OCR
RECOGNISING ACHIEVEMENT

H

GENERAL CERTIFICATE OF SECONDARY EDUCATION

DESIGN AND TECHNOLOGY

Resistant Materials Technology **1956/02**

Resistant Materials Technology (Short Course) **1056/02**

Paper 2 (Higher Tier)

MONDAY 2 JUNE 2008

Morning

Time: 1 hour 15 minutes

Candidates answer on the question paper
Additional materials: No additional materials are required

CUP/T36997

Candidate Forename		Candidate Surname	
Centre Number		Candidate Number	

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**.
- Dimensions are given in millimetres unless stated otherwise.

FOR EXAMINER'S USE	
1	
2	
3	
4	
5	
TOTAL	

This document consists of **13** printed pages and **3** blank pages

[Turn over

1 Fig. 1 shows a wooden puzzle.
The puzzle will be batch produced.

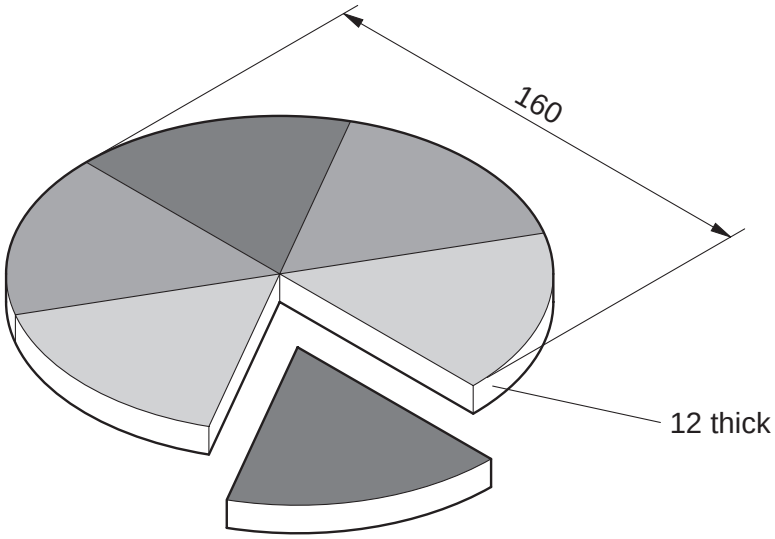

Fig. 1

(a) The computer screen in Fig. 2 shows **one** piece of the puzzle drawn using a CAD software program.

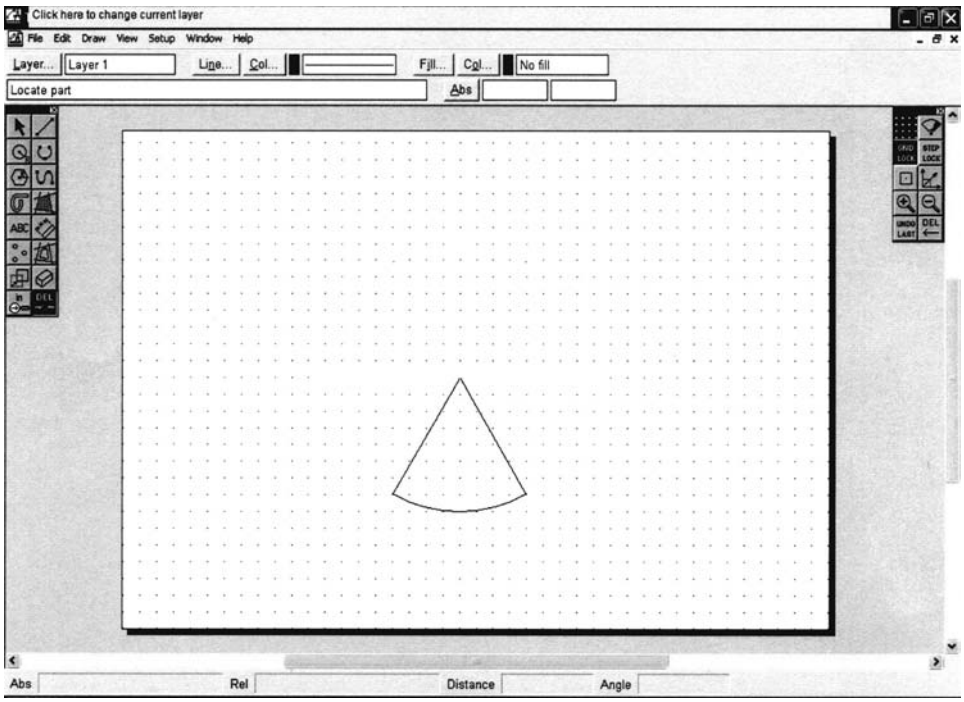

Fig. 2

State **two** CAD drawing tools that could be used when drawing one piece of the wooden puzzle.

1.....[1]

2.....[1]

(b) Describe how CAM could be used to help in the batch production of the wooden pieces.

.....

.....

..... [2]

(c) The completed puzzle will fit inside a plastic tray. The tray will be vacuum formed.
Use sketches and notes to show:

- a design for the plastic tray;
- details of the former to be used.

[4]

(d) Describe **two** quality control checks that could be made when vacuum forming the plastic tray.

1.....[1]

2.....[1]

2 Fig. 3 shows a trolley used in a home.
The trolley is manufactured as flat pack for self-assembly.

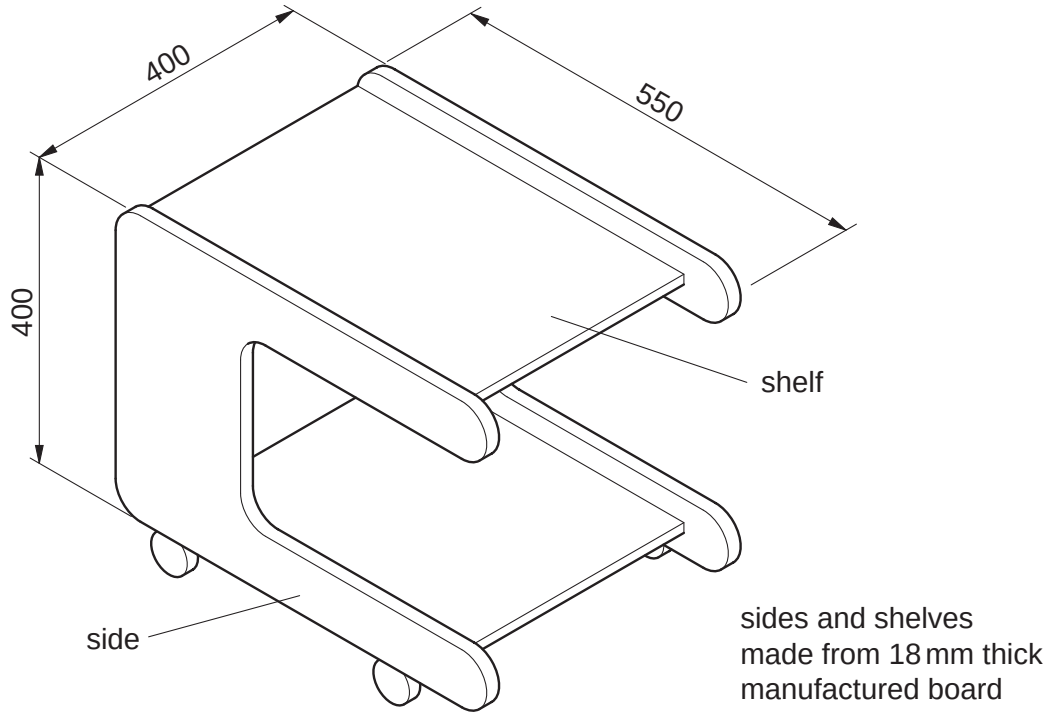

Fig. 3

(a) Give **two** reasons why flat pack furniture is popular.

1.....[1]

2.....[1]

(b) Use sketches and notes to show how K-D [knockdown] fittings could be used to join **one** shelf to **one** side.

[3]

(c) Fig. 4 shows one side of the trolley marked out ready to be cut to shape.

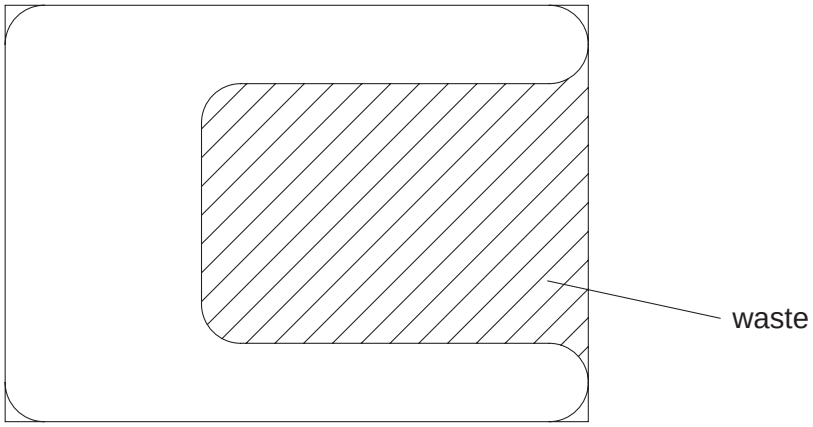

Fig. 4

Name **two** electrical power tools that could be used to cut out the shape.

1.....[1]

2.....[1]

(d) The design of the sides of the trolley results in a lot of waste material.
Use sketches and notes to show how the shaped side of the trolley could be made using separate pieces of solid wood.
Show clearly the grain direction on the separate pieces of solid wood.

[3]

3 Fig. 5 shows an incomplete design for a DVD storage unit made from solid wood.
The DVD storage unit (top, central column, bottom) rotates on the base as shown by the arrows in Fig. 5.

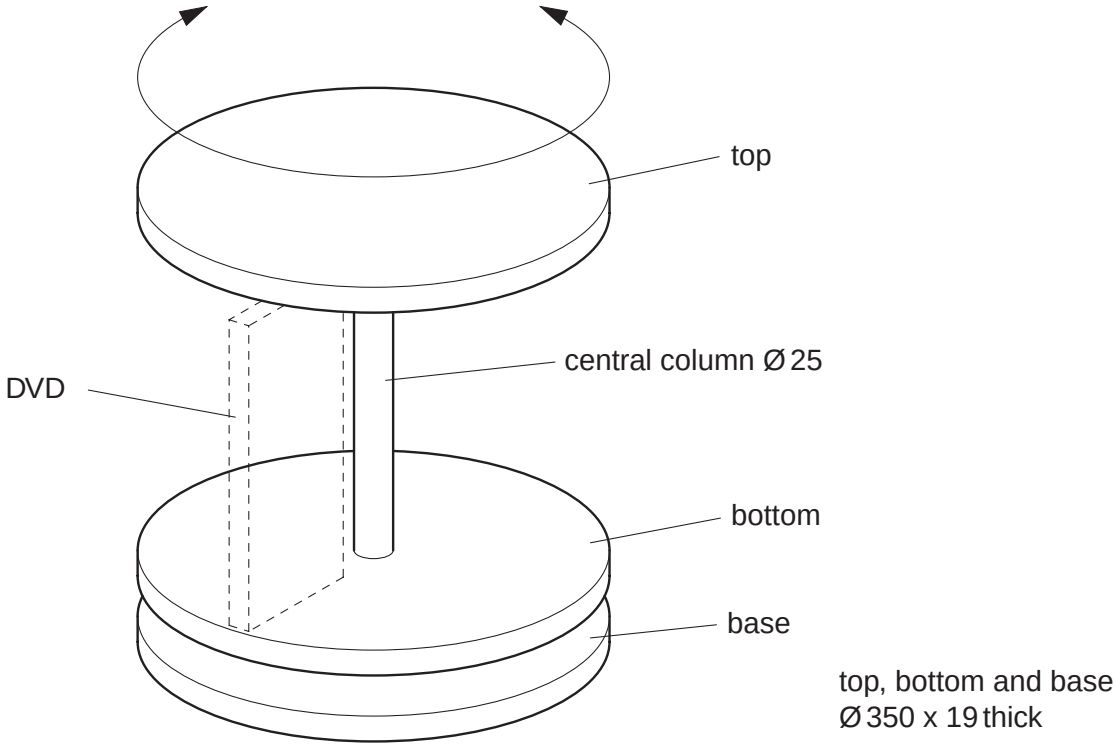

Fig. 5

(a) Use sketches and notes to show how the bottom of the DVD stand could be made to rotate on the base.
Include details of materials and fittings used.

[3]

(b) Fig. 6 shows details of one DVD and the arrangement for storing 12 DVDs.

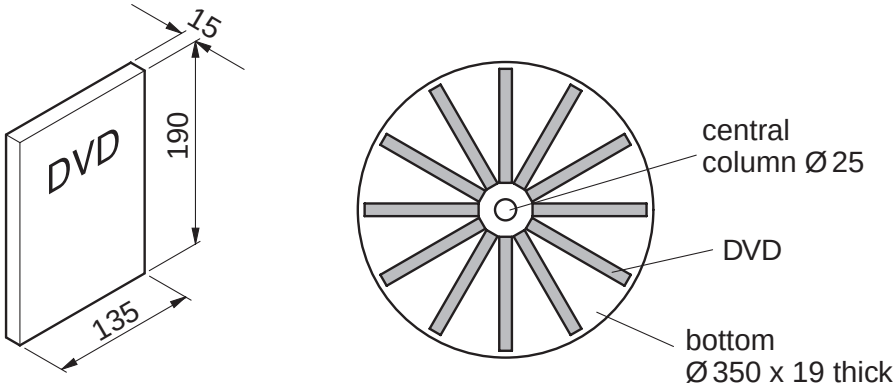

Fig. 6

Use sketches and notes to show:

- a method by which each DVD could be located in its own position;
- details of construction;
- details of materials and fittings used.

[4]

(c) Use sketches and notes to give details of a jig or former that could be used in the batch production of **one** part of the DVD stand.

[3]

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4 Fig. 7 shows details of a wall mounted display system used in a school workshop.
The system is used to display A3 size design sheets.

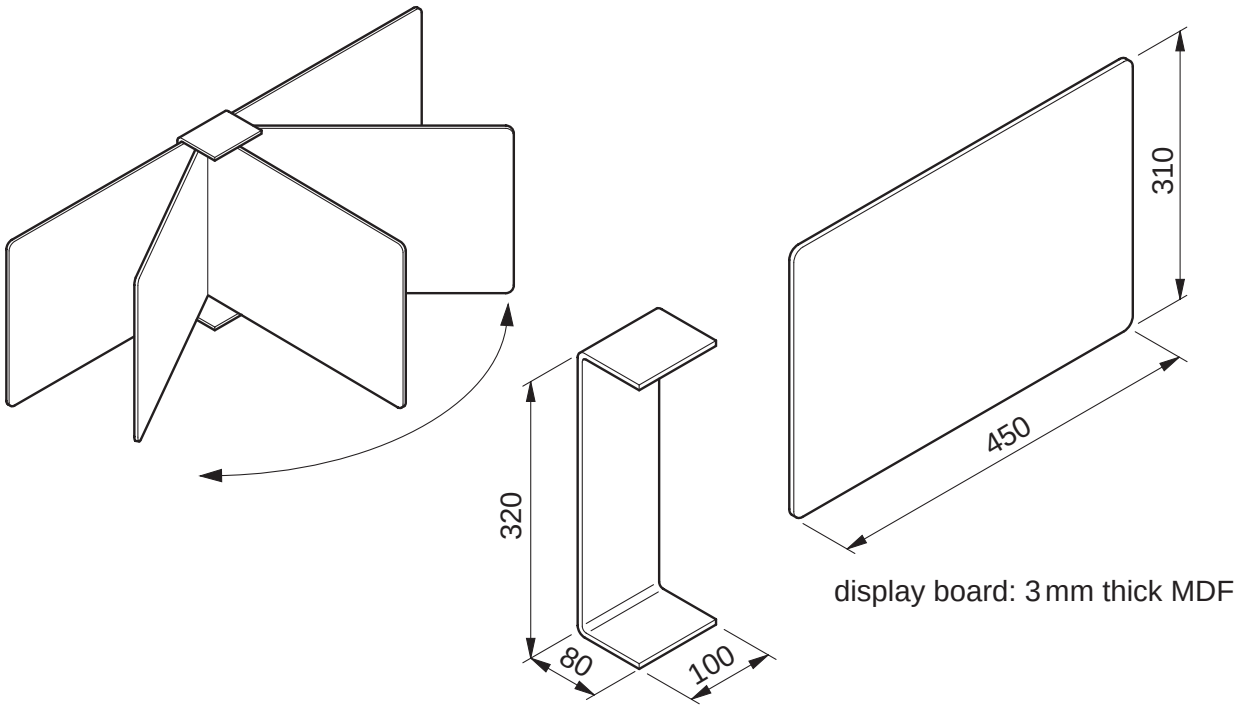

Fig. 7

(a) The mild steel would need to be annealed before it could be bent to the shape of the bracket.
Describe how the mild steel would be annealed.

.....

.....

..... [2]

(b) Explain how the mild steel could be bent to shape.

.....

.....

..... [2]

(c) Use sketches and notes to show how the five display boards could be fitted to the bracket so the five display boards can swing as shown in Fig. 7.

Include details of materials and fittings used.

[6]

5 Fig. 8 shows an incomplete design for a hand-held device used to unscrew different size lids from jars and bottles.

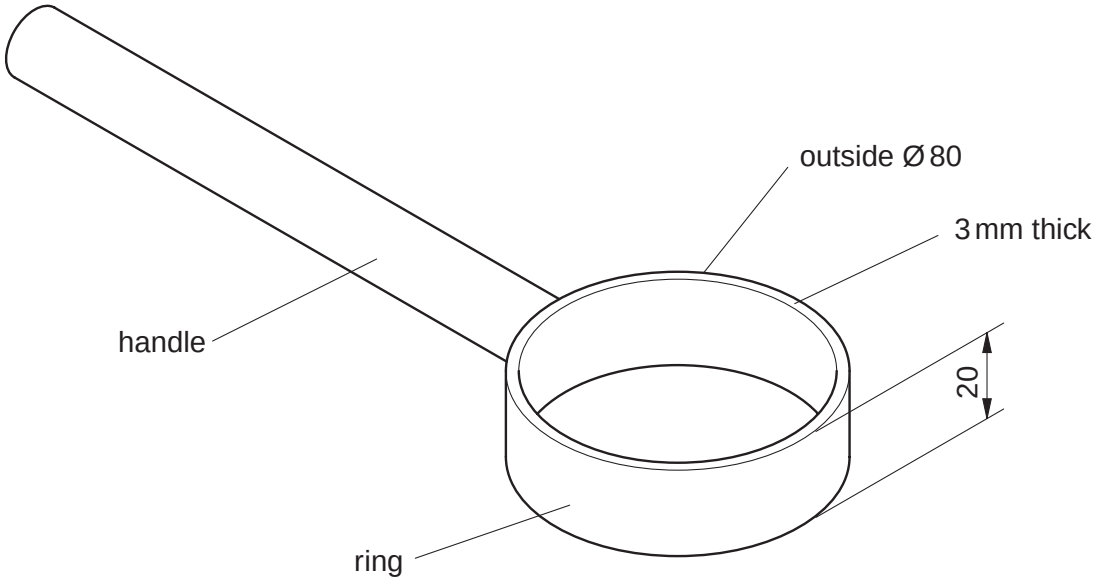

Fig. 8

(a) The handle and ring of the device are made from a one-piece injection moulding.
Give **two** benefits to the manufacturer of using the injection moulding process.

1.....[1]

2.....[1]

(b) Use sketches and notes to complete the device so that it:

- adjusts to fit different size lids;
- grips the lids effectively;
- includes ergonomic considerations.

Include details of materials and fittings used.

[8]

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