

GENERAL CERTIFICATE OF SECONDARY EDUCATION

1959/01

DESIGN & TECHNOLOGY

Industrial Technology

Paper 1 (Foundation Tier)

MONDAY 2 JUNE 2008

Morning
 Time: 1 hour

Candidates answer on the question paper

Additional materials: No additional materials are required



Candidate
 Forename

Candidate
 Surname

Centre
 Number

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Candidate
 Number

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INSTRUCTIONS TO CANDIDATES

- Write your name in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use blue or 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.

INFORMATION FOR CANDIDATES

- The number of marks for each question 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.

FOR EXAMINER'S USE	
1	
2	
3	
4	
5	
TOTAL	

This document consists of **14** printed pages and **2** blank pages.

1 Fig. 1 shows a drawing of a centre lathe.

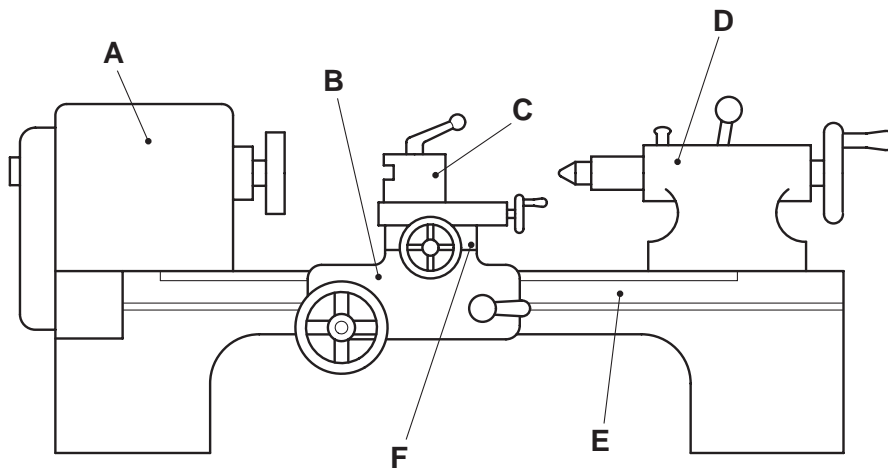


Fig. 1

(a) Complete the table below.

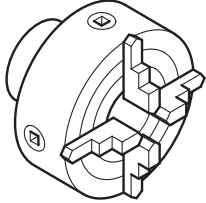
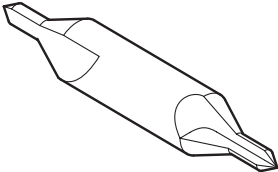
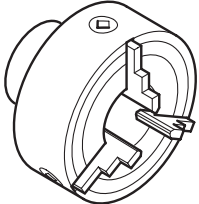
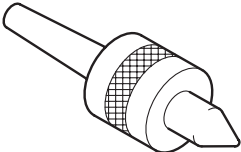
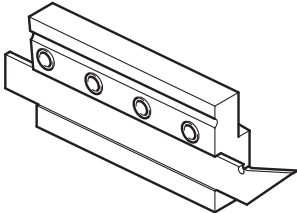
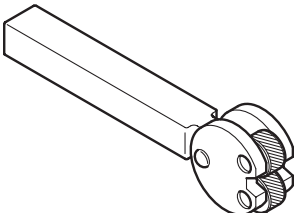
Saddle or apron	B
Head stock	
Tool post	
Bed	
Tail stock	
Cross slide	

[5]

(b) The table below shows equipment used with the centre lathe.

Complete the table by using the descriptions from the following list. The first one has been done for you.

Knurling tool, Centre drill, Three jaw chuck, Parting tool, Four jaw chuck, Revolving centre, Jacobs chuck.

	<p>Four jaw chuck</p>
	
	
	
	
	

[5]

[Total: 10]

[Turn over

2 Fig. 2 shows views of steps used in a swimming pool.

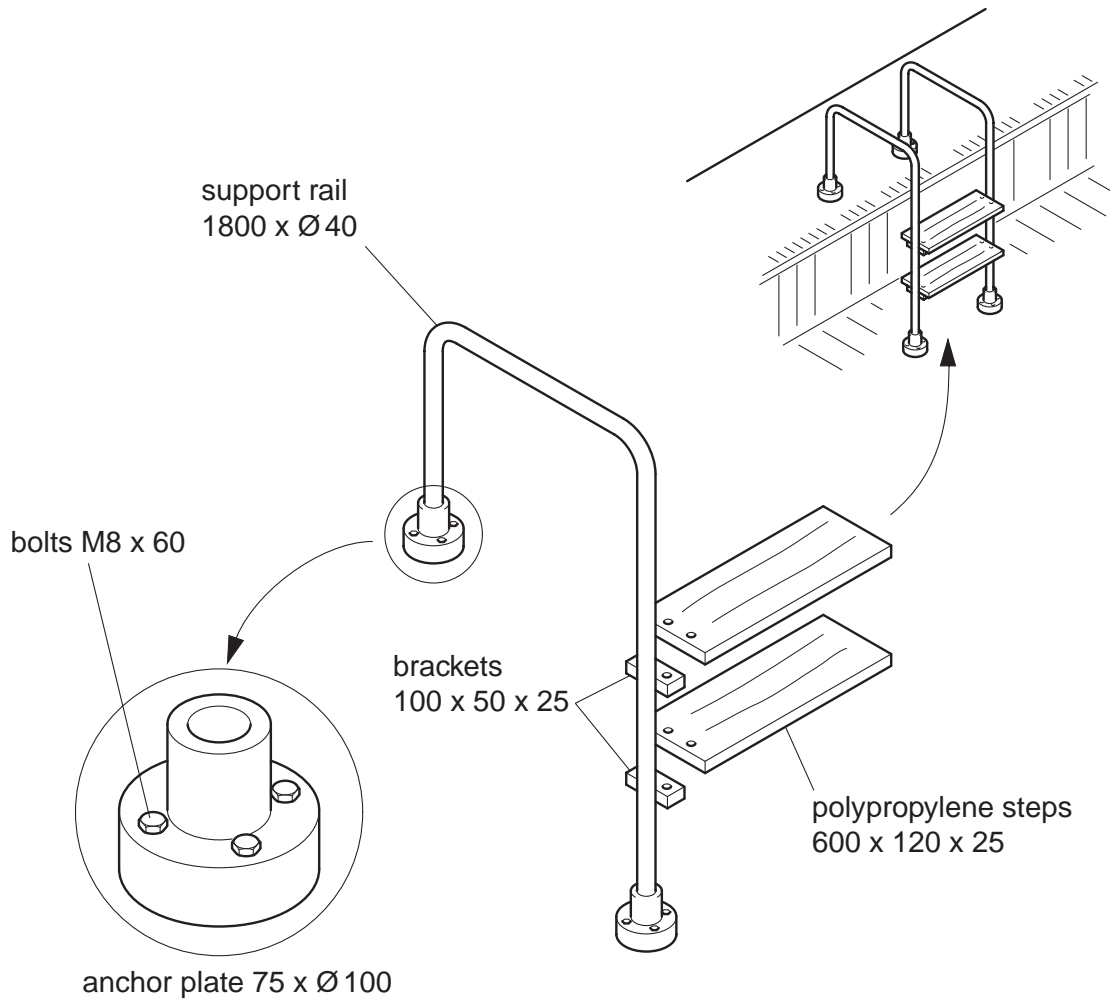


Fig. 2

(a) Use the information in Fig. 2 to complete the cutting list below.

Part name	Length	Width	Thickness	Material	Number Off
Anchor plate	75	Ø 110			
Support rail					2
	100	50	25		4
Steps	600	120	25		2

[5]

(b) (i) Name a suitable metal for the support rail.

.....[1]

(ii) Give a reason for your choice.

.....[1]

(c) Fig. 3 shows the label on the box of hexagonal bolts sent by the supplier.

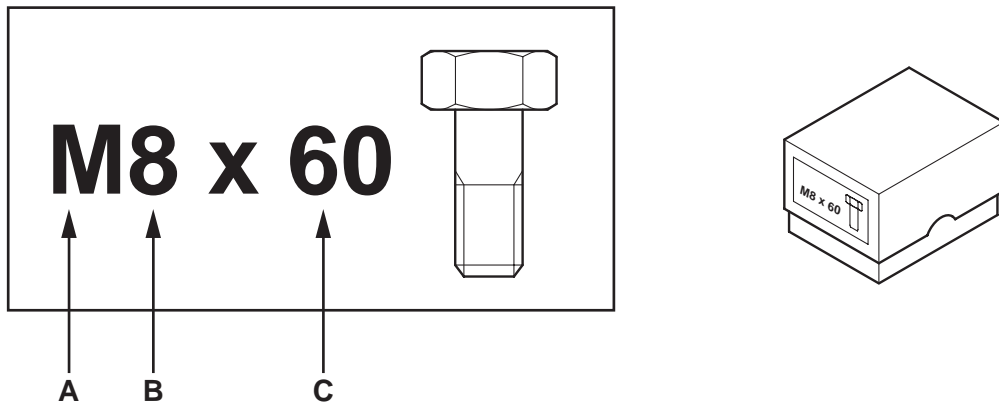


Fig. 3

The swimming pool builder ordered M8 x 60 Hexagon headed bolts.

State what each item of information means.

A[1]

B[1]

C[1]

[Total: 10]

(b) The side supports are to be brazed to the ring.

Design a jig to hold both side supports and the ring for brazing.

The jig must:

- accurately locate and hold the parts;
- be made from a suitable material;
- ensure the parts of the lantern do not get brazed to the jig.

(c) The side supports are to be riveted to the canopy at X.

Fig. 5 shows two rivets that could be used.

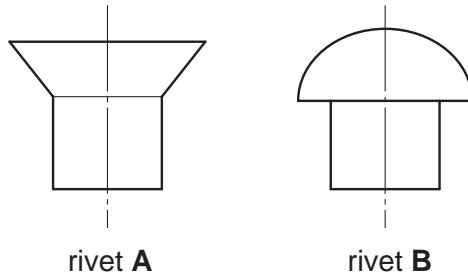


Fig. 5

(i) State the name of rivet A.

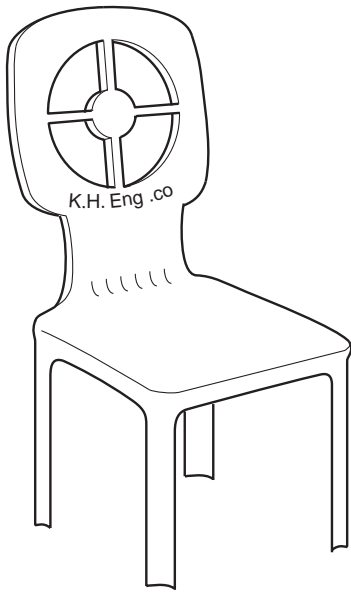
.....[1]

(ii) State the name of rivet B.

.....[1]

[Total: 10]

4 Fig. 6 shows two garden chairs.



Chair A
made from HD polypropylene



Chair B
made from cast aluminium alloy

Fig. 6

(a) Give **two** benefits to the user of chair A.

Benefit 1[1]

Benefit 2[1]

(b) State a suitable method of manufacture for chair A.

.....[1]

10

(c) In use chair **A** is found to be unsatisfactory:

- the chair back bends backwards;
- the legs push into the ground.

Use sketches and notes to show how these faults can be overcome.

[4]

(d) Give **one** suitable finish, other than painting, for chair **B**.

.....[1]

(e) The manufacturer of chair **B** intends to personalise the chair back for a client.

Fig. 7 shows an example of a sand cast plaque.

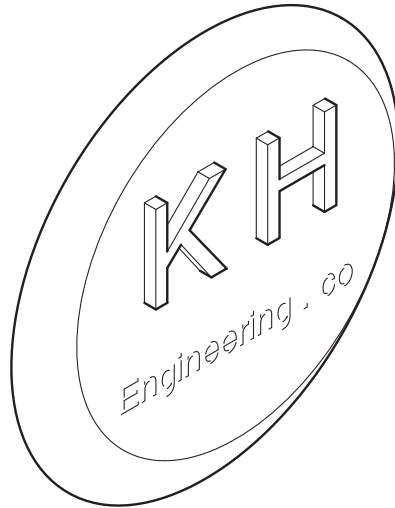


Fig. 7

Give **two** important features of a sand casting pattern.

Feature 1[1]

Feature 2[1]

[Total: 10]

5 Fig. 8 shows a self assembly child's swing.

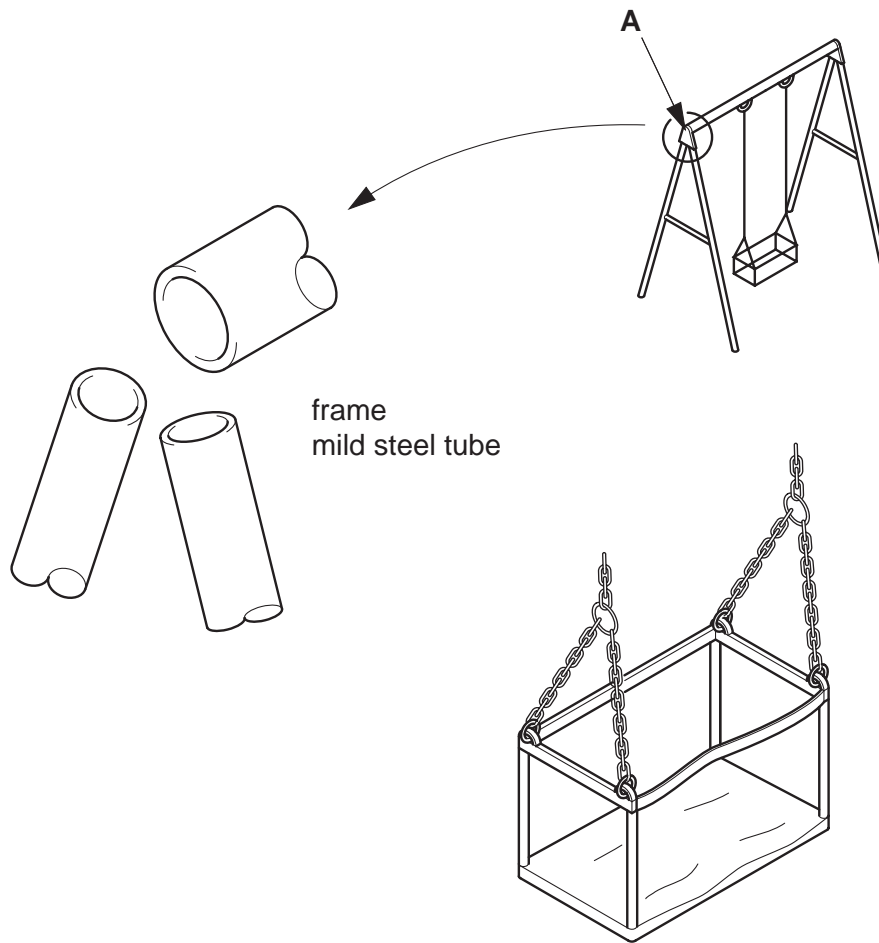


Fig. 8

(a) Complete the design specification for the swing seat suitable for a 2–3 year old child.

The design must be:

- 1 simple and easy for the parent to fit the child in.
- 2
- 3
- 4[3]

(b) The assembly drawings are produced on a CAD package.

Give **two** reasons why manufacturers store drawings electronically.

Reason 1[1]

Reason 2[1]

(c) Use sketches and notes to show how the parts could be joined at **A** so that:

- they can be easily assembled;
- the structure is safe;
- the structure remains rigid;
- the parts can be disassembled.

[5]

[Total: 10]

14
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15
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