AN   ROINN   OIDEACHAIS   M.130

LEAVING   CERTIFICATE   EXAMINATION,   1985

TECHNICAL DRAWING - ORDINARY LEVEL

PAPER II(A) - ENGINEERING APPLICATIONS

THURSDAY, 27 JUNE - MORNING, 9.30 - 12.30

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200 marks

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.

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1. Details of a Relief Valve assembly are given in Fig. 1, with the parts list
   tabulated below.

INDEX	PART	REQUIRED
1	VALVE BODY	1
2	ADJUSTING SCREW	1
3	VALVE SEAT	1
4	VALVE	1
5	SPRING LOCATOR	1
6	SPRING	1

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

    (i) A sectional front elevation on section plane AA.
    (ii) A side elevation projected in the direction of arrow X.

(b) Insert the following on the drawing.

    (i) Title: RELIEF VALVE.
    (ii) ISO projection symbol.
    (iii) Four leading dimensions.

(100 marks)

2. Fig. 2 shows three pipes of 60 mm diameter, with their axes in the same plane
   and forming a bend through 90°.

(a) Draw the given view.

(b) Draw the surface development of pipe K,
    using TT as the seam line.

(c) The joint used is a 6 mm grooved seam.

    (i) Make a large sketch of the
        grooved seam.

    (ii) Show the seam allowance on
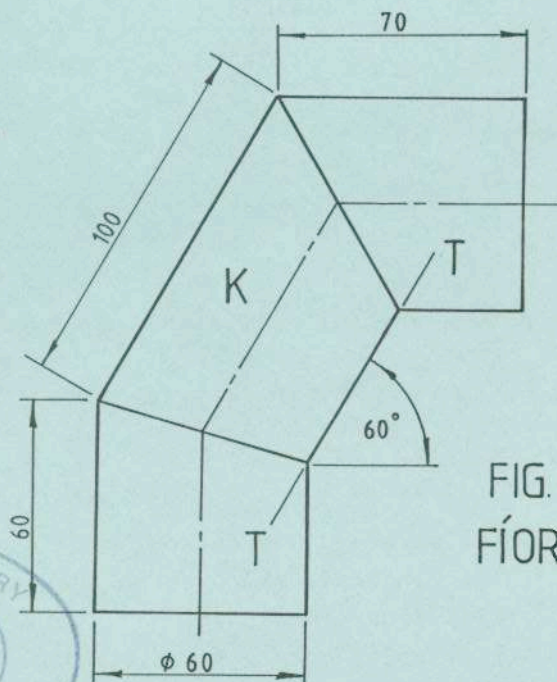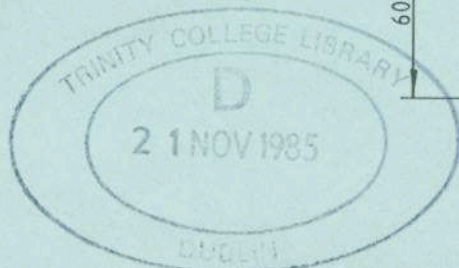   the pattern.

(50 marks)

FIG. 2
FÍOR 2

OVER →

3. (a) Draw a Radial Cam with a minimum radius of 40 mm to give the following motion
       to an In-line knife edge follower.

              0° to 180° rise 50 mm with Uniform Velocity.
            180° to 270° fall 50 mm with Simple Harmonic Motion.
            270° to 360° dwell.

       Include the displacement diagram as part of the solution.

    (b) Fig. 3 shows a slotted lever mounted on a shaft, centre C, and carrying
        a slider S.   The lever makes one revolution clockwise, at constant
        speed about C, while the slider moves at constant speed from A to B.
        Using a line diagram to represent the mechanism, plot the locus of
        S for one revolution of lever.

                                                                    (50 marks)

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

1	INCLUDED ANGLE 60°
2	LENGTH 12 mm, DIAMETER 40 mm
3	UNDERCUT 5 x 5
4	SCREWTHREAD: M46, PITCH 4, LENGTH 100
5	LENGTH 20, DIAMETER 46, RADIUS r = 10
6	LENGTH 20, DIAMETER 100, FINISH - DIAMOND KNURL

   (b)   (i) Identify the machine part shown in Fig. 5.

         (ii) Name the parts 1, 2, 3, 4, 5.

        (iii) Make a neat freehand sketch showing how to lock part A to part B.

   (c) State the type and illustrate the symbol for each of the weld joints shown
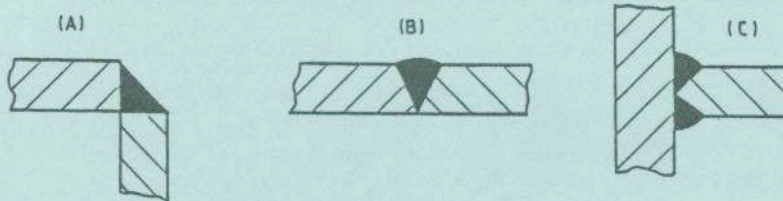   in Fig. 6.   Answer to be presented in tabular form as shown below.

                        FIG. 6   FÍOR 6

JOINT	TYPE	SYMBOL
(A)		
(B)		
(C)		

                                                                    (50 marks)

5. (a) Draw three full coils of a square section compression spring to the following
       specifications:-

              Outside diameter   -   120 mm
              Inside diameter   -   80 mm
              Pitch   -   40 mm

       All construction lines must be shown.

    (b) Using standard convention, make sketches of the following:
         (i) Internal and external screwthread assembly.
        (ii) Square on shaft.
       (iii) Holes on a circular pitch.

                                                                    (50 marks)

M.130 (L)

AN ROINN OIDEACHAIS

SCRÚDÚ ARDTEISTIMÉIREACHTA

1985

LÍNÍOCHT THEICNIÚIL — GNÁTHLEIBHÉAL

PÁIPÉAR II(A)

FEIDHMIÚCHÁIN INNEALTÓIREACHTA

AN ROINN OIDEACHAIS

LEAVING CERTIFICATE EXAMINATION

1985

TECHNICAL DRAWING — ORDINARY LEVEL
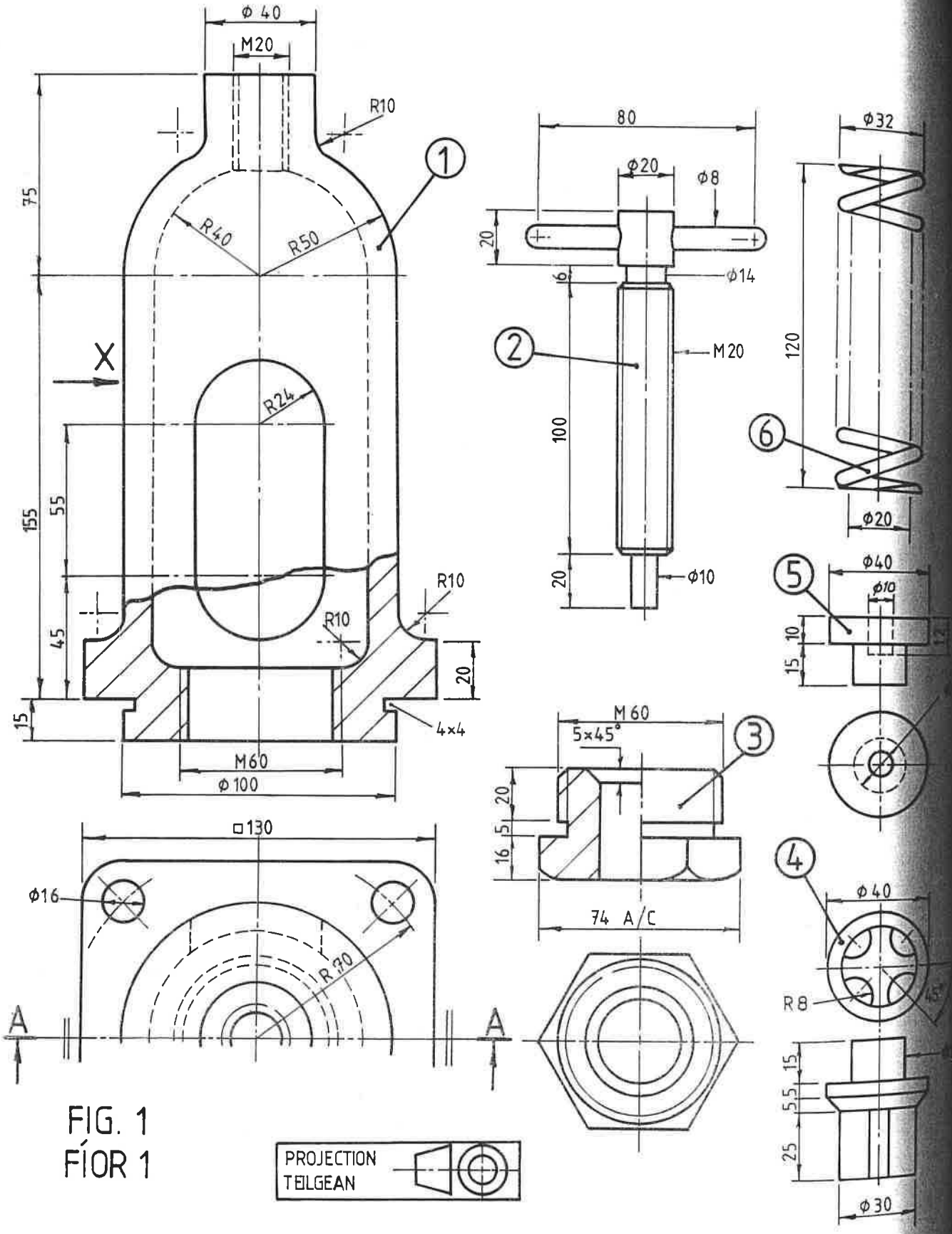
PAPER II(A)

ENGINEERING APPLICATIONS

Ø 40
M20
R10
75
R40 R50
①
X
R24
155 55
R10
45
R10
15
20
4x4
M60
Ø 100

□130
Ø16
R 70
A A
FIG. 1
FÍOR 1

PROJECTION
TEILGEAN

80
Ø20
Ø8
20
6
Ø14
②
M20
100
20
Ø10

M60
5×45°
20
16 5
③
74 A/C

Ø32
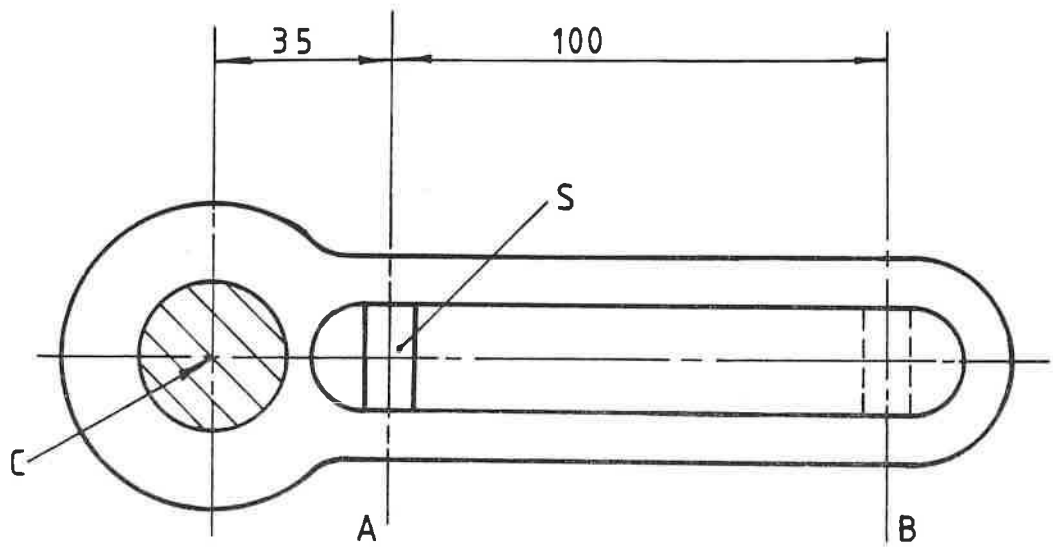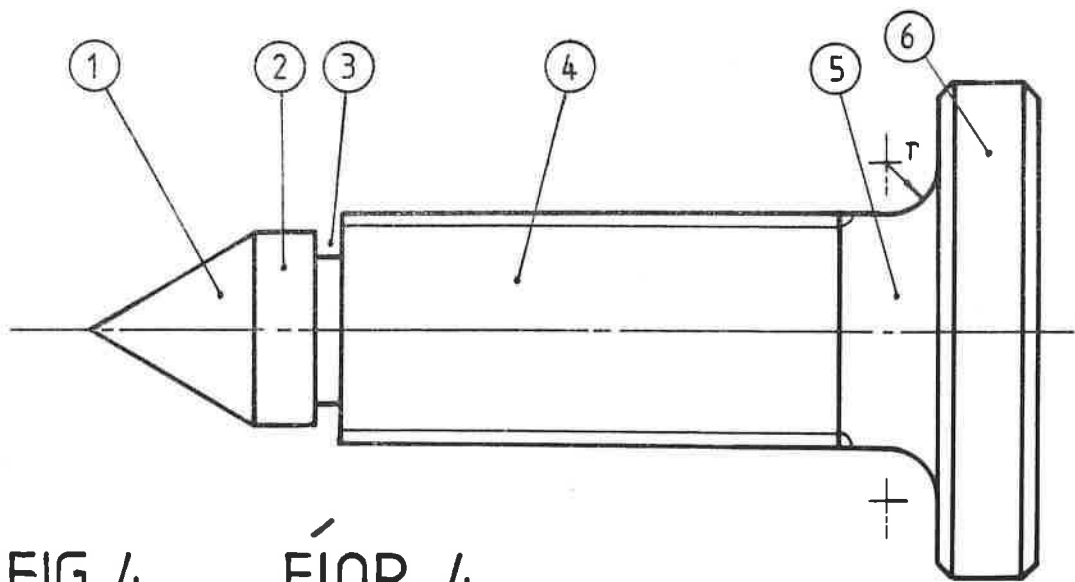120
⑥
Ø20

⑤
Ø40
Ø10
15 10
12

④
Ø40
R8
45°
15
5.5
25
Ø30

FIG. 3   FÍOR 3

FIG. 4   FÍOR 4

FIG. 5
FÍOR 5