State **two** procedures or adjustments that ensure a high quality finish is achieved when parallel turning metal.

1 _____

2 _____

- (d) The lathe tool shown below was used in the manufacture of the torch body.



State the name of this tool.

1
0
1
0

1
0

1
0
1
0

1
0

1. (continued)

- (e) The drill shown below was used in the manufacture of the torch body.



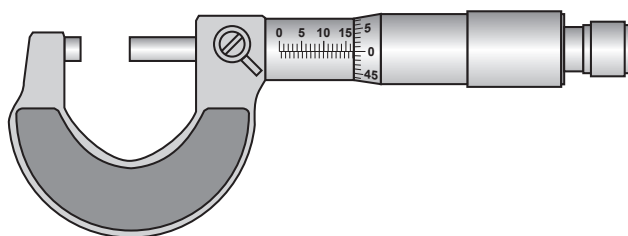
- (i) State the name of this drill.

1
0

- (ii) State the function of this drill.

1
0

- (f) The tool shown below was used in the manufacture of the torch body.



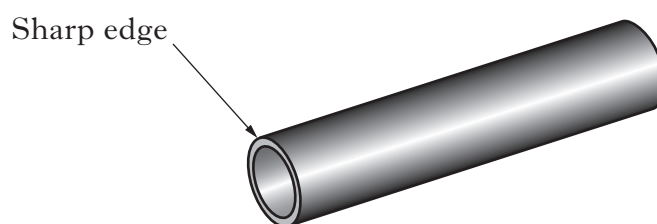
- (i) State the name of this tool.

1
0

- (ii) State a reason why this tool was preferred to **outside callipers**.

1
0

During testing it was found that the torch body had a sharp edge.

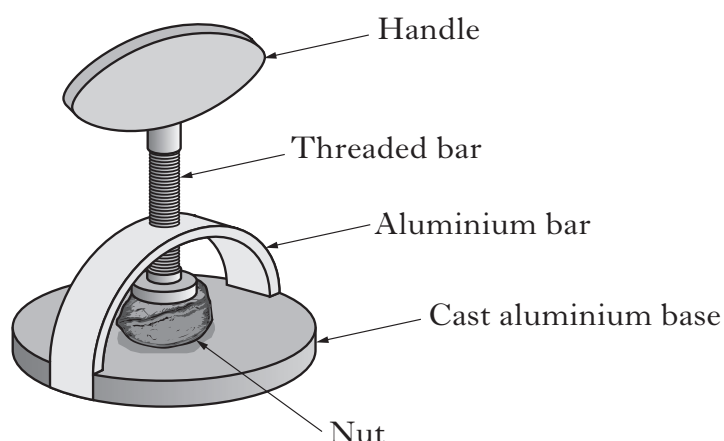


- (g) State a metal lathe process that would remove this sharp edge.

1
0

[Turn over]

2. A nut cracker is shown below.



(a) During the design of the nut cracker, reference was made to data of human dimensions.

(i) State the name of this type of data.

1
0

(ii) State a reason why this data is important when designing the handle.

1
0

(b) State a reason why the base was made from aluminium rather than pine.

1
0

The process of sand casting was used to manufacture the base.

(c) A wooden pattern was used in this process.

State **two** features of the pattern that would allow it to be easily removed from the moulding sand.

1 _____

2 _____

1
0
1
0

(d) During the manufacture it was necessary to anneal the aluminium bar before bending.

(i) State the reason for annealing aluminium.

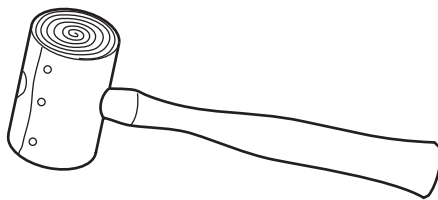
1
0

(ii) State the reason for using soap during the annealing process.

1
0

2. (continued)

(e) The tool shown below was used when shaping the aluminium bar.



State a reason why this tool was preferred to a **ball pein hammer**.

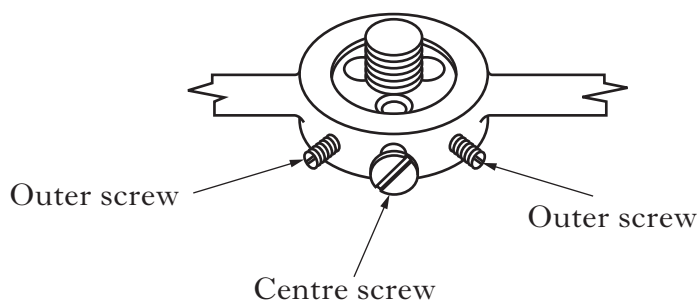
1
0

(f) The aluminium bar was threaded.

(i) State **two** procedures that ensure a high quality thread is cut on the bar.

1
0
1
0

- 1 _____
- 2 _____



The thread was cut and found to be a tight fit.

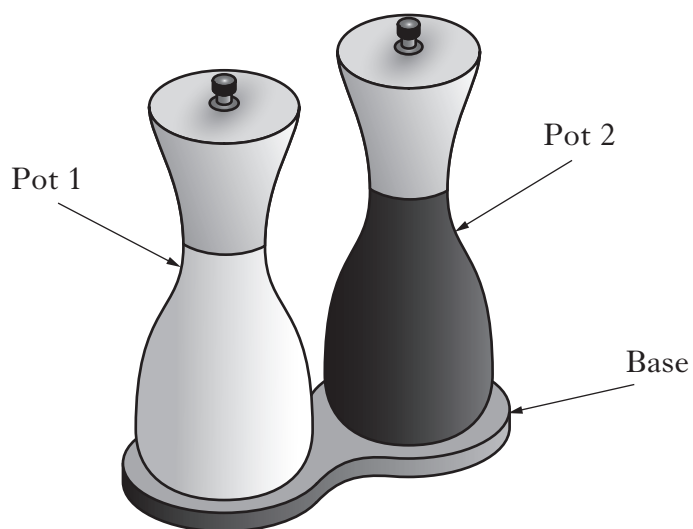
(ii) Describe how to adjust the tool so that the thread is an “easy running fit”.

2
1
0

- _____
- _____
- _____

[Turn over

3. A salt and pepper set is shown below.



- (a) During the design process various techniques were used to generate ideas.
State **two** techniques used by designers to help generate ideas.

1 _____

2 _____

- (b) The base was manufactured from a hardwood.

State the name of a suitable hardwood.

- (c) State why softwood could be considered more environmentally friendly than hardwood.

- (d) The pots were turned on a wood lathe.

- (i) State the name of the centres shown below.



A _____ B _____

3. (d) (continued)

- (ii) Other than supporting the blank, state a further function of centre A.

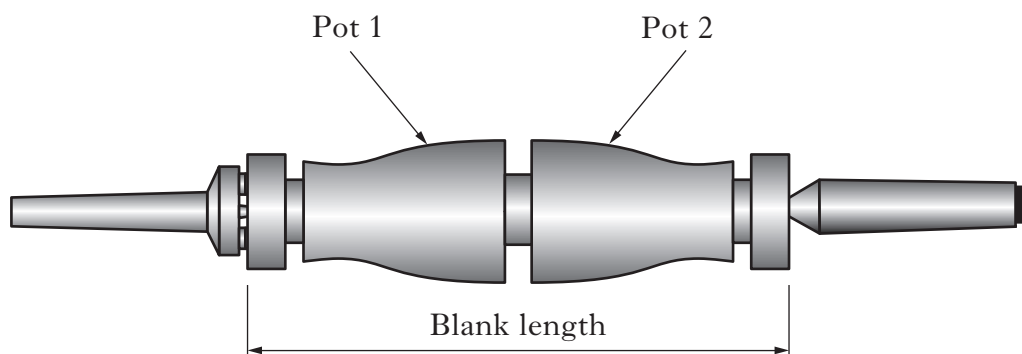
1
0

- (iii) When turning, centre B burned the blank.

State how this burning could be avoided.

1
0

(e)



- (i) State a reason why the blank is longer than the combined lengths of the two pots.

1
0

- (ii) State the name of the chisel used to turn the curves.

1
0

- (f) During the turning of the pots state **three** adjustments that can be made to the wood lathe.

1 _____

1
0

2 _____

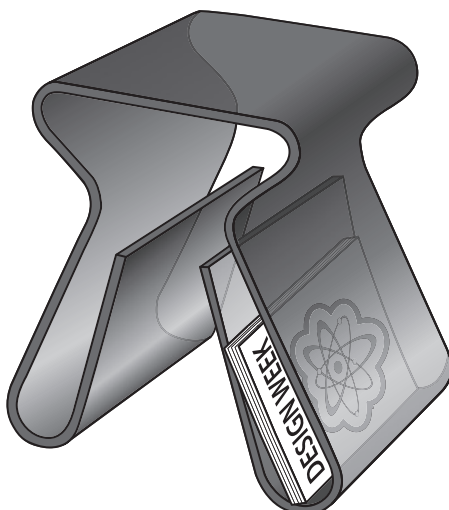
1
0

3 _____

1
0

[Turn over

4. An acrylic stool is shown below.



- (a) The primary function of the stool is seating.

State a secondary function of this stool.

1
0

- (b) During the design of the stool, models were produced.

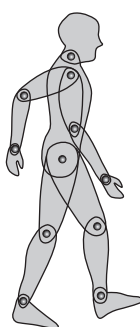
State **two** reasons for producing models.

1 _____

2 _____

1
0
1
0

- (c) A scale model of a human was used during the design of the chair.



State the name of this type of model.

1
0

4. (continued)

(d) Acrylic is a thermoplastic.

State what is meant by the term *thermoplastic*.

1
0

(e) The designer chose to make the stool from acrylic for aesthetic reasons.

State **two disadvantages** of using acrylic.

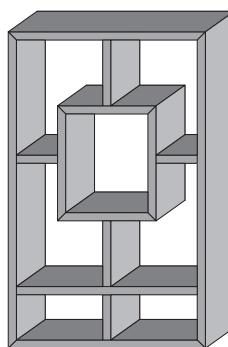
1
0
1
0

1 _____

2 _____

[Turn over

5. A shelving unit is shown below.



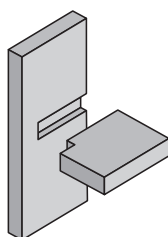
- (a) During the design of the shelving unit, market research was carried out.
State **two** reasons for using this type of research.

1 _____
2 _____

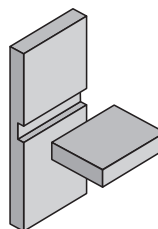
1
0
1
0

- (b) The following joints were considered for the shelving unit.

Stopped housing



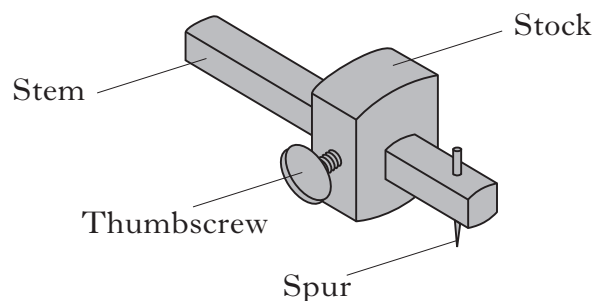
Through housing



State a reason why the stopped housing was preferred to the through housing joint.

1
0

The housing joints are **half** the depth of the wood.



- (c) State how a marking gauge can be set to the correct depth **without** using a rule.

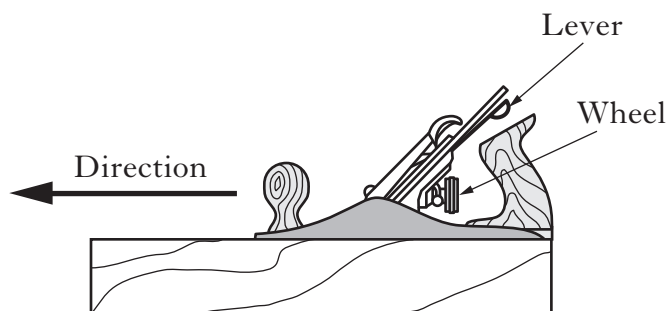
2
1
0

5. (continued)

- (d) A hand router was used during the manufacture of the stopped housing joints. State the purpose of the hand router.

1
0

A smoothing plane was used to prepare the shelving unit for a finish.



- (e) (i) State **two** adjustments or procedures to achieve a smooth finish when using a smoothing plane.

1
0
1
0

1 _____

2 _____

- (ii) State the reason why the direction of planing shown above would not achieve a smooth finish.

1
0

- (f) The shelving unit was initially assembled and checked for fit **without** using glue.

- (i) State the name of this process.

1
0

When checking the corners of the shelving unit were 90 degrees, a try square was used.

- (ii) Describe another method that can be used to check for 'square'.

1
0

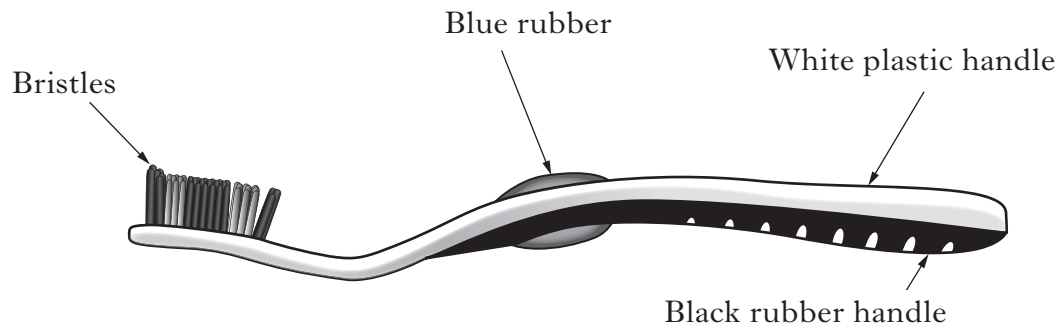
- (g) The finishing process involved wetting the wood.

Explain the purpose of wetting the wood.

1
0

[Turn over for Question 6 on Page twelve

6. A toothbrush is shown below.



(a) During the design of the toothbrush, ergonomic issues were considered.

(i) State what is meant by the term ergonomics.

1
0

(ii) State **two** ergonomic features of the toothbrush shown above.

1 _____

1
0

2 _____

1
0

(b) Blue and white have been used to contrast with each other.

(i) State a reason why a designer would use colour contrast on a product.

1
0

(ii) State a further method, other than colour, a designer can use to create contrast in a product.

1
0

[END OF QUESTION PAPER]