

LEAVING CERTIFICATE EXAMINATION, 1986

TECHNICAL DRAWING - ORDINARY LEVEL

PAPER II(A) - ENGINEERING APPLICATIONS

THURSDAY, 26 JUNE - MORNING, 9.30 - 12.30

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.

1. Details of a Pulley/Hook Assembly are given in Figure 1 with parts list tabulated below.

INDEX	PART	REQUIRED
1	BRACKET	1
2	TRUNNION	1
3	HOOK	1
4	PIN	1
5	PULLEY	1

- (a) Make the following drawings of the assembled parts in first or third angle projection:
 - (i) A front elevation viewed in the direction of arrow X.
 - (ii) A sectional side elevation on section plane A-A.
- (b) Insert the following on the drawing.
 - (i) Title: PULLEY/HOOK ASSEMBLY.
 - (ii) ISO projection symbol.
 - (iii) Four leading dimensions.

(100 marks)

2. Figure 2 shows the elevation of a roof ventilator made by cutting a right cone and having the seam at C-C.

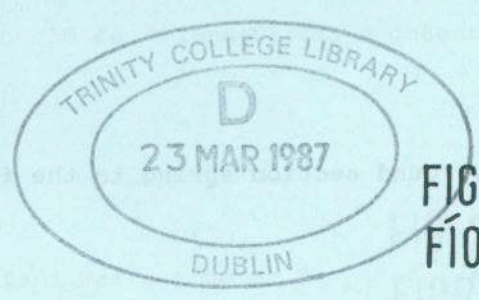
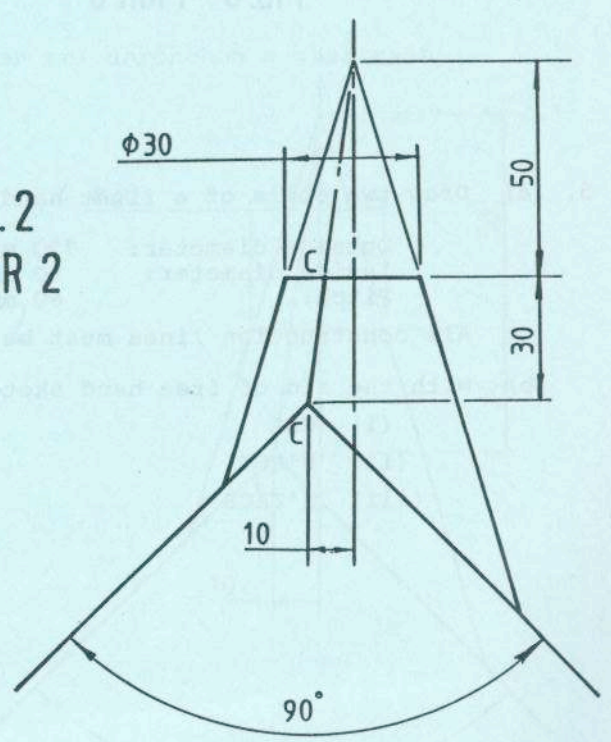


FIG. 2
FÍOR 2



- (a) Draw the view as given.
- (b) Draw the surface development of the ventilator.
- (c) Name and make a large sketch of a suitable joint for the seam.

(50 marks)

OVER→

3. (a) Draw a radial cam with minimum radius of 40 mm and anti-clockwise rotation to give the following motion to an in-line knife edge follower.
- 0° to 180° rise 60 mm with uniform acceleration and retardation.
 - 180° to 240° dwell.
 - 240° to 360° Fall to initial position with uniform velocity.

The solution should include the displacement diagram.

- (b) Figure 3 shows a link mechanism. The rod BD is connected by a pin joint to a crank AB at B and passes through a swivel guide at C. Using a line drawing to represent the linkage:
- (i) Plot the locus of point D for one revolution of B about A.
 - (ii) Draw the profile of a simple guard about the mechanism with a minimum clearance of 15 mm.
- (50 marks)

4. (a) Using the data table shown below, make a fully dimensioned drawing of the spindle shown in Figure 4.

1	SCREWTHREAD: METRIC 30, PITCH 3.5, LENGTH 100
2	DIAMETER 24, LENGTH 15
3	TAPER: MAXIMUM DIAMETER 60 MINIMUM DIAMETER 40, LENGTH 50
4	DIAMETER 40, LENGTH 20
5	SQUARE 16, LENGTH 30
6	SCREWTHREAD: METRIC 12, PITCH 1.75, LENGTH 15

- (b) (i) Identify the valve type in Figure 5.
(ii) Name the parts 1, 2, 3, 4, 5.
(iii) Make a freehand sketch showing another method for fixing part 5 to part 2.
- (c) Identify the standard pipe fittings, (i), (ii) and (iii) shown in Figure 6.

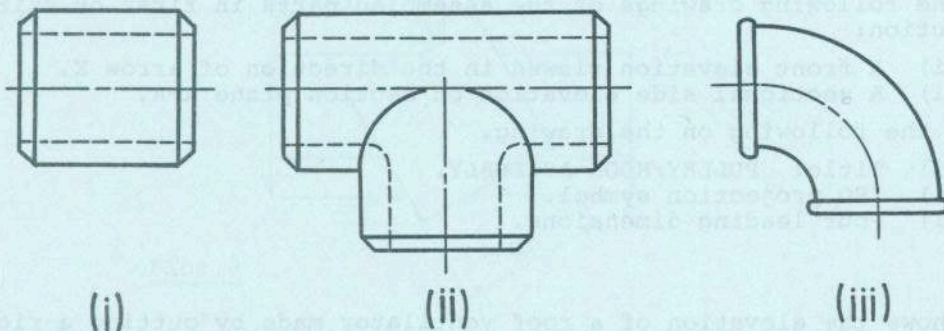


FIG. 6 FIGOR 6

(50 marks)

5. (a) Draw two coils of a right hand, round section spring to the following specifications:

Outside diameter: 720 mm
Inside diameter: 80 mm
Pitch: 60 mm

All construction lines must be clearly shown.

- (b) With the aid of free hand sketches, explain the following abbreviations.
- (i) CRS
 - (ii) U'CUT
 - (iii) S'FACE

(50 marks)

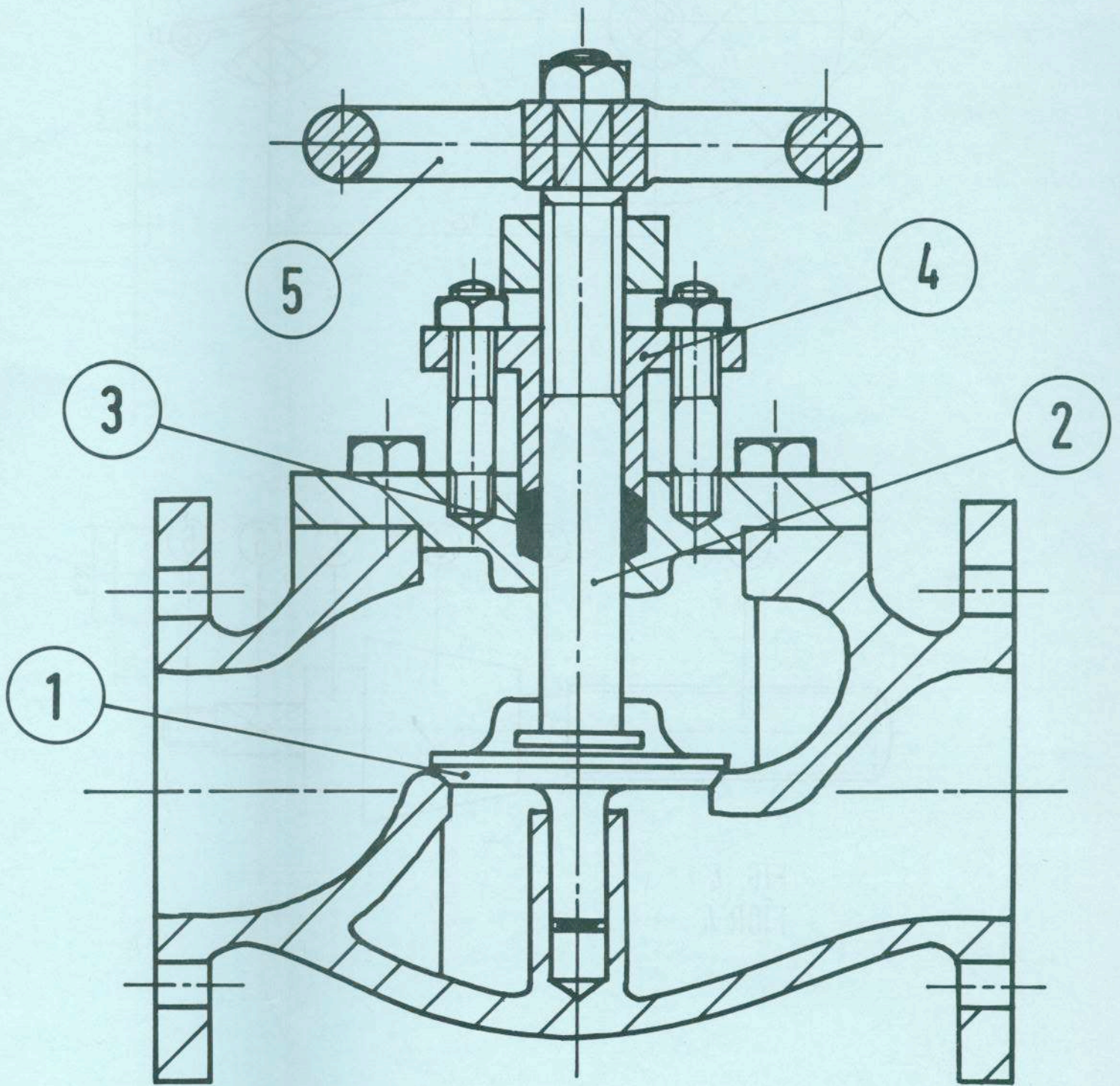
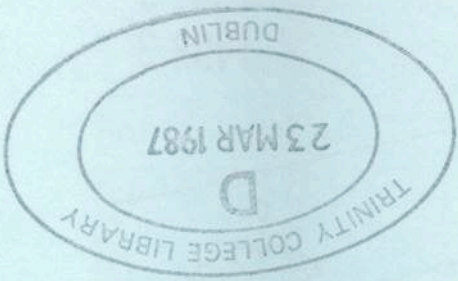


FIG. 5

FÍOR 5

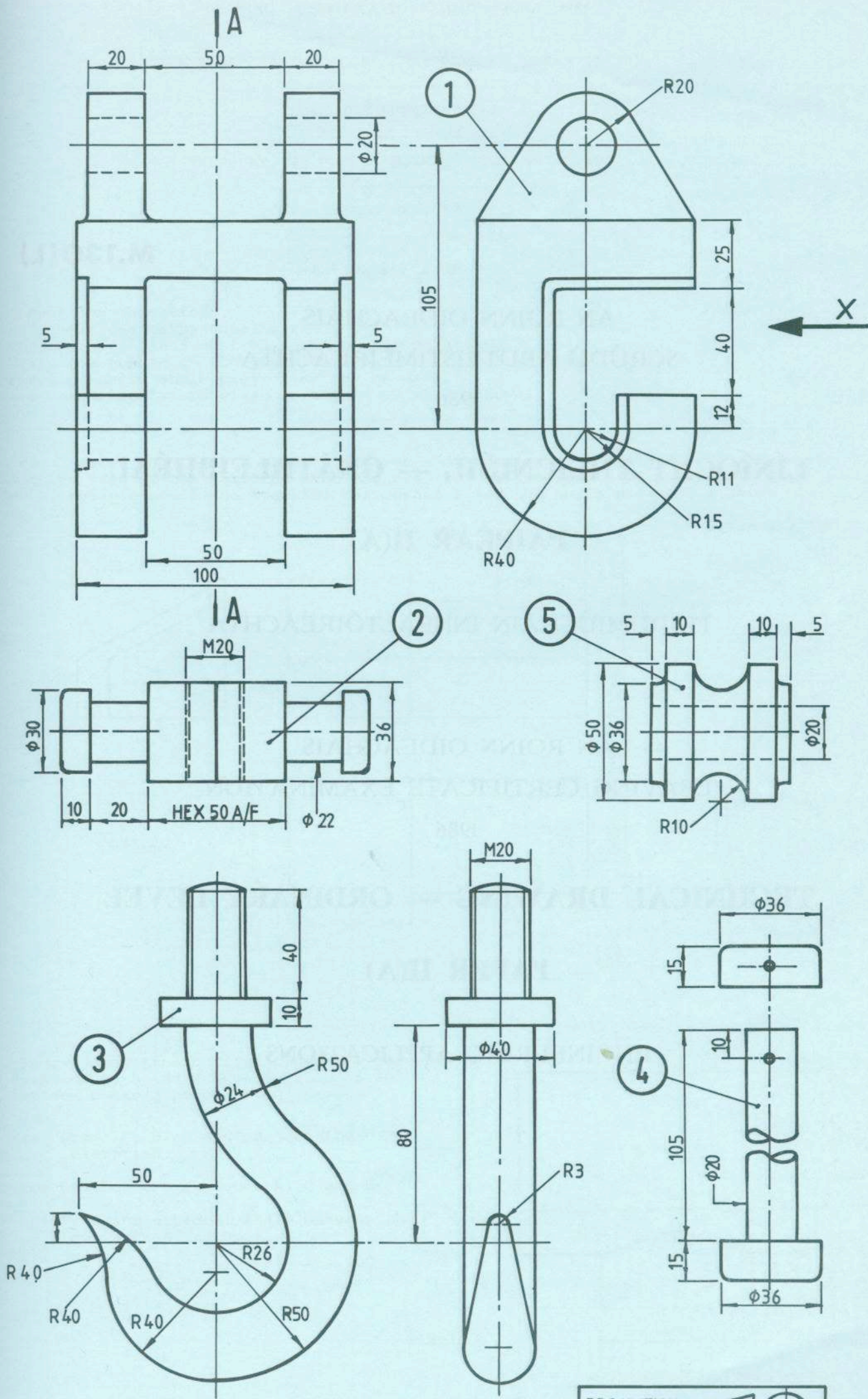


FIG.1

FÍOR 1

PROJECTION
TEILGEAN