

**Wednesday 27 June 2012 – Morning**

**GCSE DESIGN AND TECHNOLOGY Resistant Materials**

**A564/01** Technical Aspects of Designing and Making

Candidates answer on the Question Paper.

**OCR supplied materials:**

None

**Other materials required:**

None

**Duration:** 1 hour 15 minutes



Candidate  
forename

Candidate  
surname

Centre number

Candidate number

### MODIFIED LANGUAGE

#### INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. 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.
- Do **not** write in the bar codes.

#### 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 headphones' stand made completely from acrylic.

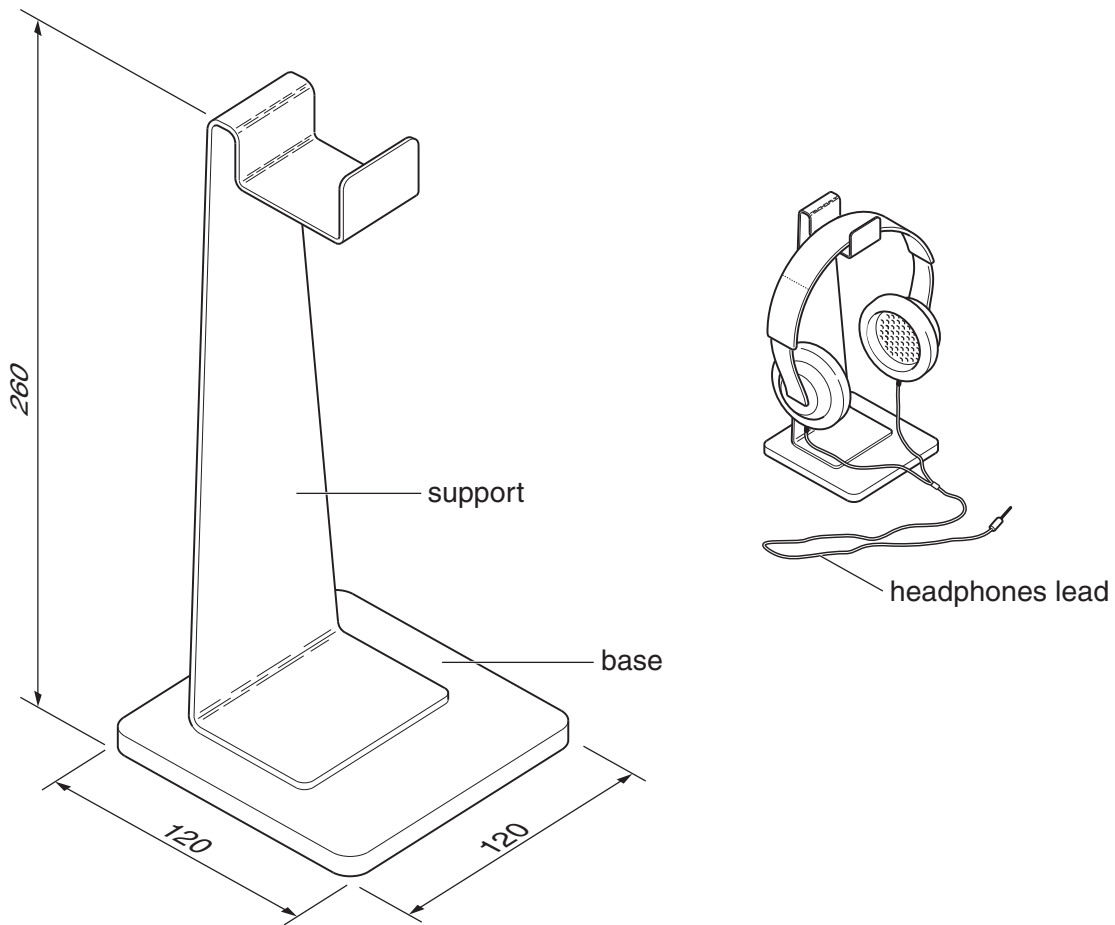


Fig. 1

- (a) State **one** performance characteristic of acrylic that makes it suitable for the headphones' stand.

..... [1]

- (b) Give **one** reason why a scribe would not be suitable to mark out the bend lines.

..... [1]

- (c) Give **one** reason why you would finish the edges of the support to a high quality **before** it is bent to shape.

..... [1]

- (d) Give **two** reasons why it would be useful to make a model of the headphones' stand before making it from acrylic.

1 .....

2 .....[2]

- (e) The support will be joined permanently to the base using acrylic cement.

Explain why an understanding of COSHH would be important when using acrylic cement.

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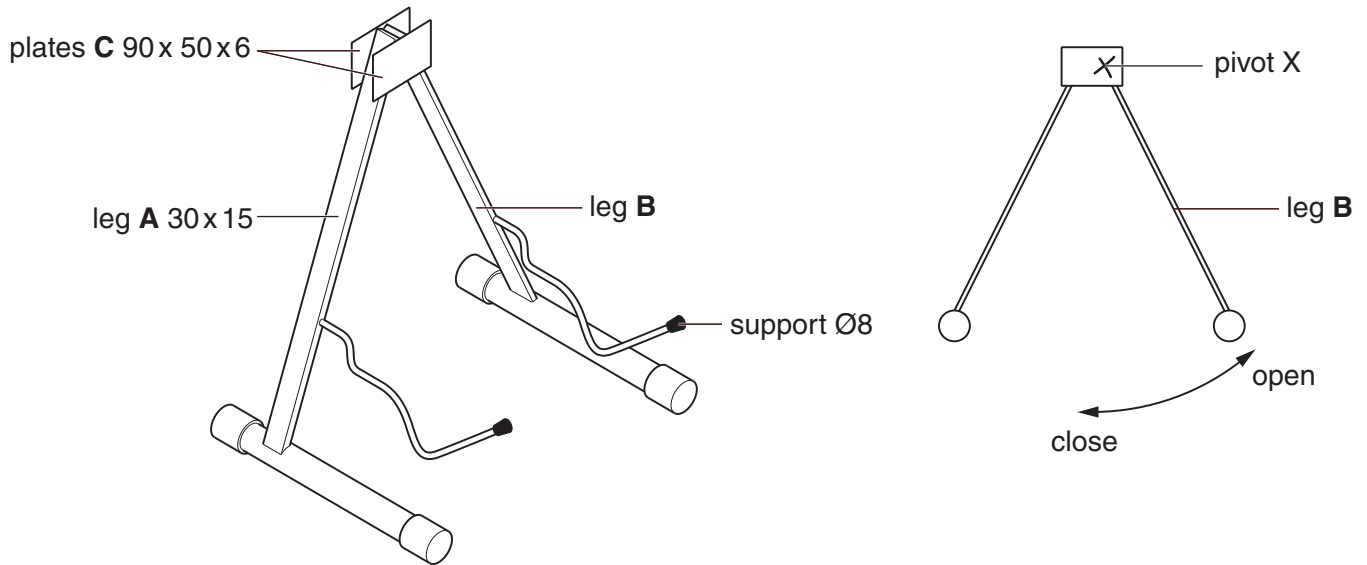
..... [3]

- (f) Show a modification to the headphones' stand that would allow the lead to be stored neatly. Use sketches and notes. Include details of materials, sizes and constructions used.

[4]

[Total:12]

- 2 Fig. 2 shows views of an incomplete guitar stand made from mild steel.  
 Leg **A** is brazed to the plates **C**.  
 Leg **B** can pivot as shown so that the stand can be closed for ease of carrying.

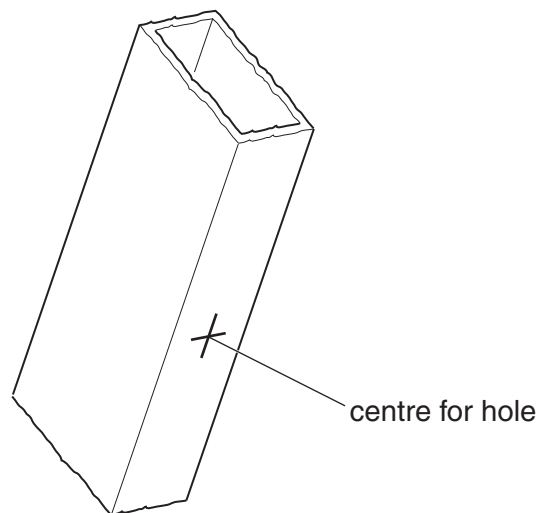


**Fig. 2**

- (a) Give **one** reason, other than 'strength' and 'cost', why mild steel is a suitable material for the guitar stand.

..... [1]

- (b) Fig. 3 shows the centre where a hole will be drilled in one of the legs to take a support.



**Fig. 3**

Give **two** reasons why a centre punch would be used to mark the centre.

1 .....

2 ..... [2]

(c) Describe **four** main stages involved when brazing one of the supports to a leg.

1.....

2.....

3.....

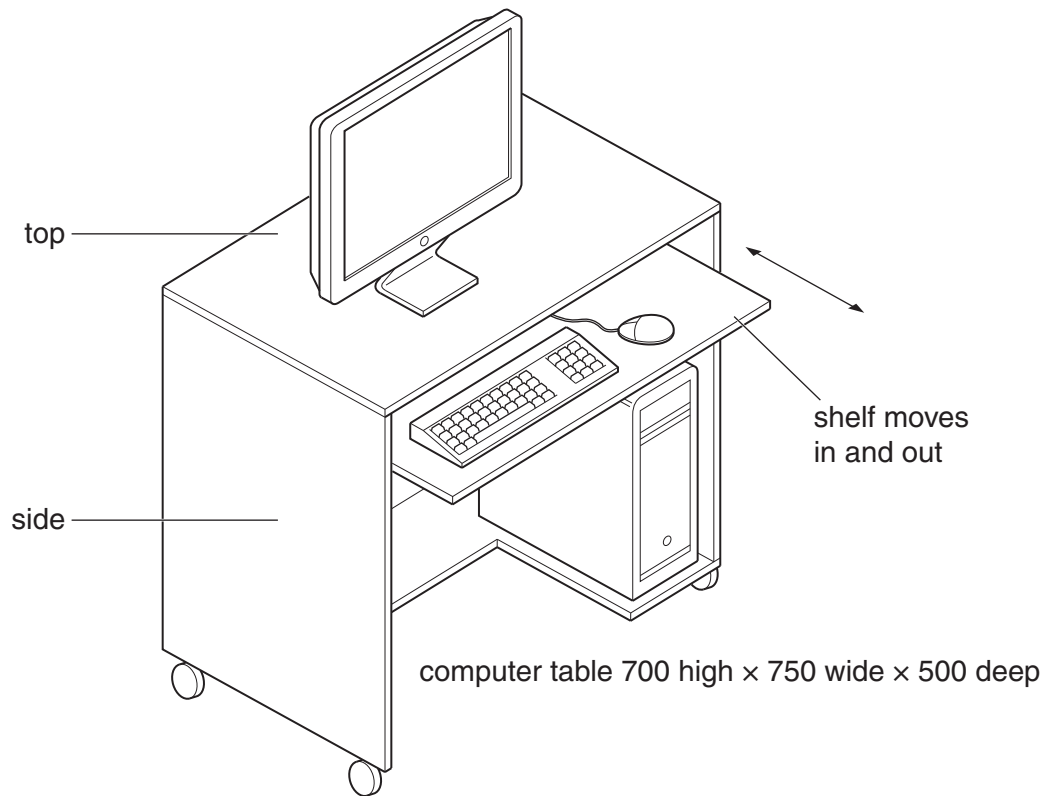
4..... [4]

(d) Show how you could make leg **B** pivot at point **X** and then be tightened in the open position. You must be able to tighten it by hand, without the use of tools. Use sketches and notes to show your ideas.

[5]

[Total:12]

- 3 Fig. 4 shows a computer table made from 25 mm thick manufactured board. The computer table is supplied as flat-pack for self-assembly.



**Fig. 4**

- (a) Use sketches and notes to show how you could use knock-down (KD) fittings to join **one** side to the top of the computer table.

- (b) The shelf in Fig. 4 is used to support the keyboard. Use sketches and notes to show how you could make the shelf slide in and out as shown in Fig. 4.

[3]

- (c)\* Explain why the computer table could be considered to be a product with a limited life.

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..... [6]

[Total:12]



## Section B

Answer **all** questions

- 4 Fig. 5 shows a box of giant dominoes used by children.  
The box is made from 15 mm thick hardwood.  
The dominoes are made from 10 mm thick manufactured board.

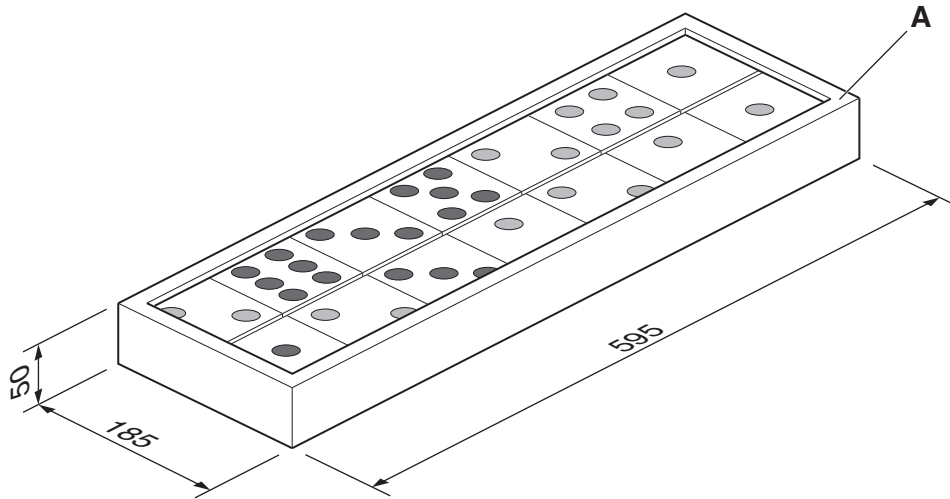


Fig. 5

- (a) Give **two** reasons why manufactured board has been used for the dominoes rather than hardwood.

1 .....

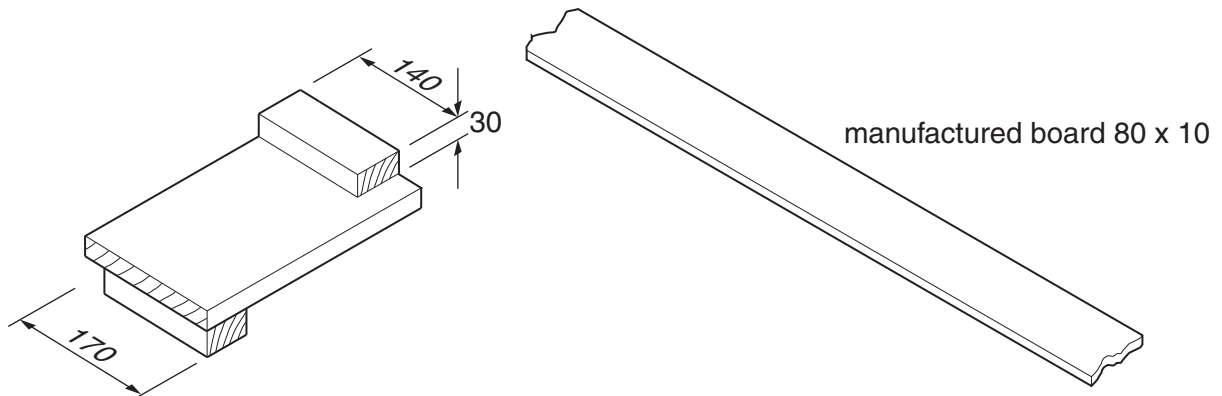
2 ..... [2]

- (b) Name and sketch a suitable joint, other than a butt joint, for corner **A**.

Do **not** include details of the base of the box.

Name of joint.....

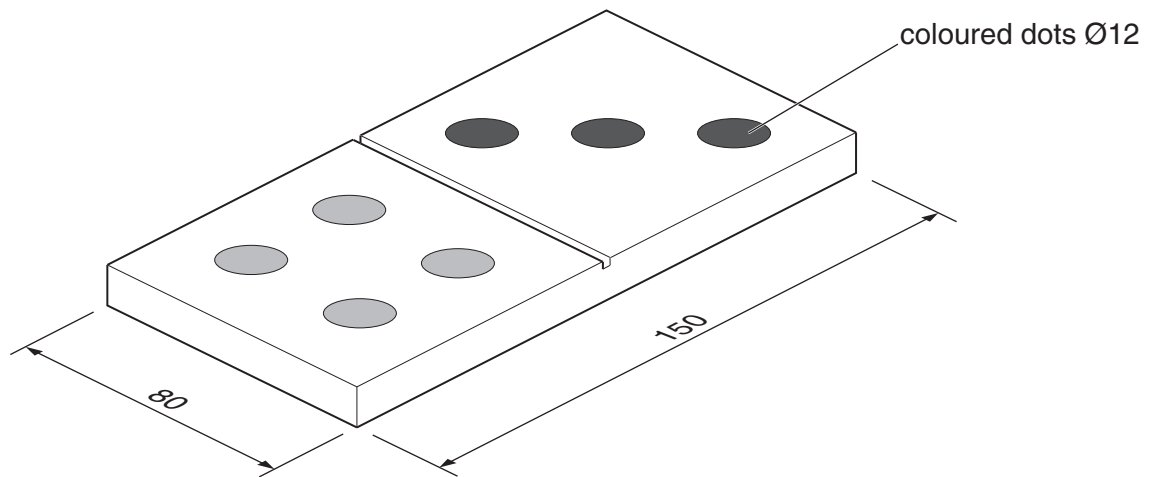
- (c) Fig. 6 shows details of a bench hook. It also shows a length of manufactured board from which the dominoes will be sawn. Each domino is 150mm long.



**Fig. 6**

Show how you could modify the bench hook into a sawing jig so that you could saw the board into accurate lengths for dominoes. Use sketches and notes.

(d) Fig. 7 shows one domino. Each set of numbers is represented by different coloured dots.



**Fig. 7**

Explain how CAM could be used to produce the coloured dots on a set of dominoes.

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..... [4]

**[Total:12]**

- 5 Fig. 8 shows a prototype desk tidy. The trays used in the desk tidy are lids from containers that would have been thrown away. The trays are made from rigid polystyrene. Trays **A** and **B** can rotate around the column. Tray **C** is fixed to the column.

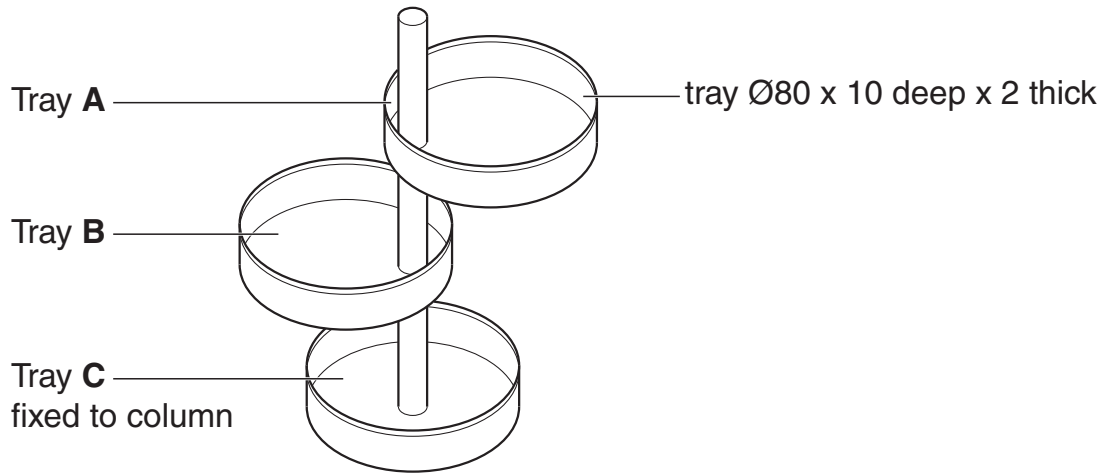


Fig. 8

- (a) Give **one** benefit of reusing products that would have been thrown away.

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

- (b) Give **one** example during the manufacture of the desk tidy where you would need to consider 'dimensional accuracy'.

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

- (c) The trays are attached to and rotate around the column. The column could be made from wood, metal or plastic.  
 Use sketches and notes to show how you could attach Trays **A** and **B** to the column and allow them to rotate around the column.



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