

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE

A564/01

DESIGN AND TECHNOLOGY

Resistant Materials

Technical Aspects of Designing and Making

FRIDAY 7 JUNE 2013: Afternoon

DURATION: 1 hour 15 minutes
plus your additional time allowance

MODIFIED ENLARGED

Candidate forename		Candidate surname	
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Centre number						Candidate number				
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Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

None

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer ALL the questions in Section A AND Section B.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. If additional space is required, you should use the lined pages at the end of this booklet. The question number(s) must be clearly shown.

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 60.
- All dimensions are in millimetres.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- Any blank pages are indicated.

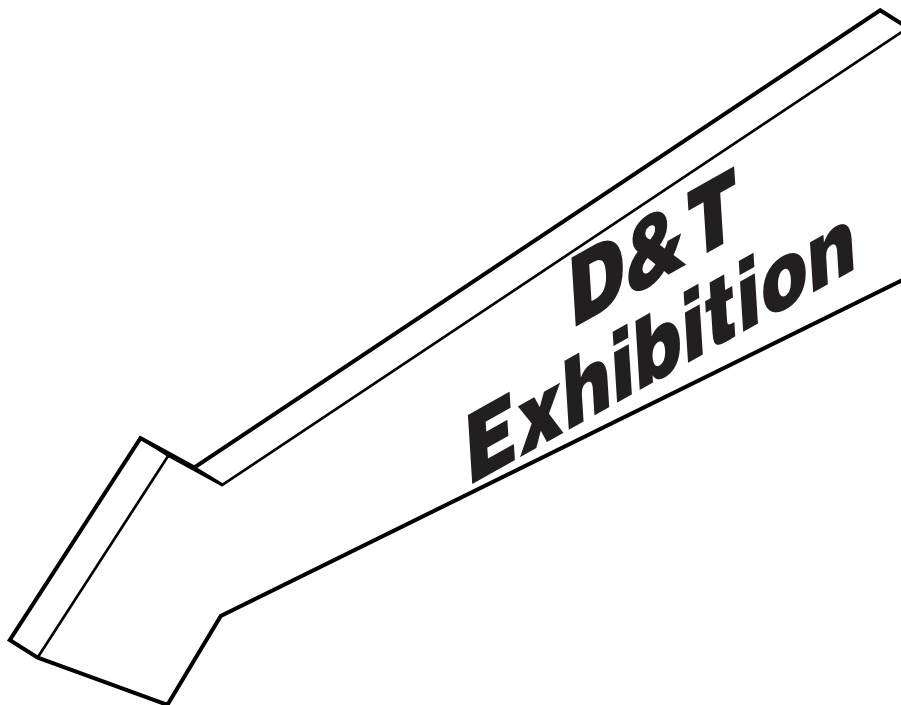
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SECTION A

Answer ALL questions.

- 1 Fig. 1 shows a sign that will be positioned in a school corridor to give directions to a D&T exhibition. The sign is made from 15 thick hardwood.

FIG. 1

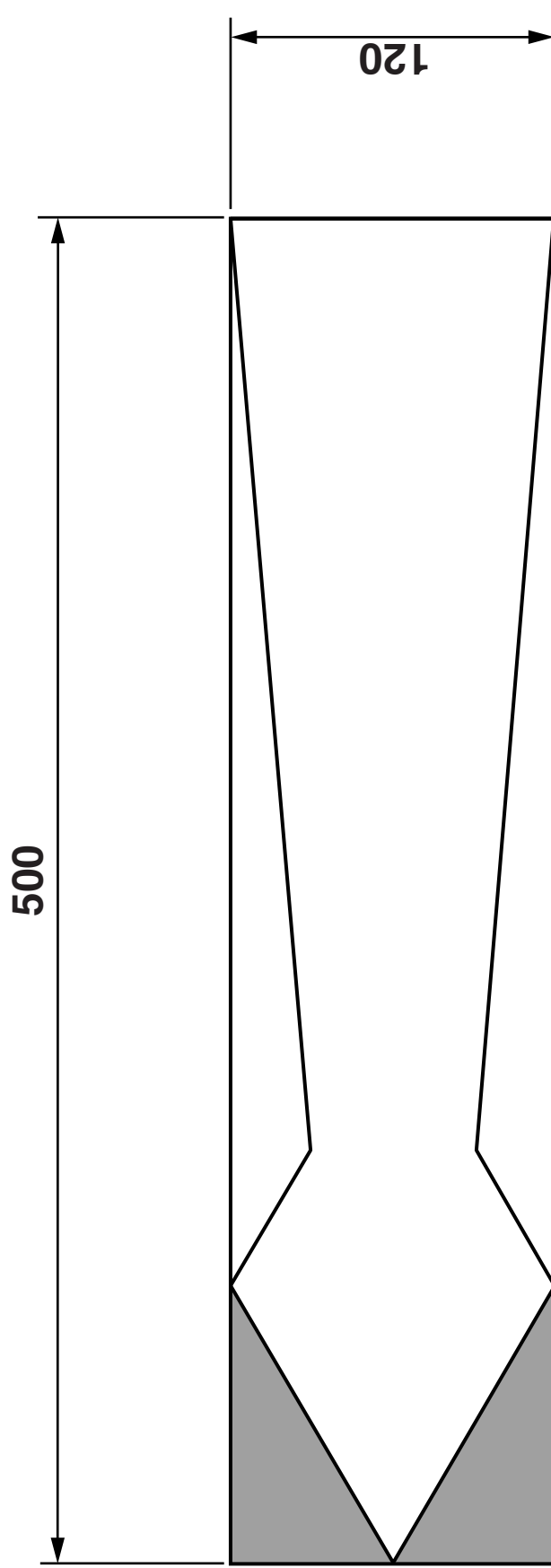


- (a) Fig. 2 shows the sign marked out on a piece of hardwood ready to be cut to shape.

Describe how the shaded areas would be removed and the shape made flat and smooth.

[2]

FIG. 2



(b) Use sketches and notes to design a stand that will support the sign at a height of 1.5 metres above the ground.

Your design must include:

- **a stable base**
- **a method of joining the sign to the stand**
- **names of all materials and constructions used**

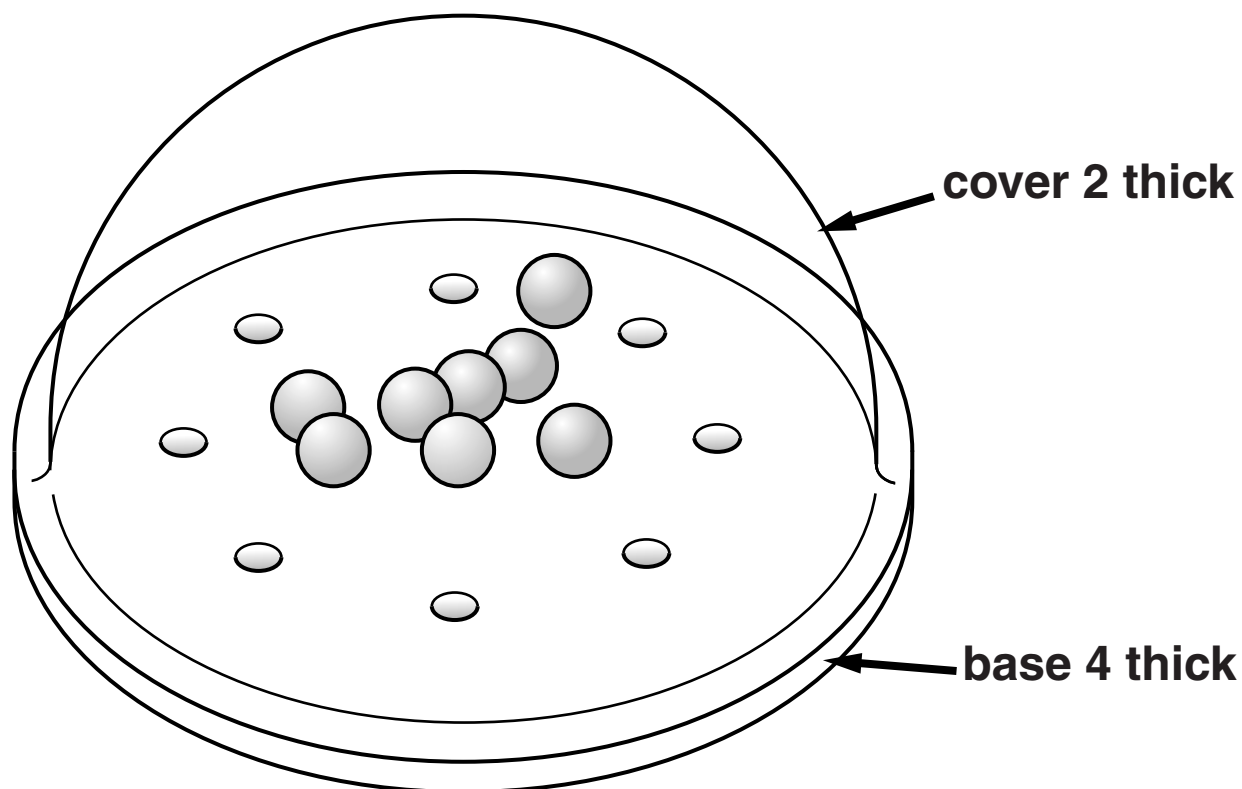
[6]

(c) Describe how CAD-CAM could be used to produce the words D&T EXHIBITION on the 15 thick hardwood sign.

[4]

- 2 Fig. 3 shows a handheld game.
The object of the game is to locate each of the eight
balls in the eight holes.
The cover and base are made from acrylic.

FIG. 3



(a) Give TWO reasons why acrylic is a suitable material for the game.

1 _____

2 _____

[2]

(b) Give TWO reasons why the acrylic base would need to be clamped in position when drilling the holes.

1 _____

2 _____ [2]

(c) Name TWO processes that could be used to produce the cover for the game.

1 _____

2 _____ [2]

(d) Name a solvent (glue) that could be used to join the cover to the base of the game.

_____ [1]

- (e) The edges of the acrylic will be finished to a high quality shine.
Several tools or items of equipment are used to produce a high quality finish.
Complete the table below by describing how each tool or item of equipment is used.

Tool/Item of Equipment	How it is Used
Flat file	
Wet and dry paper	
Polishing mop	

[3]

- (f) Products such as the handheld game shown in Fig. 3 are manufactured in different parts of the world. This is known as 'globalisation'.
Give TWO benefits of globalisation.

1 _____

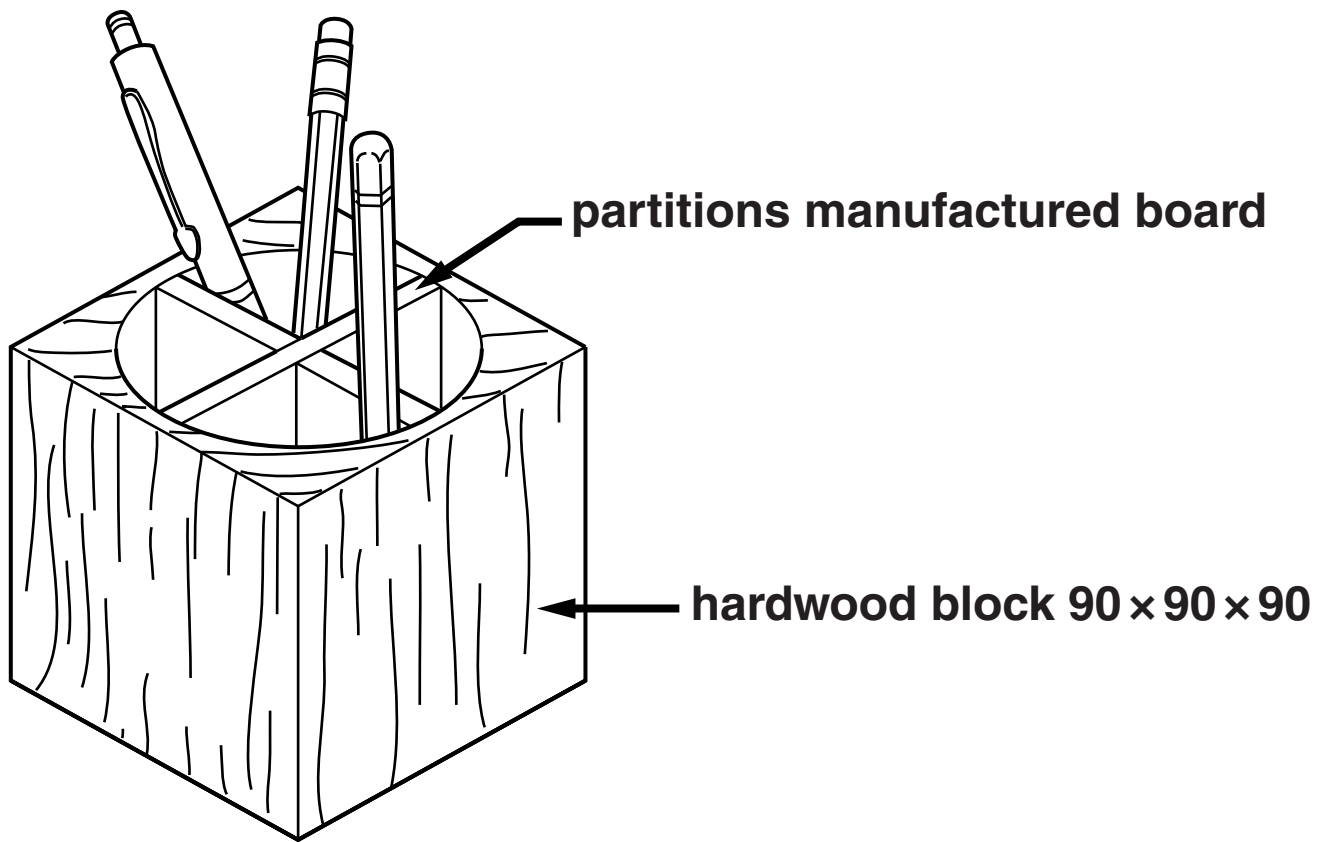
2 _____

[2]

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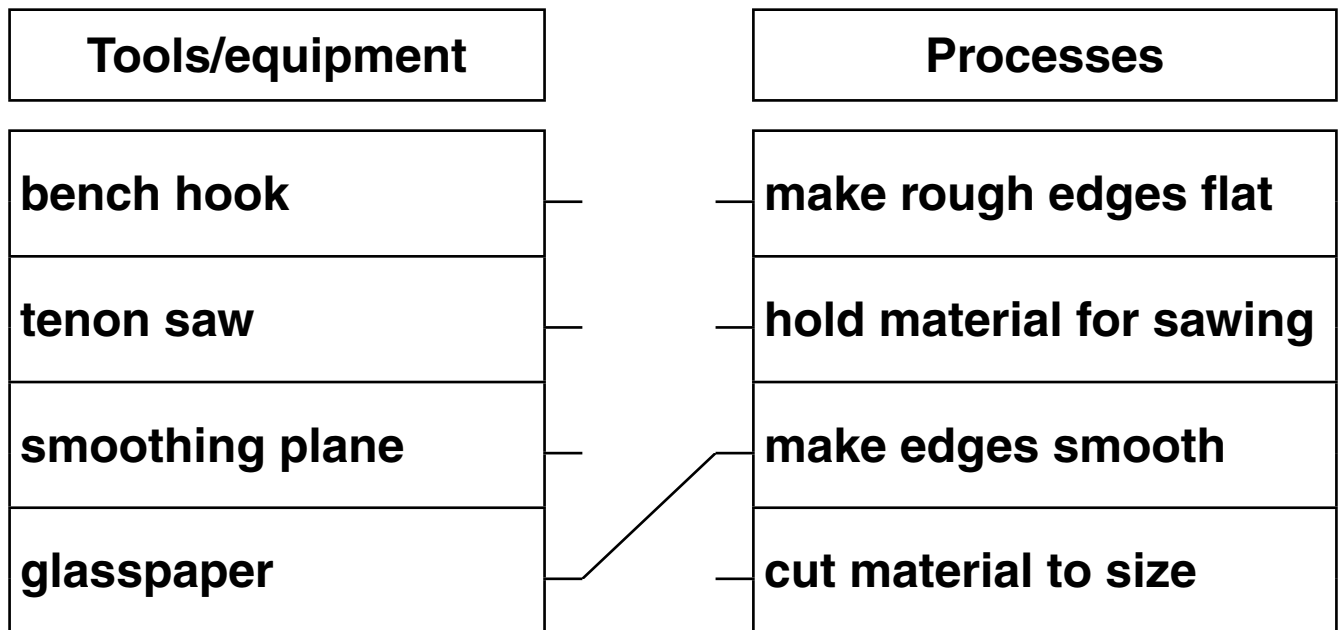
- 3 Fig. 4 shows a pen and pencil holder made from hardwood and manufactured board.**

FIG. 4



- (a) The pen and pencil holder is made using different tools and items of equipment to complete a variety of processes.**

**Complete the links below to show which tool is used to complete each process.
Glasspaper has been done for you.**



[3]

(b) Use sketches and notes to show how the manufactured board could be joined to make the partitions shown in Fig. 4.

[3]

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Marks will be awarded for the quality of written communication in your answer.

[illegible]

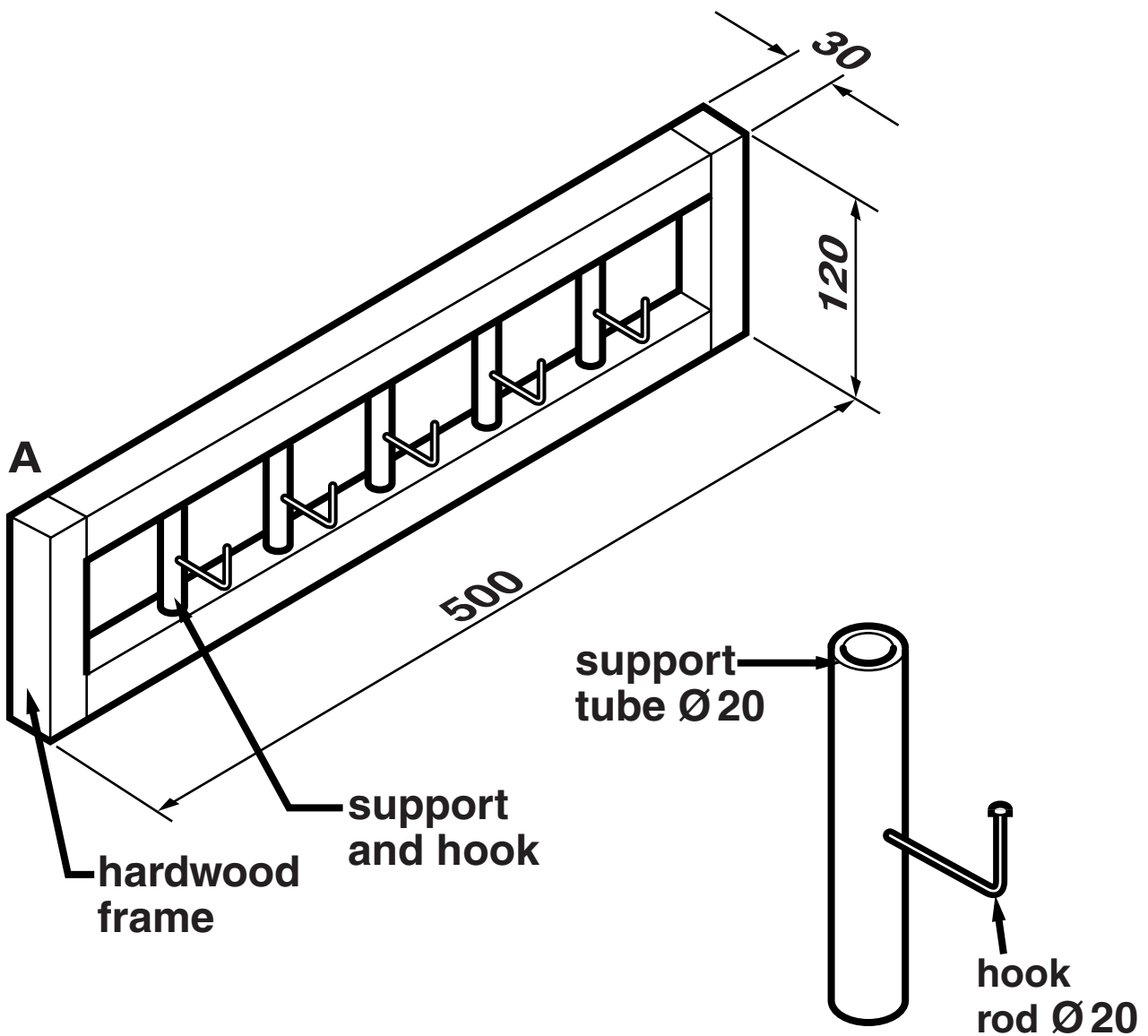
[6]

SECTION B

Answer ALL questions.

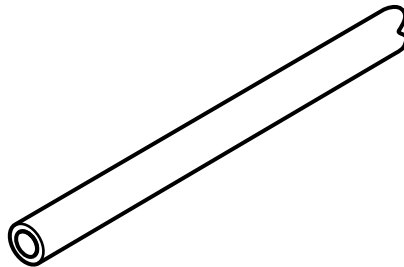
- 4 Fig. 5 shows a wall mounted coat rack and details of one support and hook.
The coat rack has a hardwood frame. The brass supports are held in holes drilled into the hardwood frame.

FIG. 5



- (a) Fig. 6 shows part of a length of brass tube from which the five supports will be cut.

FIG. 6



Complete the table below by naming **ONE** tool or item of equipment for each process.

Process	Tool
Measure	
Mark out	
Cut to length	

[3]

(b) Give ONE reason why brass has been used to make the supports.

_____ **[1]**

(c) (i) State ONE heat process that could be used to permanently join the brass hooks to the brass support tubes.

_____ **[1]**

(ii) State ONE safety precaution you would need to take when carrying out a heat process in a workshop.

_____ **[1]**

(d) Name and sketch a suitable joint, other than a butt joint, that could be used at corner A.

Name of joint _____ **[3]**

- (e) Explain how the design of the coat rack could be modified so that it can be easily disassembled at the end of its useful life.**

[3]

- 5 Children learn through play.
A playgroup needs some educational toys to help children learn about different shapes.**

The educational toys must:

- **include a variety of shapes**
- **be hardwearing**
- **be safe for children to use**

(a) In the space below sketch a design for ONE educational toy.

Add notes to your design to show the materials it is made from, constructional details and how it meets the specification points.

[6]

(b)* Many toys previously made from wood and/or metal are now made from plastic.

Discuss the advantages to manufacturers and consumers of toys made from plastic rather than wood and/or metal.

Marks will be awarded for the quality of written communication in your answer.

[illegible]

[6]

END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional answer space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margins.

[illegible]



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