

GENERAL CERTIFICATE OF SECONDARY EDUCATION
DESIGN AND TECHNOLOGY

1959/01

Industrial Technology
Paper 1 (Foundation Tier)

Candidates answer on the Question Paper

OCR Supplied Materials:

None

Other Materials Required:

None

Wednesday 26 May 2010
Afternoon

Duration: 1 hour

Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your Candidate Number, Centre Number and question number(s).

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is **50**.
- All dimensions are in millimetres.
- Assume any mechanical system to be 100% efficient.
- This document consists of **12** pages. Any blank pages are indicated.

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PLEASE DO NOT WRITE ON THIS PAGE

- 1 (a) The table below gives a list of products.

Complete the table by giving the best material for each product from the list below. You can only use a material once.

The first one has been done for you.

Kevlar, Nylon, Brass, Copper, Stainless Steel, Aluminium alloy, Polypropylene, High Speed Steel, Tinplate

PRODUCT	MATERIAL
Shelf bracket	Mild steel
Twist drill	
Electrical wire	
Aeroplane	
Letter box	
Fishing rod	
Washing up bowl	
Plastic gear wheel	
Spoon	
Food can	

[9]

- (b) Describe what is meant by the term non-ferrous metal.

.....
 [1]

[Total: 10]

2 Fig. 1 shows a music stand to be manufactured in a school workshop.

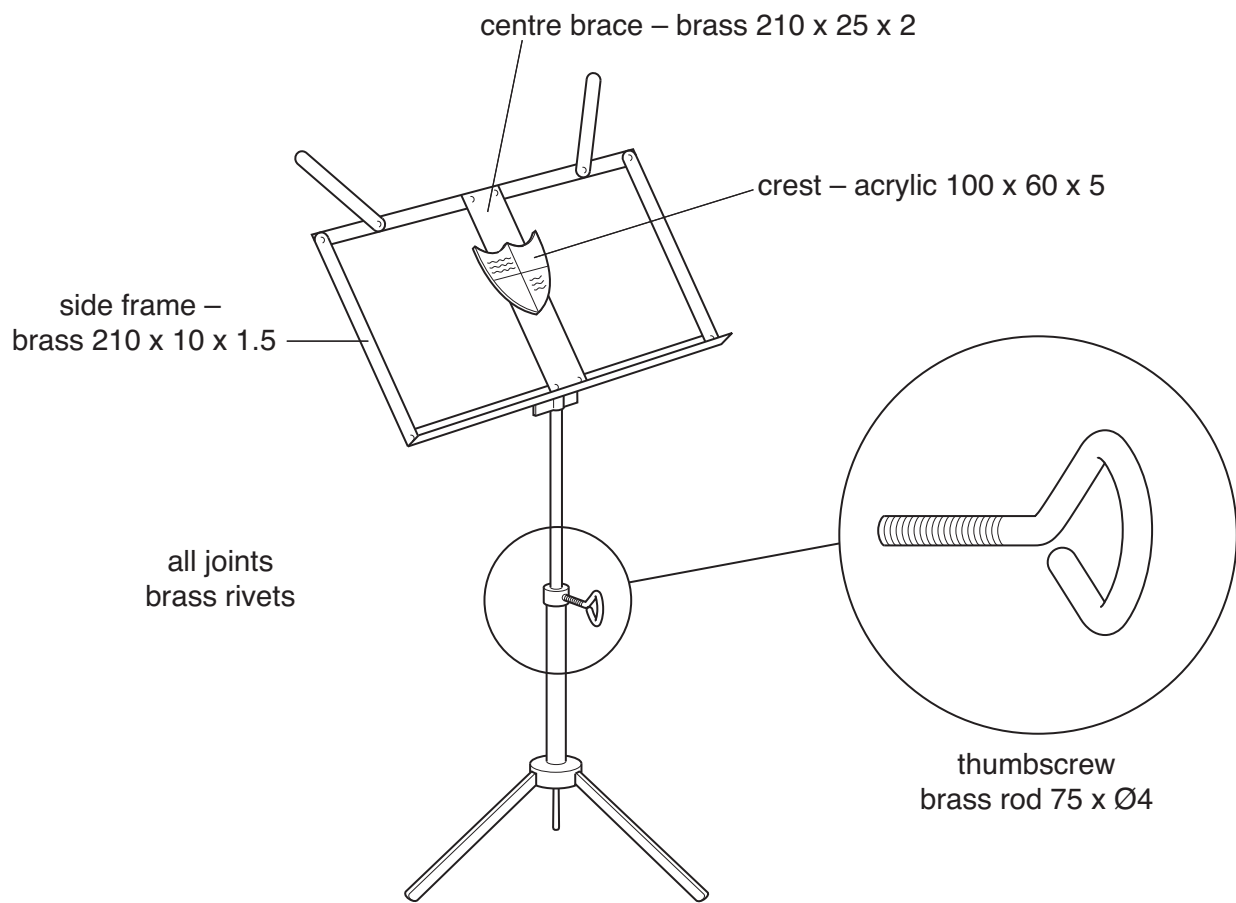


Fig. 1

(a) Use the information in Fig. 1 to complete the cutting list below.

Part Name	Length	Width	Thickness	Material	Number off
Crest	100	60	5		1
Side frame	210	10	1.5	Brass	
Centre brace		25	2	Brass	1
Thumb screw		Ø4		Brass	1

[4]

- (b) The school requires 50 music stands.

Give **one** reason why a template would be helpful when making the crest.

.....
..... [1]

- (c) A decision has been made to make the crest from brass instead of acrylic.

Give **one** reason for the decision.

.....
..... [1]

- (d) Use sketches and notes to design a sawing jig that could be used when cutting the side frame components to length.

Your design must:

- hold the work safely;
- be held in an engineer's vice;
- be adjustable to allow different lengths to be cut;
- include manufacturing details.

[4]

[Total: 10]

Turn over

- 3 Fig. 2 shows an acrylic wall mounted point of sale display unit and a leaflet.

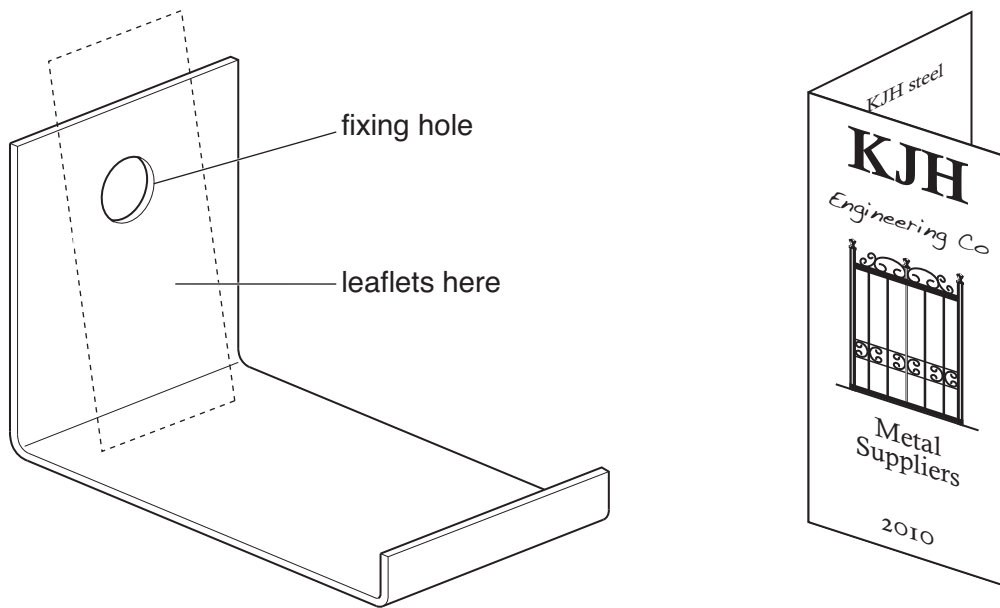


Fig. 2

- (a) The point of sale display unit has a number of faults.

Give **three** faults in the point of sale display unit and describe how the design could be improved.

Fault 1 [1]

Improvement 1

..... [1]

Fault 2 [1]

Improvement 2

..... [1]

Fault 3 [1]

Improvement 3

..... [1]

(b) Fig. 3 shows part of the finishing process for the edge of the acrylic.

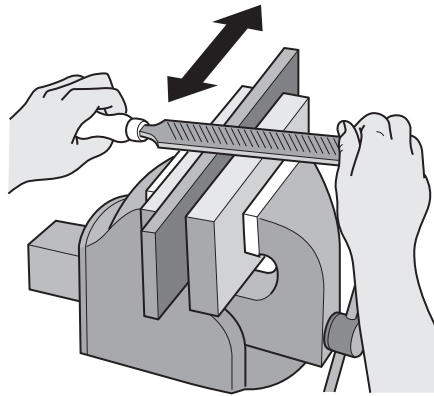


Fig. 3

(i) Name the method of filing shown in Fig. 3.

..... [1]

(ii) After the use of wet and dry paper the edges are polished on a buffing machine.

Give **two** safety rules to apply when using a buffing machine.

Safety rule 1

..... [1]

Safety rule 2

..... [1]

(c) Give **one** reason for using a former in the making of the display unit.

.....

..... [1]

[Total: 10]

4 Fig. 4 shows two measuring jugs.

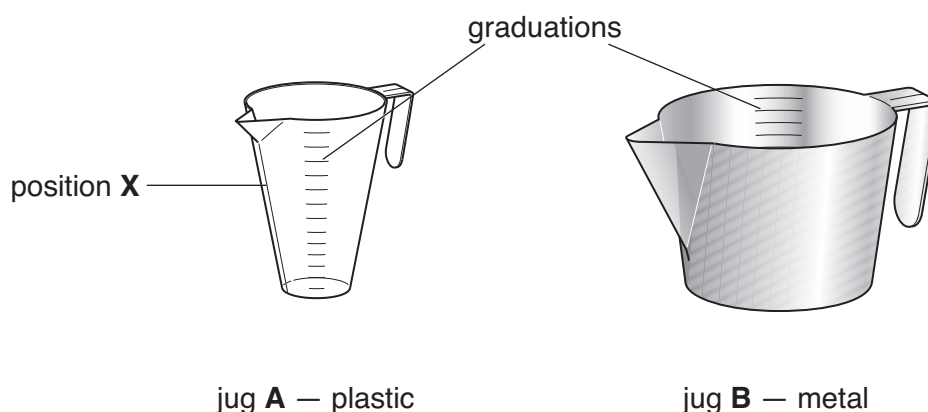


Fig. 4

- (a) (i) State a suitable method of manufacture for jug **A**.
 [1]
- (ii) State a suitable method of manufacture for jug **B**.
 [1]
- (b) (i) Name a suitable plastic for jug **A**.
 [1]
- (ii) Name a suitable metal for jug **B**.
 [1]
- (c) (i) State how the graduations might be formed in jug **A**.
 [1]
- (ii) State how the graduations might be formed in jug **B**.
 [1]
- (d) Jug **A** has a 'flash line' at position **X**.
 Give **one** reason for the 'flash line'.

 [1]

- (e) In use jug **A** is found to be unsatisfactory.

Use sketches and notes to show how the design could be modified.

[3]

[Total: 10]

Turn over

5 Fig. 5 shows a table lamp.

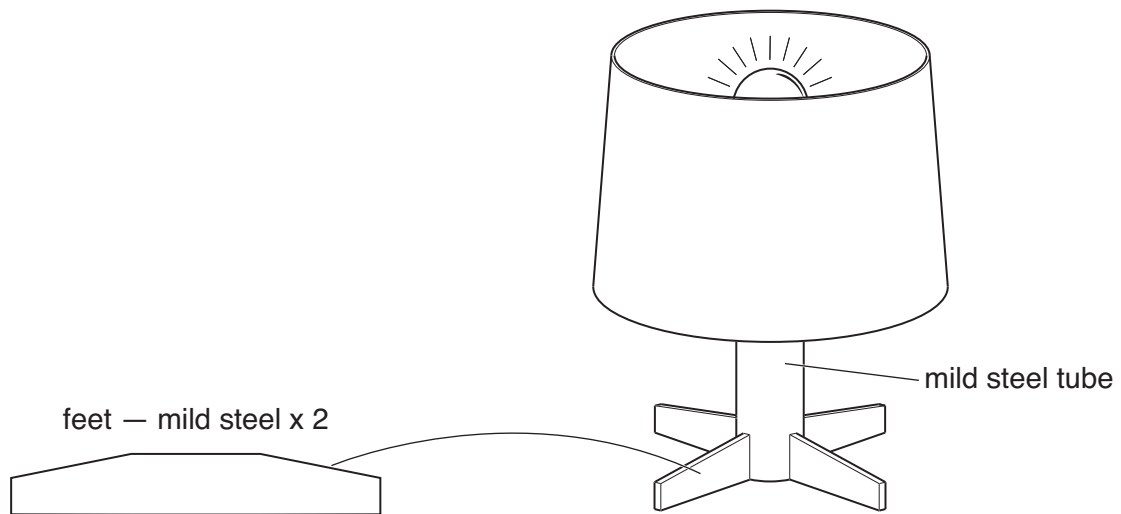


Fig. 5

(a) Use sketches and notes to show how the mild steel tube and feet fit together prior to brazing.

(b) (i) Name a flux used for brazing.

..... [1]

(ii) Give **two** reasons for using a flux.

Reason 1 [1]

Reason 2 [1]

(c) Fig. 6 shows an alternative design for the table lamp base.

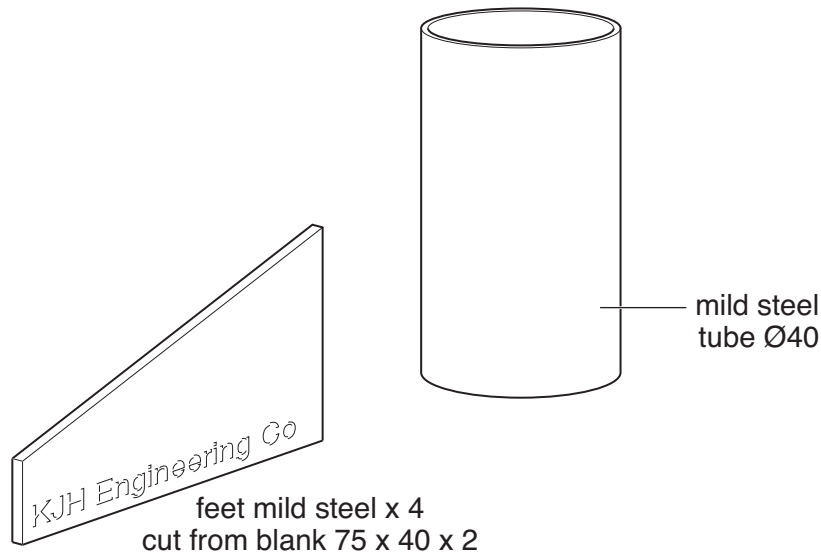


Fig. 6

Design a jig to hold all the components for brazing. The jig must:

- hold the four feet upright;
- hold the four feet equally spaced;
- be quick to set up;
- ensure the components do not get brazed to the jig.

Answer this part on the next page.

ANSWER PART (c) HERE**[4]****[Total: 10]****Copyright Information**

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