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F

GENERAL CERTIFICATE OF SECONDARY EDUCATION

DESIGN AND TECHNOLOGY

1056/01

Resistant Materials Technology
Short Course
Paper 1 (Foundation Tier)

OCE/26118

Candidates answer on the Question Paper

OCR Supplied Materials:
None

Other Materials Required:
None

Wednesday 26 May 2010
Afternoon

Duration: 1 hour

1056/01

Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

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**.
- Dimensions are given in millimetres unless stated otherwise.
- This document consists of **12** pages. Any blank pages are indicated.

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1 Fig. 1 shows a wooden tray.

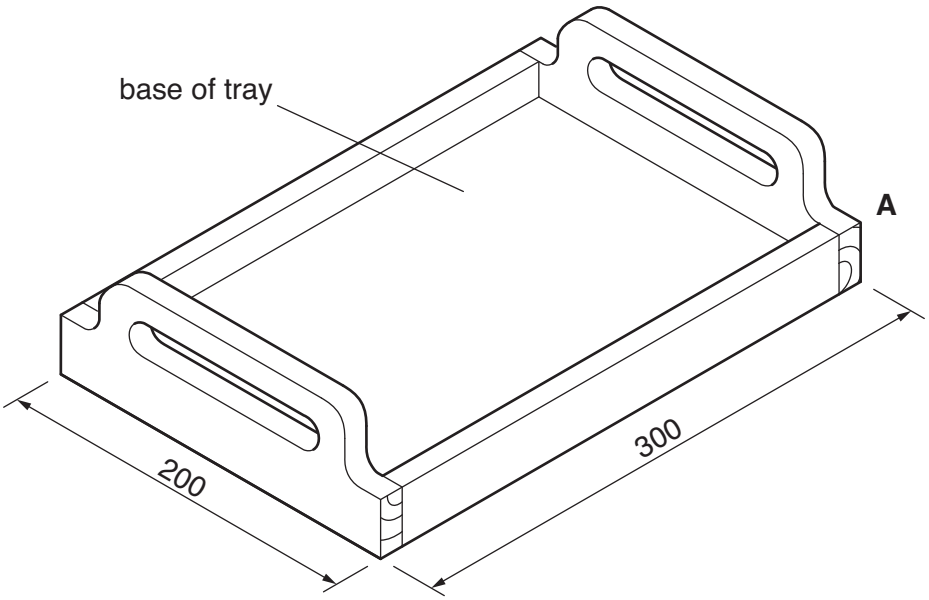

Fig. 1

(a) Complete the table by describing what each of the tools or items of equipment are used for when making the tray.

Tools or items of equipment	**What each of the tools or items of equipment are used for**
Coping saw	
Drill	
File	
Glasspaper	

[4]

(b) Name a suitable manufactured board for the base of the tray.

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

(c) Give **one** reason why the tray would be finished with clear varnish.

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

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(d) (i) Sketch a suitable joint, other than a butt joint, that could be used at corner **A**.

[2]

(ii) Name **two** marking out tools used to mark out the joint.

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

2 ..... **[1]**

[Total: 10]

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2 Fig. 2 shows a tool rack for garden tools. The rack is made from 6 mm diameter mild steel rod.

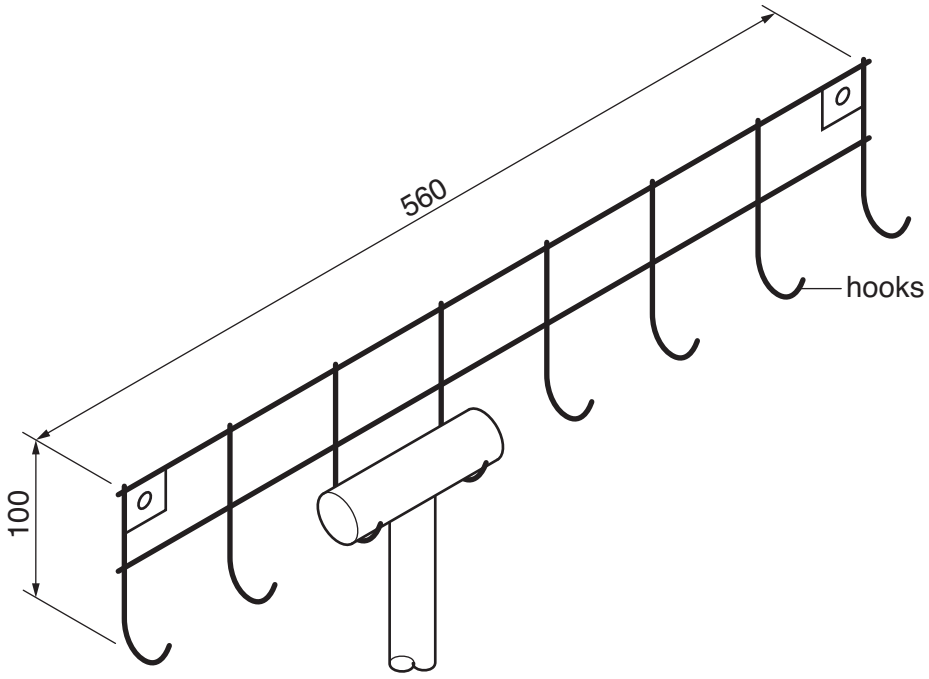


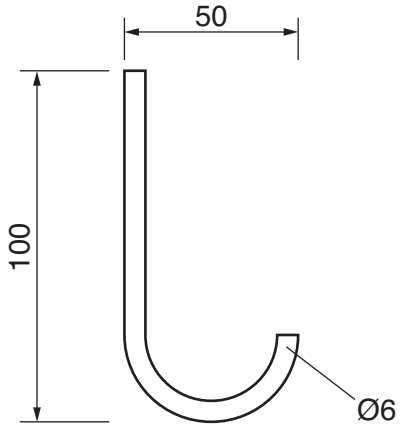
Fig. 2

(a) State **two** items of research needed before designing the tool rack.

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

2..... **[1]**

(b) Details of one of the hooks are shown below.
Use sketches and notes to show how it could be bent to shape.



[3]

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(c) Each hook will be brazed into position when making the tool rack.
State the purpose of the following items used in the brazing process:

(i) emery cloth ..... **[1]**

(ii) flux ..... **[1]**

(iii) brazing rod ..... **[1]**

(d) Give **two** reasons why the mild steel tool rack would be painted.

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

2..... **[1]**

[Total: 10]

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3 Fig. 3 shows an incomplete design for a key rack and one key tag.
The key rack and the key tag are made from 3 mm thick acrylic.

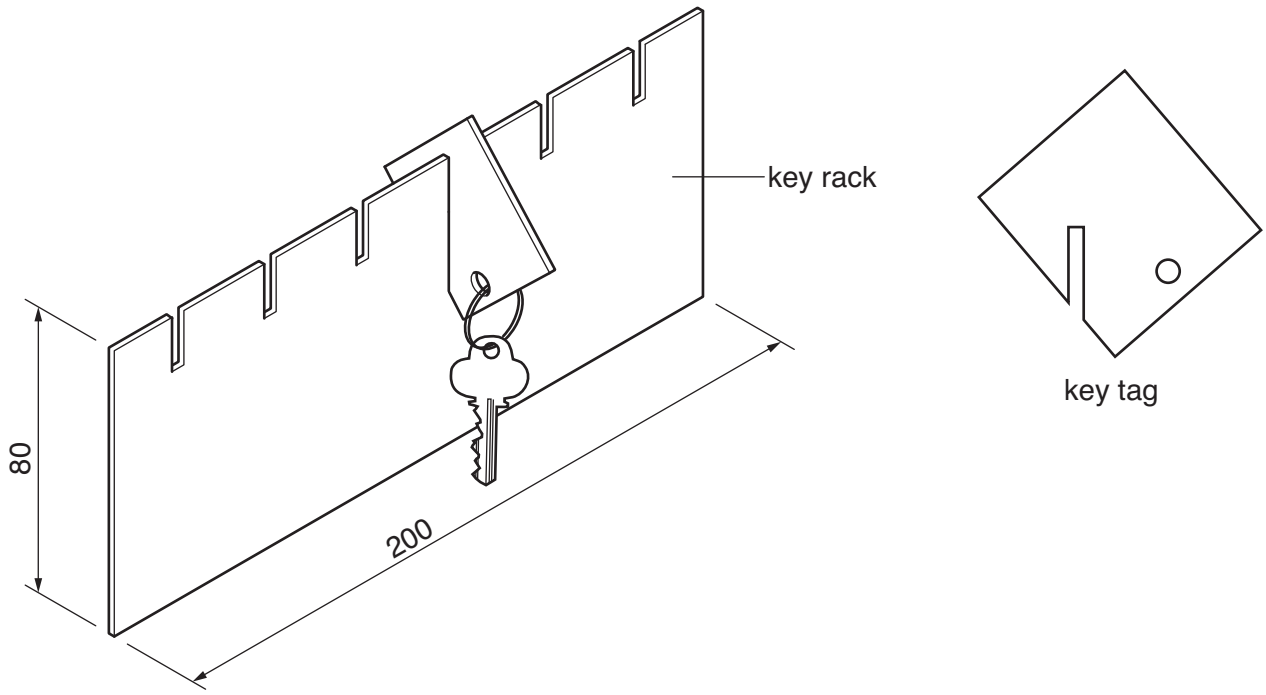

Fig. 3

(a) Give **two** reasons why a template would be useful when making a batch of 50 key racks.

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

2..... **[1]**

(b) Name **two** suitable saws used to cut out the slots in the key rack.

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

2..... **[1]**

(c) Sawing and drilling acrylic can result in the material being damaged.
Describe how this may be overcome when:

(i) sawing acrylic held in a vice .....

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

(ii) drilling acrylic .....

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

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(d) Use sketches to show how the key rack could be modified so that it could be wall mounted. Include notes to describe how the modification could be made.

[4]

[Total: 10]

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4 Fig. 4 shows three building blocks that are part of a set used by children.
The building blocks are constructed from beech strips.

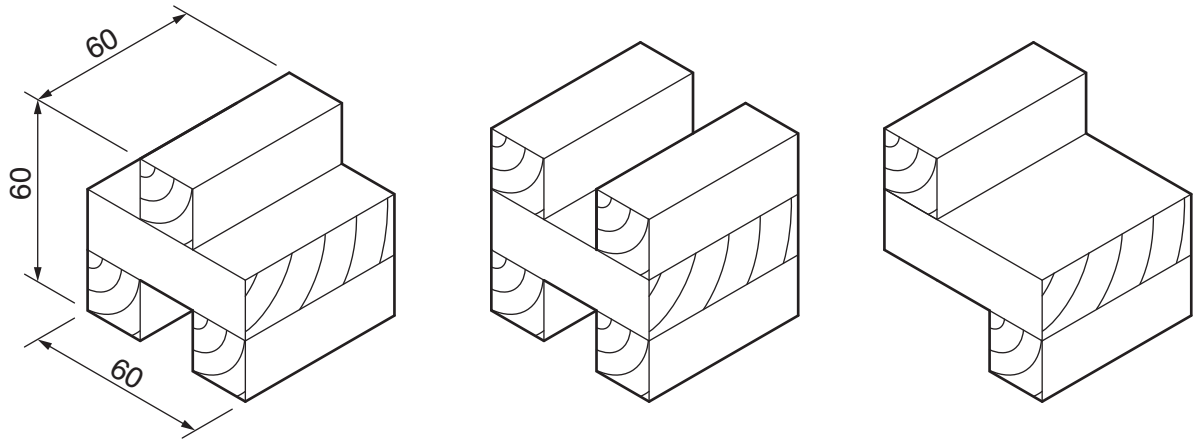

Fig. 4

(a) Give **two** properties of beech that makes it suitable for the building blocks.

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

2..... **[1]**

(b) The building blocks could also be made from moulded plastic.
Give **two** reasons why consumers might prefer to buy moulded plastic building blocks rather than those made from beech.

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

2..... **[1]**

(c) The building blocks shown in Fig. 4 could have been designed using drawing instruments or CAD.
Give **two** advantages, other than speed, of using CAD to design the building blocks.

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

2..... **[1]**

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(d) Fig. 5 shows two strips of beech from which the building blocks are constructed.

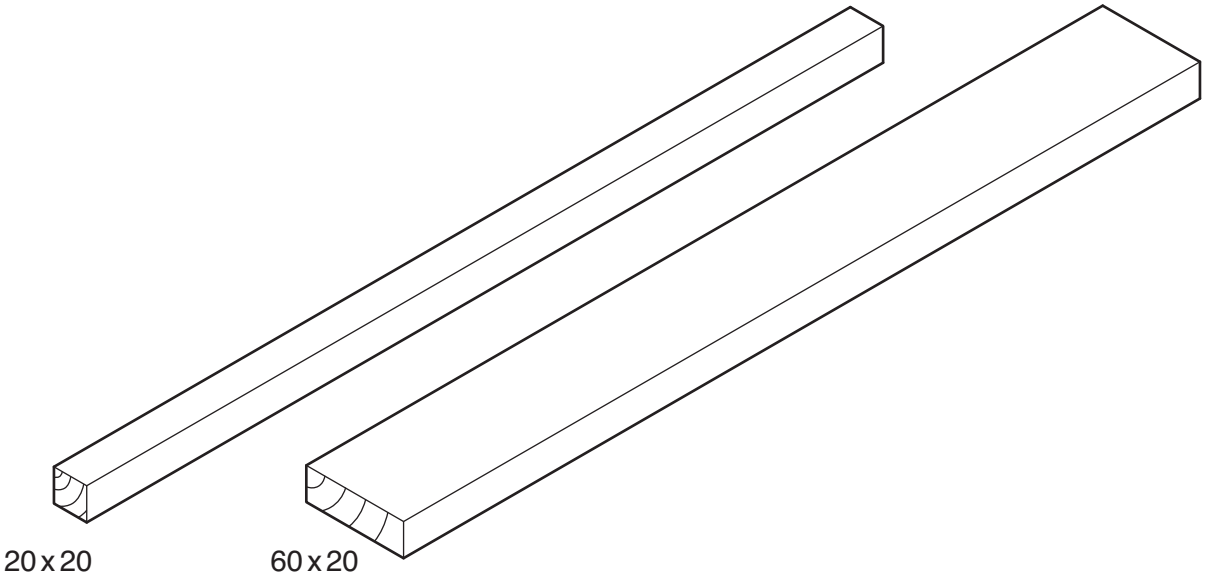

Fig. 5

Use sketches and notes to design a jig that could be used when sawing the strips of beech to length when making the building blocks.
The jig must:

- allow the beech strips to be held securely when being sawn;
- allow the beech strips to be sawn accurately to 60 mm in length;
- accommodate both 20 mm and 60 mm wide beech strips.

[4]

[Total: 10]

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5 Fig. 6 shows a photograph holder made from 5 mm thick acrylic.
The rings are made from stainless steel.

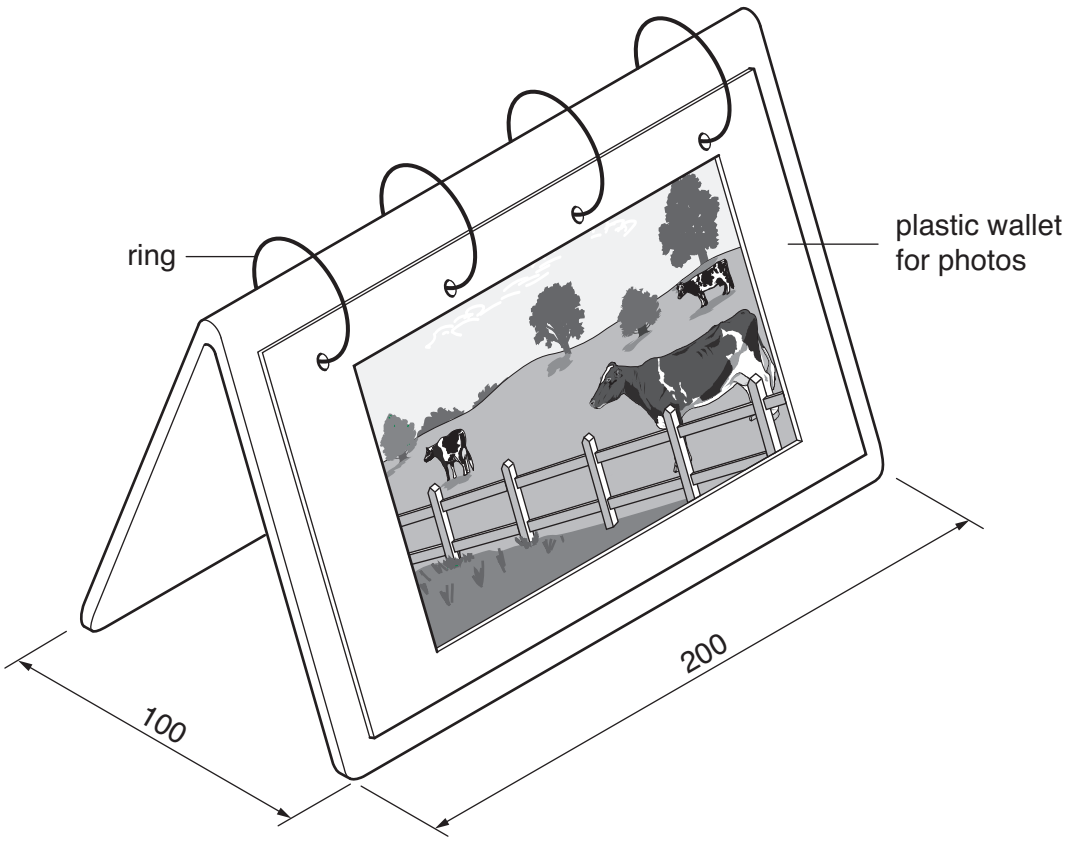

Fig. 6

(a) State **two** design features of the photograph holder.

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

2..... **[1]**

(b) Give **two** properties of stainless steel that makes it suitable for the rings.

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

2..... **[1]**

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(c) (i) Use sketches and notes to show how the acrylic photograph holder could be batch produced. Do **not** include details of the rings.

[4]

(ii) Describe **one** quality control check that would be carried out during production of the photograph holder.

.....

.....

..... **[2]**

[Total: 10]

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