

**TECHNICAL DRAWING - ORDINARY LEVEL
PAPER II (A) - ENGINEERING APPLICATIONS**
200 marks

MONDAY, 17 JUNE - MORNING 9.30 to 12.30

INSTRUCTIONS

- (a) Answer question 1 and two other questions.
- (b) Drawings and sketches should be in pencil unless otherwise stated.
- (c) Where dimensions are omitted they may be estimated.
- (d) Credit will be given for neat orderly presentation of work.
- (e) Candidates should work on one side of the paper only.
- (f) The Examination Number should be written on each drawing sheet used.
- (g) All dimensions are in millimetres.

1. Details of a DRILLING JIG are given in Fig. 1 with a parts list tabulated below.

INDEX	PART	REQUIRED
1	Body	1
2	Vee Block	1
3	Clamp Frame	1
4	Clamp Screw	1
5	Guide	1

- (a) Make the following drawings of the assembly in first or third angle projection, with a 150 mm length of shaft, 30 mm in diameter, fitted.
 - (i) A sectional side elevation on section plane CC.
 - (ii) An end elevation projected in the direction of arrow X.
- (b) Insert the following on the drawings:
 - (i) Title:- DRILLING JIG.
 - (ii) ISO projection symbol.
 - (iii) Four leading dimensions.

(100 marks)

OVER→

2. Fig. 2 shows an elevation and incomplete plan of a metal hopper with a cylindrical pipe leading from it.

- (a) Draw the views as given and complete the plan.
- (b) Draw a development of the cylindrical pipe with the seam on SS.
- (c) Draw the true shape of face X of the hopper including the true shape of the hole.

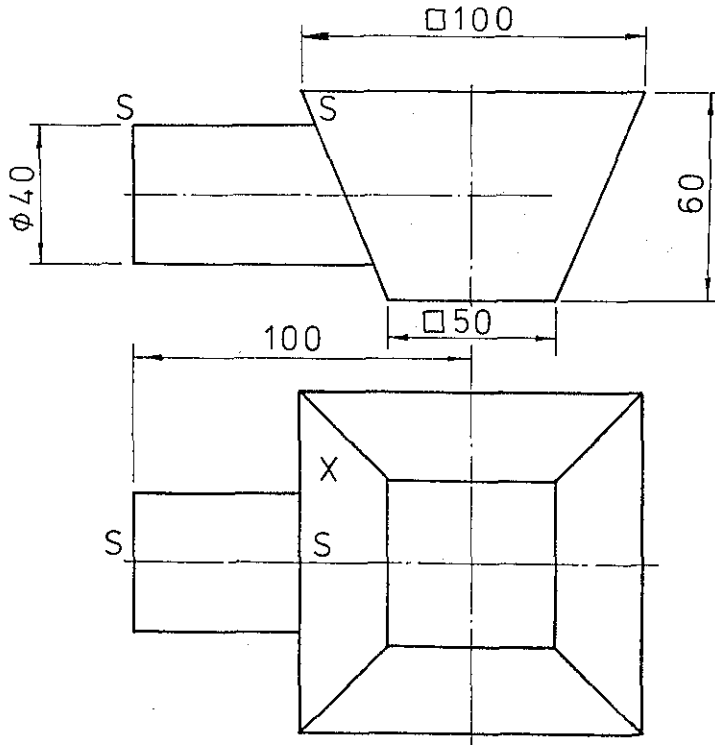


FIG. 2

(50 marks)

3. (a) Draw a radial plate cam with a minimum radius of 35 mm and clockwise rotation to impart the following motion to an in-line knife edge follower.

0° to 180° Rise 60 mm with simple harmonic motion.

180° to 240° Dwell.

240° to 360° Fall 60 mm with uniform velocity.

Include the displacement diagram as part of your solution.

(b) Fig. 3 shows a link mechanism. The linked arms PQ and PR are pivoted at Q and R to two gear wheels which are in mesh so that they rotate in opposite directions about their axes O_1 and O_2 .

(i) Using a line diagram to represent the linkage, plot the locus of point P as the gear wheels rotate.

(ii) Draw the profile of a simple machine guard about the mechanism with a minimum clearance of 15 mm.

(50 marks)

4. (a) Fig. 4 shows an incorrectly dimensioned template. Assume all numerical values to be correct.
- (i) How many dimensions are shown correctly with reference to BS 308?
 - (ii) Using the dimensions given, produce a correctly dimensioned drawing of the template.
- (b) (i) Identify the assembly shown in Fig. 5.
- (ii) Name the parts 1, 2, 3, 4 and 5.
- (c) With the aid of freehand sketches, illustrate the following types of standard pipe couplings.
- (i) Threaded coupling.
 - (ii) Flanged coupling.
 - (iii) Compression coupling.

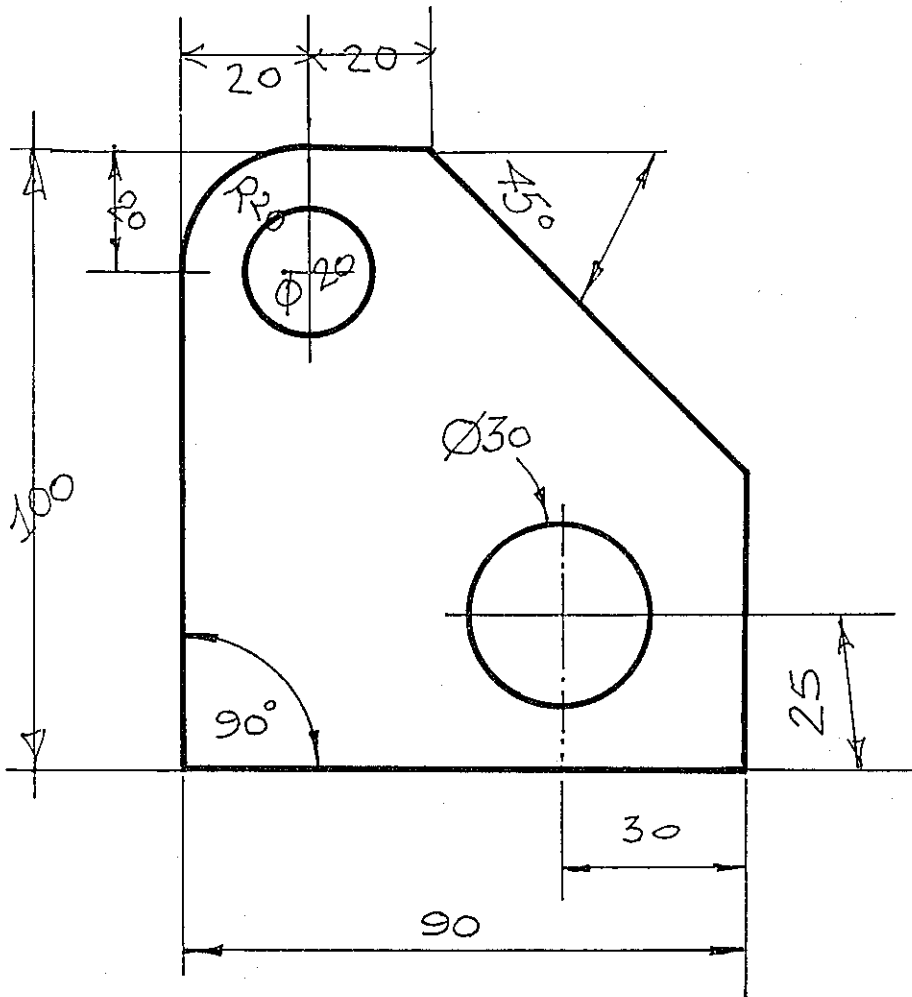


FIG.4

(50 marks)

OVER →

5. Answer SECTION A or SECTION B but not both.

SECTION A

- (a) Fig. 6 shows two elevations of a bearing bracket. Draw an isometric view of the bracket viewed on the section plane BB with the front section of the casting removed. P is to be the lowest point of the drawing.
- (b) By means of neat freehand sketches explain the following engineering terms:
- (i) Collar.
 - (ii) Cam.
 - (iii) Dovetail.

OR

SECTION B

- (a) List a selection of six commands necessary to produce the drawings shown in Fig. 6.1.
- (b) Name three devices by which the movement of the cursor on a visual display unit may be controlled. In a short note explain how each is operated.
- (c) There are two memories for storing computer information. (i) primary storage (ii) secondary storage. In a short note distinguish between the two.
- (d) Which would be the most suitable snap resolution for the drawing in Fig. 6.2
(i) 0.25 (ii) 0.5 (iii) 1.5 (iv) 3.0 (v) 5.5
- (e) By means of sketches and a short note, explain the purpose of the following commands:
- (i) Scale command;
 - (ii) Break command;
 - (iii) Fillet command.

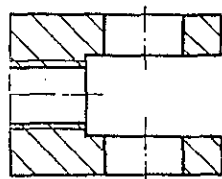


FIG. 6.1

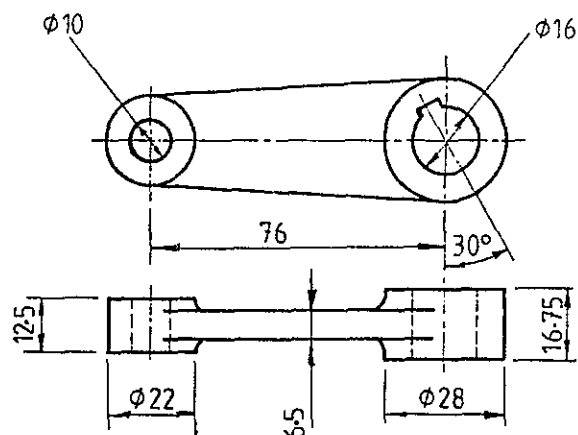
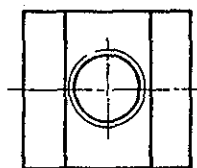
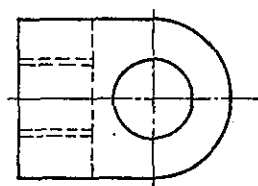


FIG. 6.2

(50 marks)

M82(L)

7500

**AN ROINN OIDEACHAIS
SCRÚDÚ ARDTEISTIMÉIREACHTA**

1996

LÍNÍOCHT THEICNIÚIL - GNÁTHLEIBHÉAL

PÁIPÉAR II(A)

FEIDHMIÚCHÁIN INNEALTÓIREACHTA

**AN ROINN OIDEACHAIS
LEAVING CERTIFICATE EXAMINATION**

1996

TECHNICAL DRAWING - ORDINARY LEVEL

PAPER II(A)

ENGINEERING APPLICATIONS

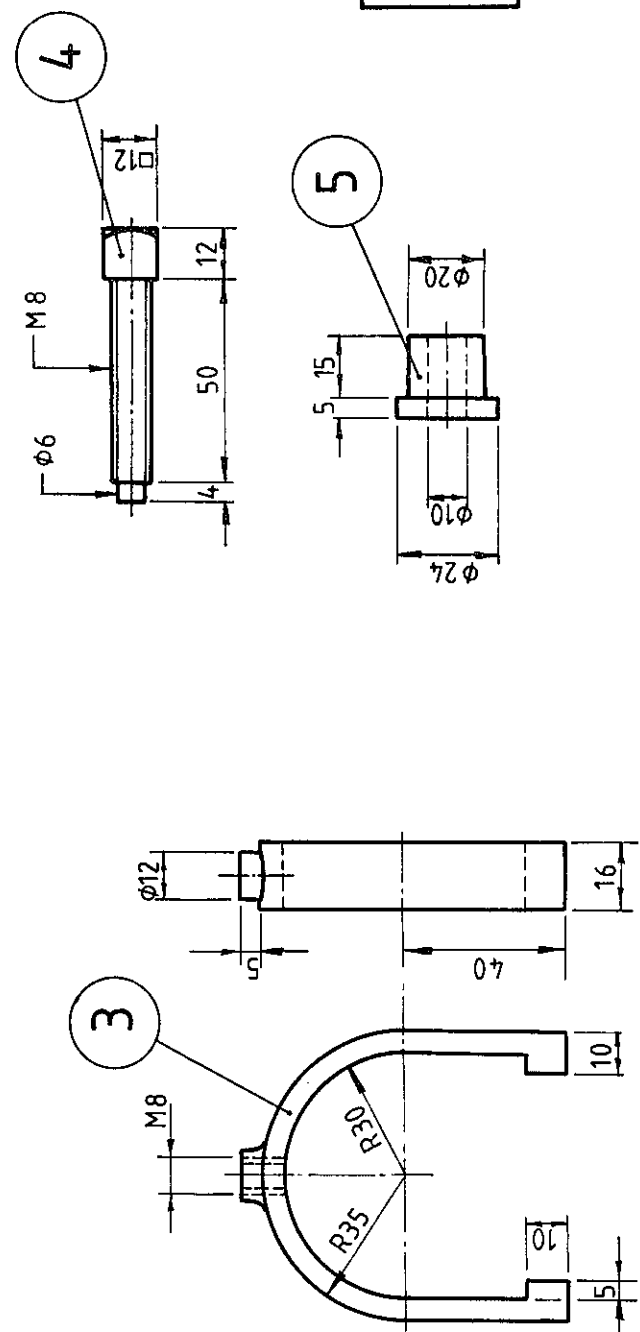
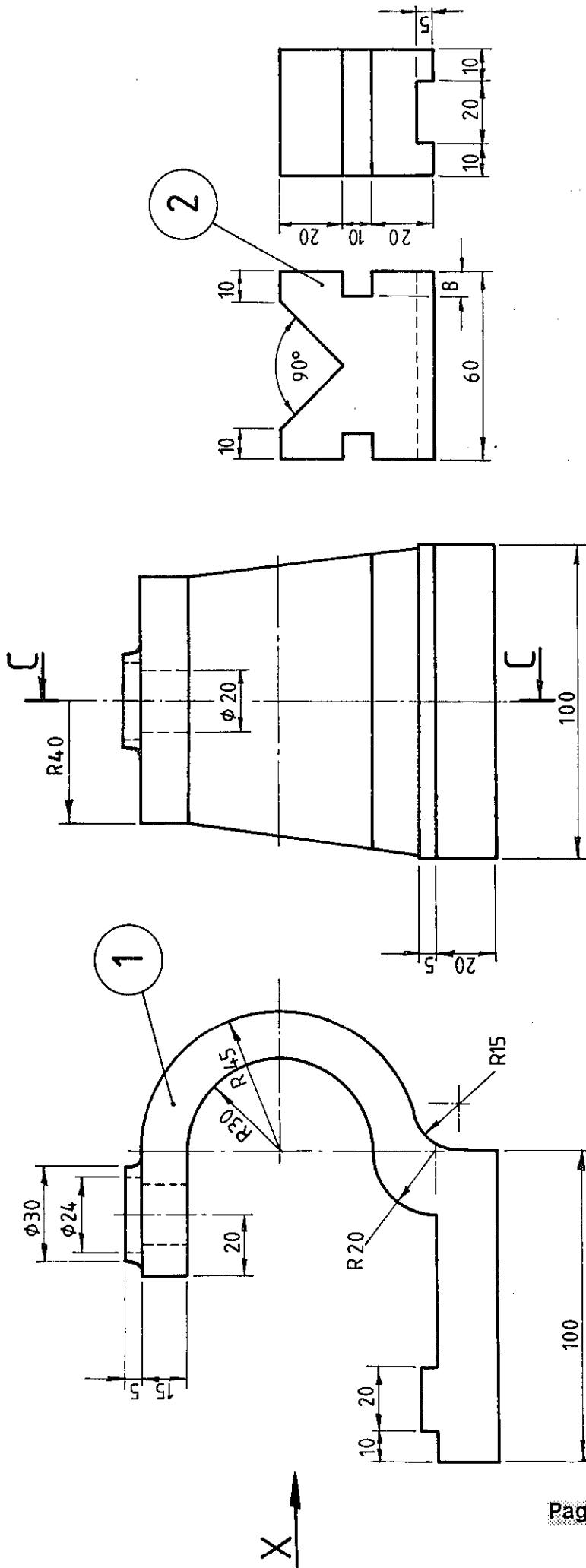


FIG.1
FIOR1

PROJECTION
TEILGEAN

FIG.3
FÍOR 3

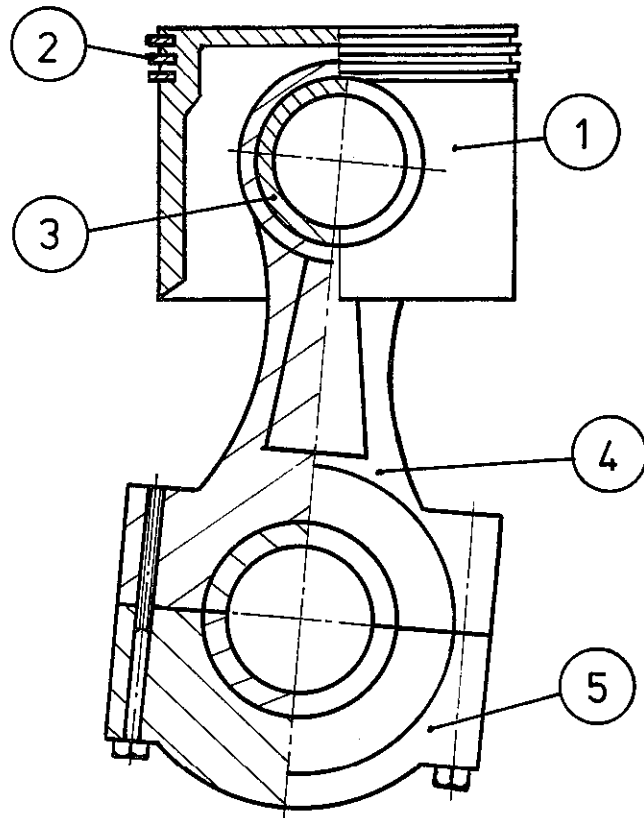
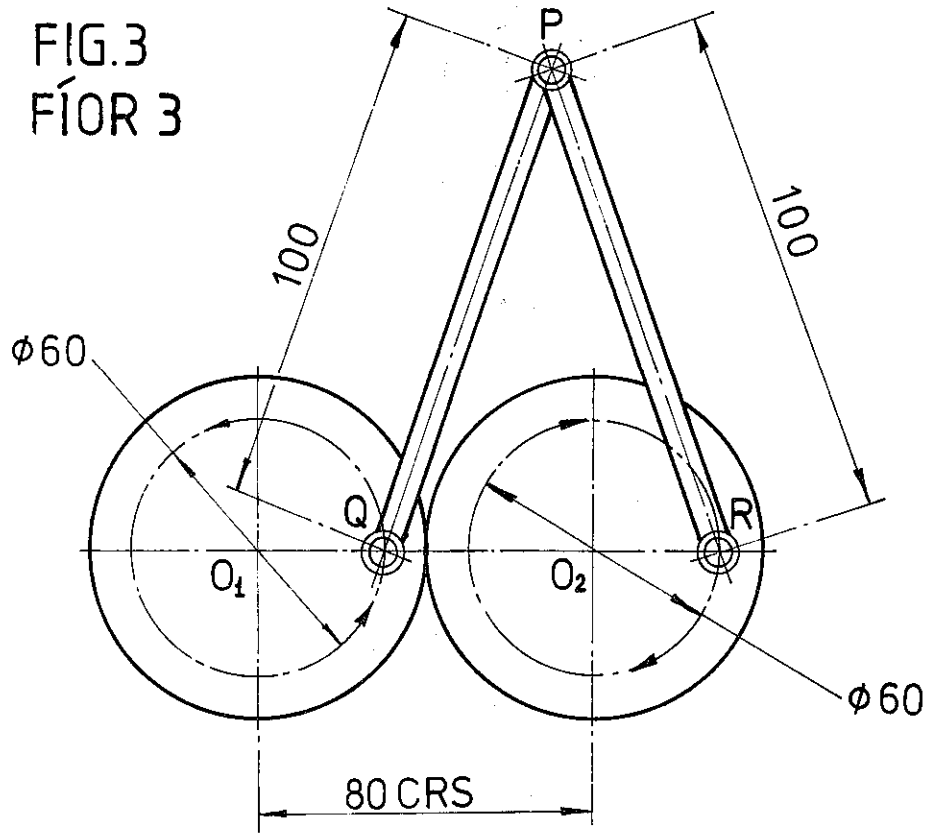


FIG.5
FÍOR 5

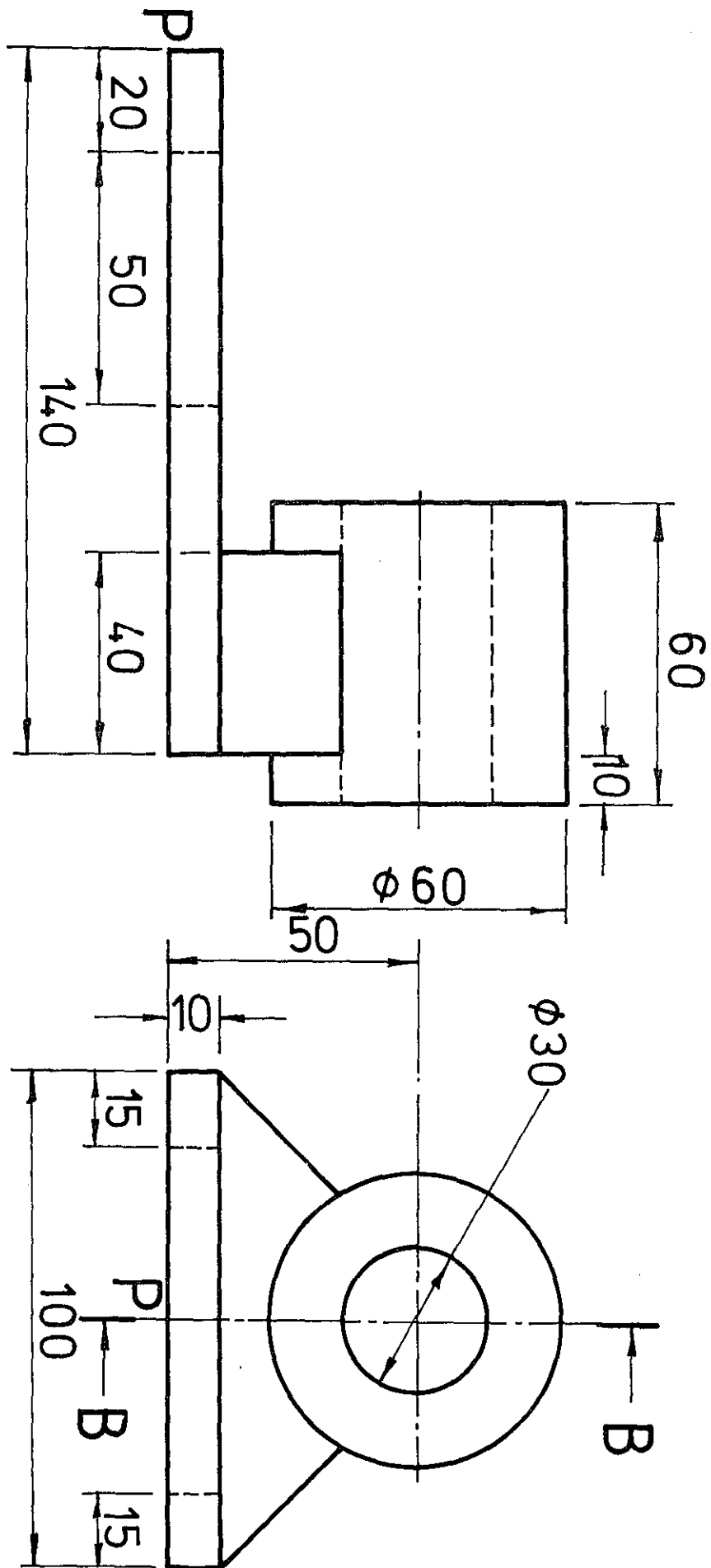


FIG. 6 FÍOR 6