LEAVING CERTIFICATE EXAMINATION, 1989

TECHNICAL DRAWING - ORDINARY LEVEL

PAPER II (A) - ENGINEERING APPLICATIONS

200 Marks

THURSDAY 22 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 BEARING BRACKET are given in Fig. 1 with the parts list tabulated below.

INDEX	PART	REQUIRED
1	Bracket	1
2	Cap	1
3	Bearing	1
4	Bolt	4
5	Nut	4
6	Washer	4

(a) Make the following drawings of the assembled parts in first or third angle projection.

(i) A sectional side elevation on section plane BB.
(ii) A half front elevation viewed in the direction of arrow X.

(b) Insert the following on the drawing:

(i) Title: BEARING BRACKET.
(ii) ISO projection symbol.
(iii) Four leading dimensions.

(100 marks)

2. Fig. 2 shows the elevation and incomplete plan of a triangular feed chute.

(a) Draw the given elevation and complete the plan.

(b) Draw the surface development of the chute using *aa* as the seam.

(c) Make a large freehand sketch of a *paned down joint.*

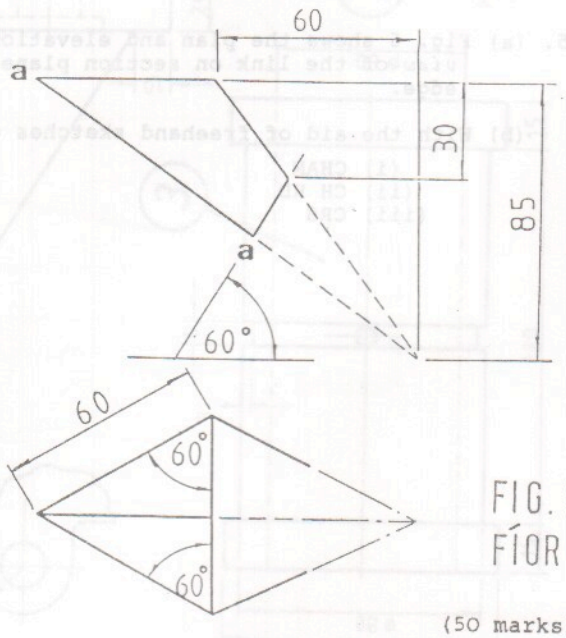


FIG. 2
FÍOR 2

(50 marks)

3. (a) Draw a radial cam with a minimum radius of 30 mm and anti-clockwise rotation to give the following motion to an in-line knife edge follower:-

0° - 180° Rise 50 mm with uniform acceleration and retardation.
180° - 270° Dwell
270° - 360° Fall 50 mm with simple harmonic motion.

Include the displacement diagram as part of the solution.

(b) Fig. 3 shows a machine lever OA, pivoted at O, which moves through an angle of 60°. The rod PR is connected by a pin joint at P and passes through a swivel block Q. Using a line diagram to represent the linkage:

(i) Plot the locus of point R for the 60° movement from A to B.

(ii) Draw the profile of a simple machine guard about the mechanism with a minimum clearance of 15 mm. (50 mark

4. (a) Using the data table below make a fully dimensioned drawing of the machine part in Fig. 4.

1	Screwthread:	Metric 30, Pitch 3.5, Length 30
2	Undercut:	Diameter 20, Length 10
3	Taper:	Length 70, Minimum diameter 30, Maximum diameter 60
4	Shaft:	Diameter 60, Length 20
5	Flange:	Diameter 90, Thickness 15
6	Extension:	Diameter 60, Length 10
7	Hole:	Depth 80, Diameter 20 Countersink 5 x 5

(b) (i) Identify the engineering mechanism shown in Fig. 5.

(ii) Name the parts 1, 2, 3, 4.

(iii) Make a neat freehand sketch showing a method by which part A could be driven by part B.

(c) With the aid of freehand sketches explain any <u>two</u> of the following:

(i) Boss.

(ii) Tee groove.

(iii) Rib. (50 mar

5. (a) Fig. 6 shows the plan and elevation of a machine link. Draw an *isometric view* of the link on section plane SS and having CC as the nearest edge.

(b) With the aid of freehand sketches explain the following abbreviations:

(i) CHAM
(ii) CH HD
(iii) CRS (50 ma

1989

TECHNICAL DRAWING — ORDINARY LEVEL
PAPER II(A)
ENGINEERING APPLICATIONS

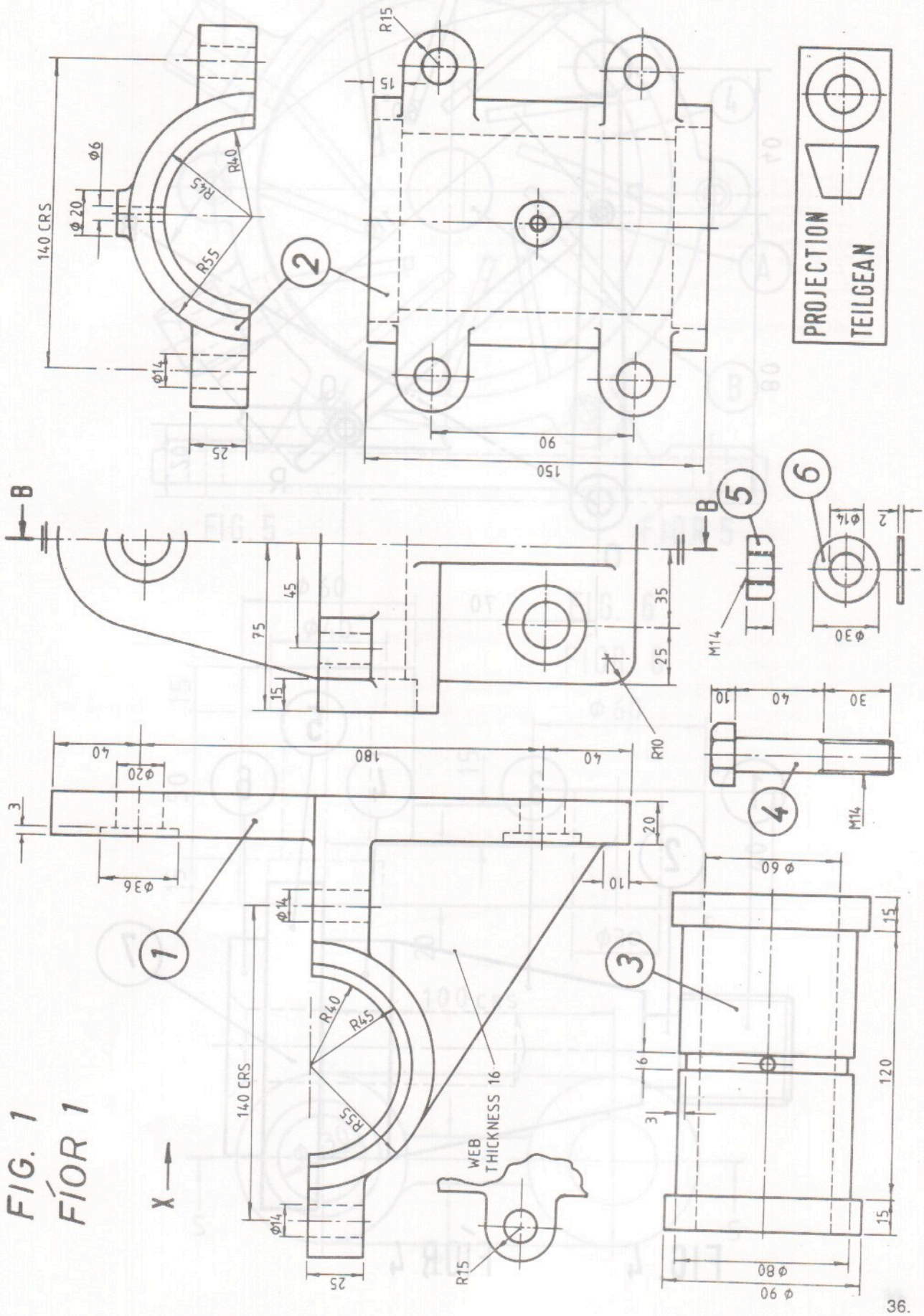
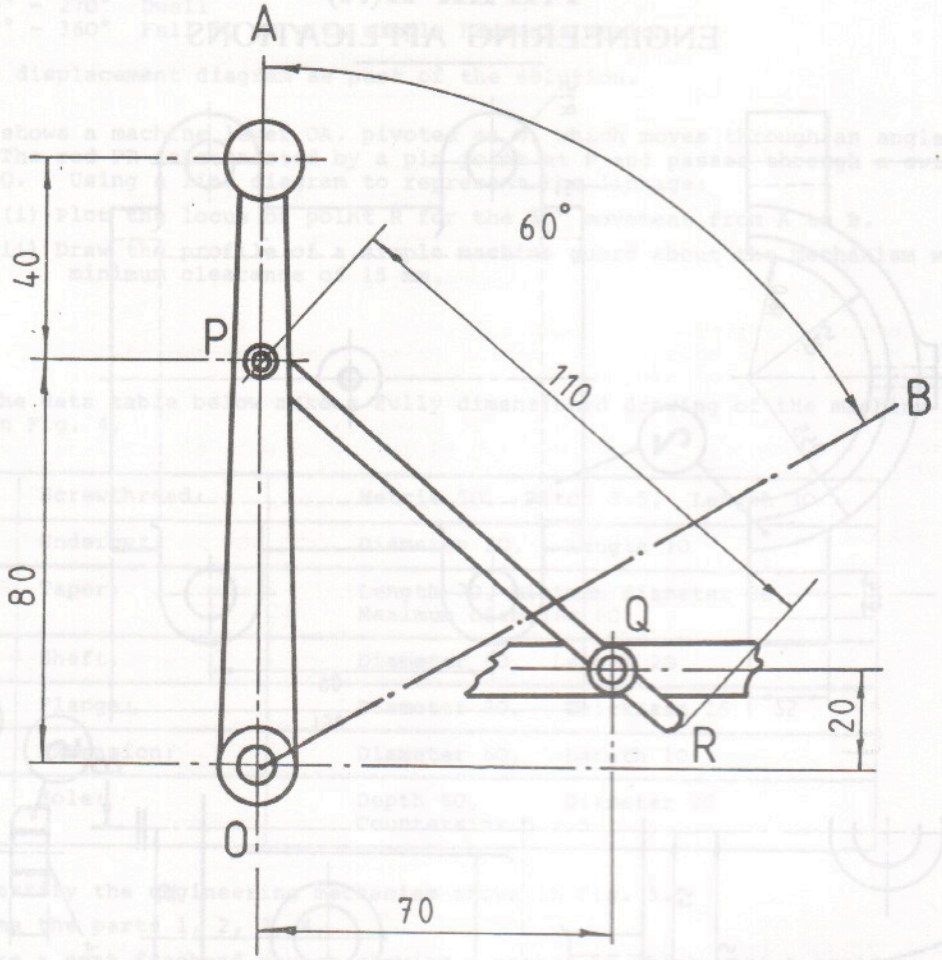


FIG. 1
FÍOR 1

FIG. 3 FÍOR 3



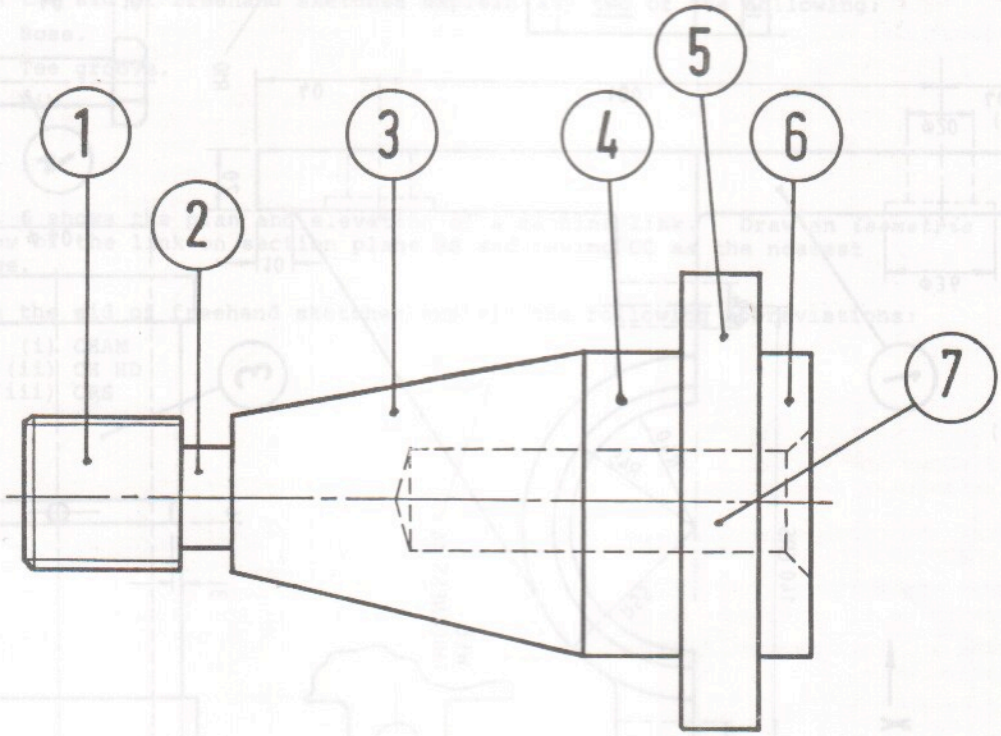


FIG. 4 FÍOR 4

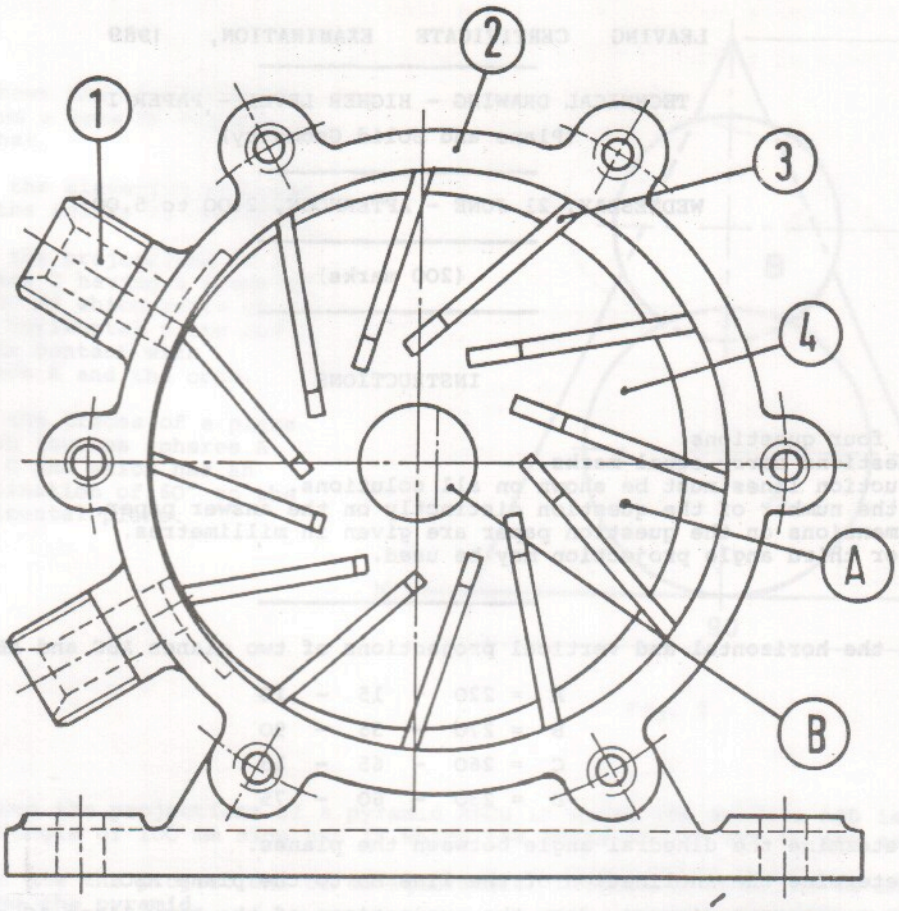


FIG. 5 FÍOR 5

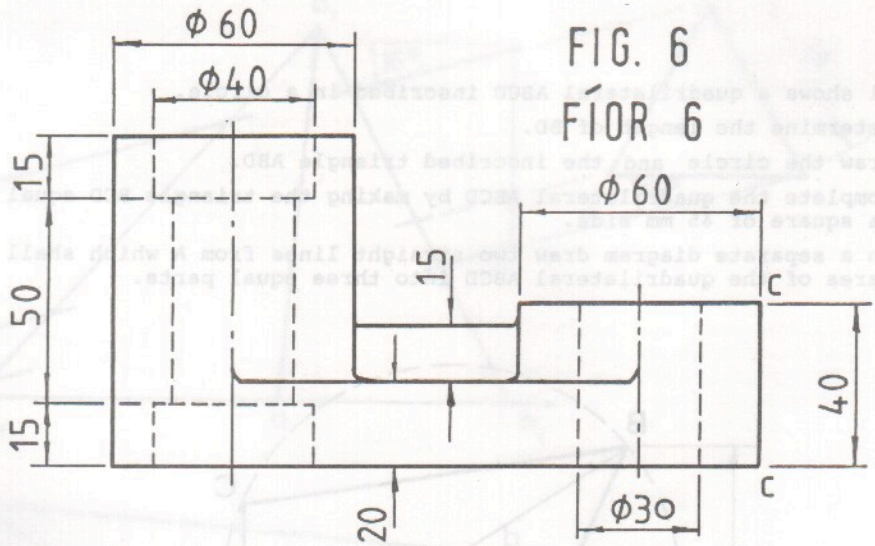
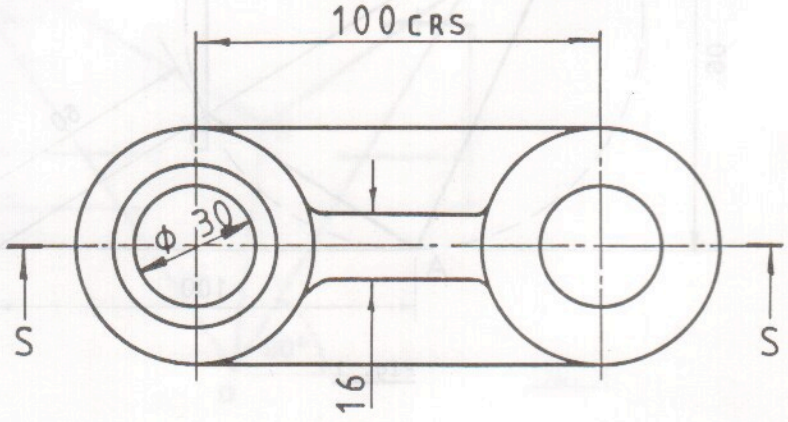



FIG. 6
FÍOR 6