

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Ordinary Level

**GEOMETRICAL AND MECHANICAL DRAWING**

**7040/02**

Paper 2

October/November 2006

**2 hours 40 minutes**

Additional Materials: A2 Drawing Paper (1 sheet)  
Standard Drawing Equipment

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name at the bottom right-hand corner of your Drawing Paper.

Use both sides of the paper.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **both** questions.

The insert contains Fig. 2 for Section 2.

You should spend 10 minutes reading carefully the text of Section 2 before answering the questions.

Arcs of less than 5 mm radius may be drawn freehand.

All dimensions are in millimetres unless otherwise stated.

The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **5** printed pages, **3** blank pages and **1** insert.



**Section 1**

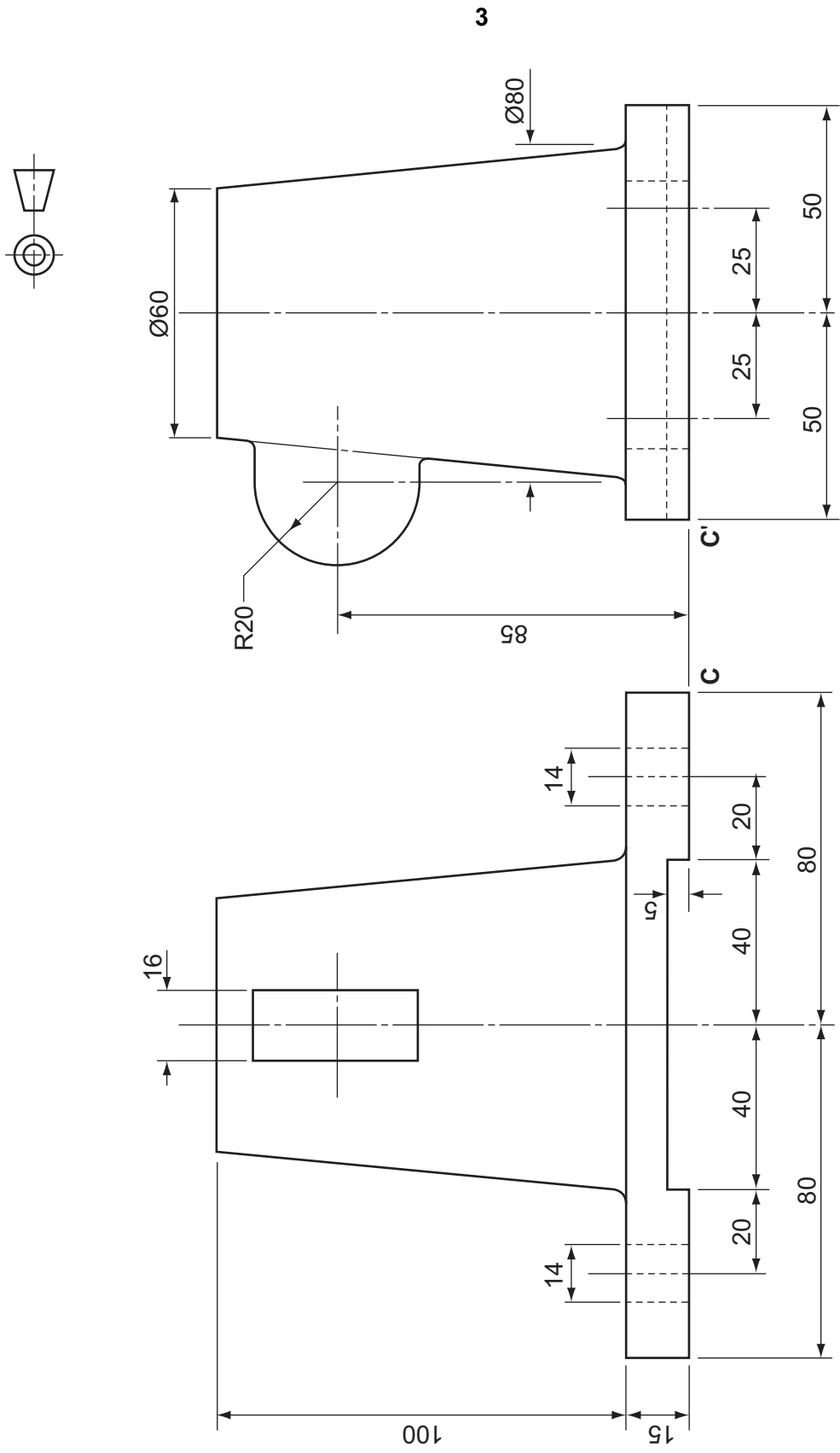
Candidates are advised to spend not more than 20 minutes on this Section.

- 1 Orthographic views of a partly machined casting are shown in third angle projection in Fig. 1.

Sketch, freehand and in a good proportion, a pictorial view of the casting, with the corner **C** at the lowest point of the view.

**The use of instruments, including any form of straight-edge, when constructing the view or when lining-in will be heavily penalized.**

Faint construction lines and points used when constructing the view should not be erased. [16]



**Fig. 1**

## Section 2

- 2 Fig. 2, on the insert, shows details of a Tile Cutter used by decorators when a variation is required in the size of the tile.

The components are assembled as follows.

The Scoring Disc ④ is inserted into the slot in the Cutter Block ③. With the 6 mm diameter holes of both in alignment the Threaded Spindle ⑨ is inserted and tightened, thereby securing the Scoring Disc whilst allowing it to rotate freely.

The M8 threaded end of the Arm ⑥ is screwed into the M8 threaded hole of the Cutter Block until tight. The Handle ⑦ is screwed fully onto the M10 threaded end of the Arm.

With the Scoring Disc facing downwards the Cutter Block is then fitted between the two lugs of the Carriage ②, until the 5 mm diameter holes are in alignment. The Pivot Pin ⑧ is pressed into the 5 mm diameter holes of the Carriage, firmly securing the Cutter Block, whilst allowing it to pivot freely in the vertical plane.

The 14 mm diameter portion of the four Feet ⑤ are pressed fully into the four holes at the corners of the Body ①.

A Plain Washer ⑪ is fitted onto both Slider Bolts ⑩ until in contact with the hexagonal head. The Cutter Block is positioned below the Carriage with the 12 mm diameter holes in the Carriage in alignment, with the holes in the Body, the threaded ends of the Slider Bolts are inserted through the respective 12 mm diameter holes in both Body and Carriage and screwed fully into the M12 threaded holes in the Body. It is important that the handle is facing the hexagonal heads of the Slider Bolts as shown on the schematic diagram Fig. 2. The Carriage assembly is now free to slide along the Slider Bolts.

The dovetail slide of the Adjustable Guide ⑫ is fitted into the corresponding slot in the Body. (The setting scale has been omitted for this examination).

Finally the Tile ⑬ is placed on the flat bed of the Body with its leading edge in contact with the 5 mm step.

With the components assembled as indicated above

the Arm is inclined at 30°,  
the Tile is positioned centrally in the Tile Cutter,  
the centre of the Scoring Disc is 20 mm from the right-hand edge of the Tile.

Draw, FULL SIZE, the following views in either first or third angle projection.

- (i) A sectional front elevation, the plane of the section and the direction of the required view being indicated by **SS** in the plan view of Body ①. [39]
- (ii) A full plan view. [17]
- (iii) An end view as seen when looking in the direction of Arrow **A**. [17]

**Hidden detail is not required in any view.**

**Suitable dimensions should be estimated where not provided.**

(iv) Insert five dimensions on your drawing, these should indicate one of each of the following:

a horizontal length;

a vertical length;

a diameter;

a radius;

and the size of a screw thread.

[5]

(v) On the side of your drawing paper showing these views, draw a title block. Print into this block the title, scale used and indicate, by showing the recommended BS308/PD7308 symbol, the method of projection you have used.

[6]

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