



**GENERAL CERTIFICATE OF SECONDARY EDUCATION
DESIGN AND TECHNOLOGY**

A564

Resistant Materials

Technical aspects of designing and making

Candidates answer on the Question Paper

OCR Supplied Materials:
None

Other Materials Required:
None

**Wednesday 26 May 2010
Afternoon**

Duration: 1 hour 15 minutes



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 in Section A **and** Section B.
- 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 **60**.
- All dimensions are in millimetres.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- This document consists of **16** pages. Any blank pages are indicated.

Section A

Answer **all** questions.

- 1 Fig. 1 shows a leaflet holder made from 3 mm thick acrylic plastic.

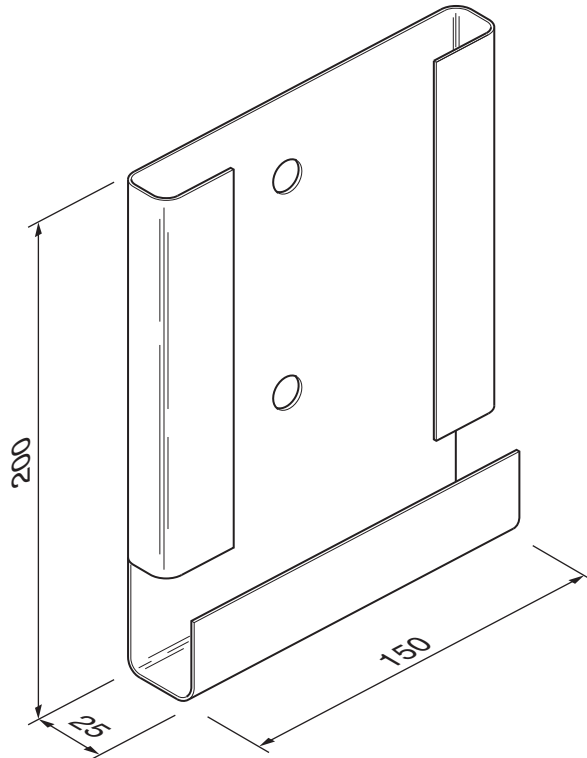


Fig. 1

- (a) The leaflet holder will be made from acrylic sheet.
Complete the table by naming the tools or items of equipment used to make the leaflet holder.

Stage	Process	Tools / items of equipment
1	Mark out	
2	Cut out shape	
3	Smooth edges	
4	Polish edges	

[4]

- (b) In the space below, use sketches and notes to show how one of the bends could be made. Include the following details:
- the method of heating the acrylic
 - a former or mould
 - the method of keeping the shape while the acrylic cools

[5]

- (c) Holes are drilled in the leaflet holder so that it can be wall-mounted. Give **one** reason why the holes would be drilled in the acrylic before it is bent to shape.

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

- (d) Give **two** reasons why it is important to clamp the acrylic securely when drilling the holes.

(i) Reason 1
..... [1]

(ii) Reason 2
..... [1]

[Total: 12]

- 2 Fig. 2 shows a games table for children. The games table is made from 18 mm thick manufactured board and supplied as a flat-pack for self-assembly.

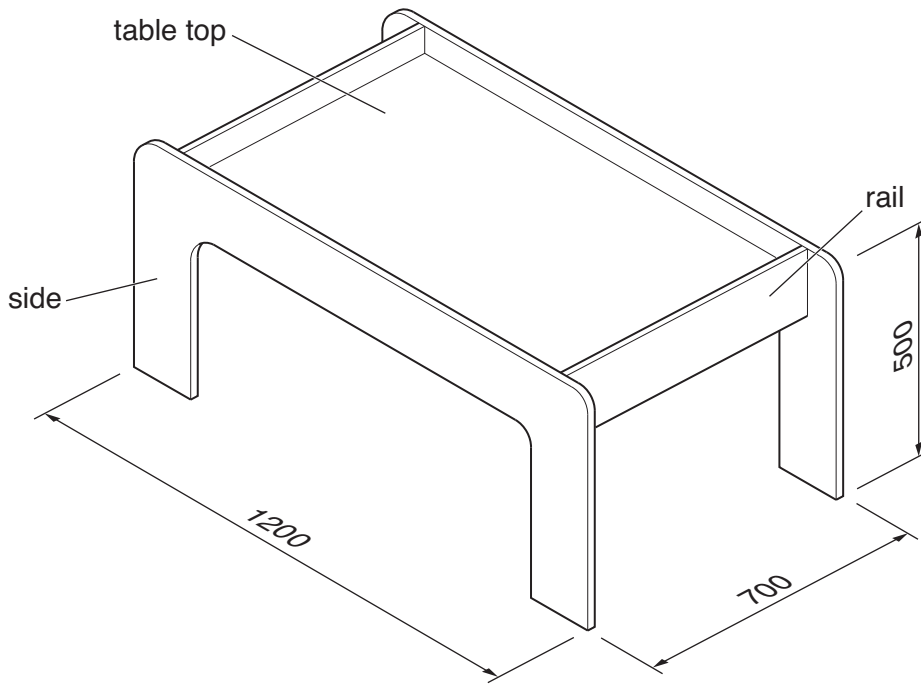


Fig. 2

(a) (i) State **one** advantage, other than cost, of using manufactured board for the games table.
 [1]

(ii) State **one** disadvantage of using manufactured board for the games table.
 [1]

- (b) The sides, rails and top of the games table will be cut using a jig saw from a sheet of manufactured board, 2440 mm × 1220 mm.

State **two** safety precautions you would take when using a jig saw to cut the parts from a sheet of manufactured board.

1 [1]

2 [1]

- (c) In the space below, use sketches and notes to show how the sides and rails of the games table could be joined together.
Your method must allow them to be taken apart.

[3]

- (d) In the space below, use sketches and notes to show how the table top could be fitted to the sides and rails.
Your method must allow it to be taken apart.

[3]

(e) The games table will be finished by means of spray painting.
Spray painting can be easier and faster than applying paint by means of a brush.
Give **two** other advantages of spray painting rather than brush painting the games table.

1
..... [1]

2
..... [1]

[Total: 12]

3 Fig. 3 shows an educational toy made from beech.

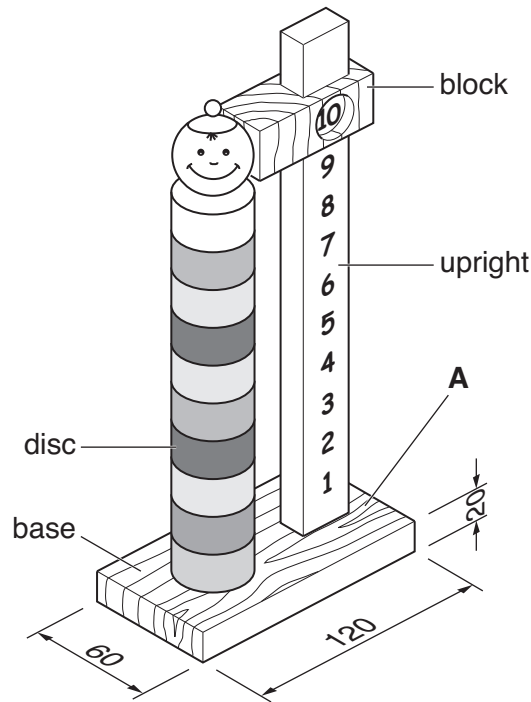


Fig. 3

(a) Give **one** performance characteristic of beech, other than strength, that makes it suitable for the educational toy.

..... [1]

(b) Name and sketch **one** suitable joint used to connect the upright to the base at **A**.

Name of joint

(c) Fig. 4 shows the block that will slide up and down the upright part of the educational toy.

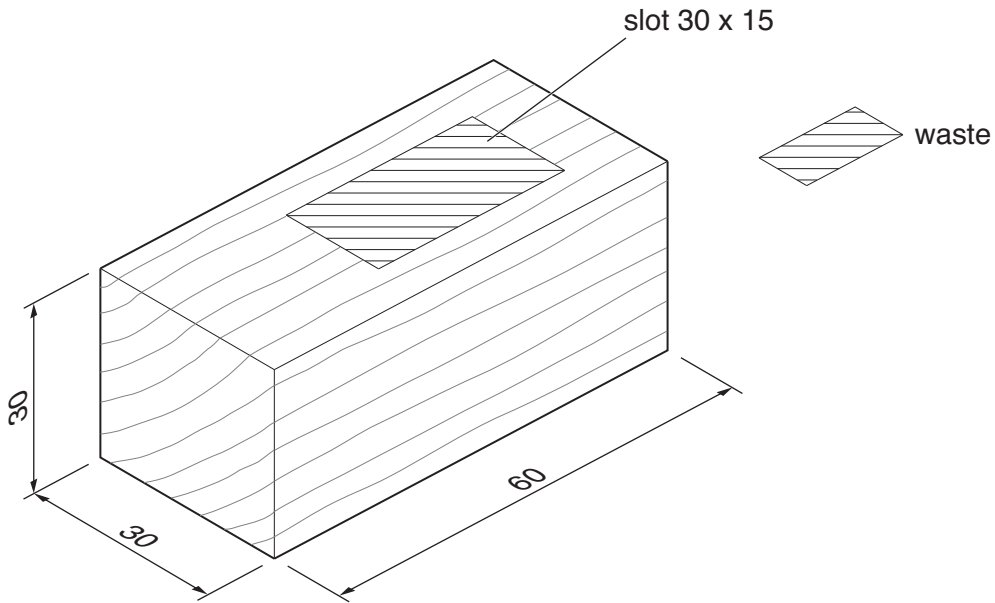


Fig. 4

Complete the table by giving the specific names of the tools or items of equipment used to produce the **slot** in the block.

Stage	Process	Tools / items of equipment
1	Mark out the slot	
2	Drill the slot	
3	Remove the waste	
4	Clean up the slot	

[4]

(d) Name **one** woodworking machine that could be used to make the discs.

..... [1]

(e) The numbers on the upright will be produced using CAM. Explain how the numbers could be produced using CAM. Details of the process must include the type of machine used.

.....

 [3]

[Total: 12]

Section B

Answer **all** questions.

4 Fig. 5 shows views of a DVD storage unit.

The unit is supplied:

- as a flat-pack for self-assembly
- made from softwood and dowel
- with ends fully constructed
- without an applied finish

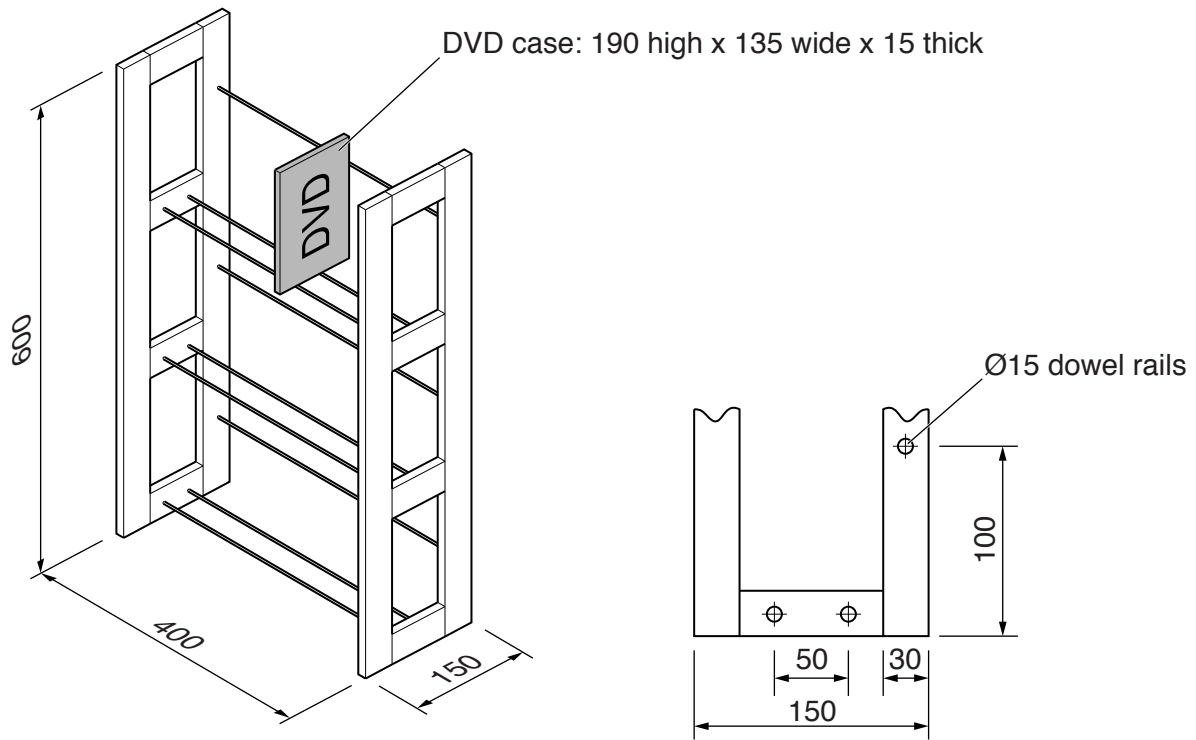


Fig. 5

(a) Give **one** reason why the DVD storage unit is supplied without a finish.

.....

..... [1]

- (b) When stored, the DVD cases do not always remain upright and can fall over. In the space below, use sketches and notes to show a device that could be added to the storage unit that would overcome this problem.

Your device must:

- fit onto the dowel rails
- be capable of being moved along the dowel rails
- prevent the DVD cases from falling over

Include details of materials and fittings used.

[5]

5 Fig. 6 shows a computer desk made from MDF and mild steel tube.

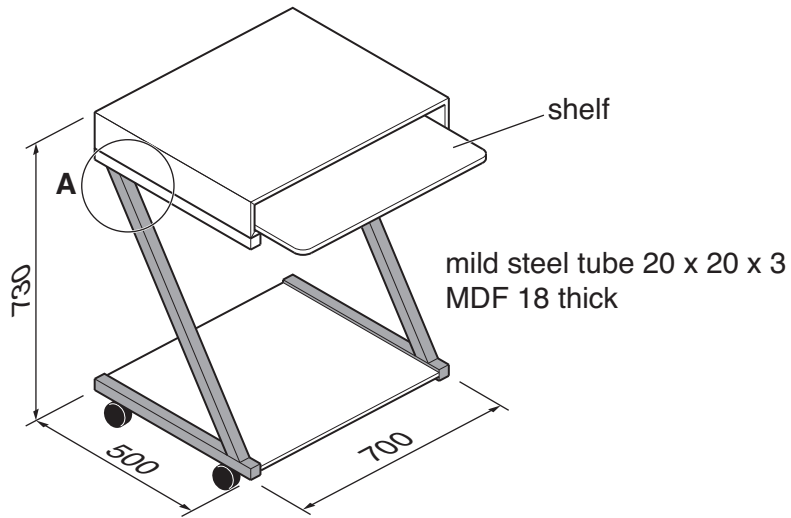


Fig. 6

(a) Explain how the designer has considered anthropometric data in the design of the computer desk.

.....

.....

.....

.....

..... [3]

(b) In the space below, use sketches and notes to show how the joint circled at **A** could be strengthened. Include details of materials and fittings used.

14
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15
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