

LEAVING CERTIFICATE EXAMINATION, 1974

 TECHNICAL DRAWING - COMMON LEVEL - PAPER I
 (Plane and Solid Geometry)

 MONDAY, 17 JUNE - AFTERNOON, 2 to 4.30

INSTRUCTIONS

- (a) Answer four questions.
 - (b) All questions carry equal marks.
 - (c) Construction lines must be shown on all solutions.
 - (d) Write the number of the question distinctly on the answer paper.
 - (e) All dimensions on the question paper are given in millimetres.
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1. Fig. 1 shows the plan of an oblique rectangular pyramid whose base ABCD is inclined at 30° to the horizontal plane and whose base edge AB rests on the horizontal plane. The pyramid is 80 mm high.

Draw the given plan, project the elevation and show a development of all the surfaces.

Scale 1 : 1.

NOTE - First or third angle projection may be used.

2. Fig. 2 shows the incomplete plan of a prism penetrating a regular tetrahedron. The cross-section of the prism is an equilateral triangle of 70 mm side. The edge of the tetrahedron is 140 mm long. The tetrahedron rests on the horizontal plane and the prism is positioned 20 mm above the horizontal plane.

Draw the plan and elevation of these solids showing the lines of interpenetration.

Scale 1 : 1.

NOTE - First or third angle projection may be used.

3. In Fig. 3, the rod AB pivots in a clockwise direction about B. During one revolution of AB, the end C of rod FC slides from C to D and back to C. The rod AE is pin-jointed at A and at E. Draw the locus of point F during one revolution of the rod AB. Scale 1 : 1.

4. The circle in Fig. 4 is rolled along the line AD until the point C touches the line. Plot the locus of the point B during this movement. Scale 1 : 1.

5. Fig. 5 shows the focus F of an ellipse, the direction of the major axis and a point P on the curve. Given that the eccentricity is $\frac{3}{4}$, draw the ellipse.

Draw the tangent to the curve at the point P and draw another tangent perpendicular to this tangent and show its point of contact with the ellipse. Scale 1 : 1.

6. Fig. 6 shows the plan and incomplete elevation of part of a cylinder which is cut by the oblique plane VTH. Draw the elevation of the intersection of the prism and the oblique plane. Show the true shape of the section of the cylinder by the oblique plane and determine the angle between the oblique plane and the vertical plane face of the cylinder. Scale 1 : 1.

7. A line 165 mm long represents a distance of 3.4 metres on a map. Construct a diagonal scale, to this representation, to read up to 4 metres.

Using this scale, construct the figure shown in Fig. 7. Construction lines must be clearly indicated.

LÍNÍOCHT TEICNIÚIL

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Part I Plane and Solid Geometry

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