LEAVING   CERTIFICATE   EXAMINATION,   1976

TECHNICAL DRAWING - COMMON LEVEL - PAPER I

(Plane and Solid Geometry)

MONDAY, 14 JUNE - AFTERNOON, 2.00 to 4.30

INSTRUCTIONS

(a) Answer <u>four</u> 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) <u>All dimensions on the question paper are given in millimetres.</u>
(f) First or third angle projection may be used.

1. (a) Construct a diagonal scale of 1 : 20 which may be used to draw the diagram shown
        in Fig. 1.

   (b) Using this scale, construct the diagram shown in Fig. 1.

   (c) Draw a square having twice the area of the shaded portion of Fig. 1.

2. Fig. 2 shows the plan and elevation of a rectangular prism which is cut by the oblique
planes VTH and $V_1T_1H_1$.   Draw the plan and elevation of the cut prism and show the
development of all the surfaces.   Scale 1 : 1.

3. Fig. 3 shows the projections of two solids which penetrate each other.   Draw the plan
and elevation of the solids showing all lines of interpenetration.   Scale 1 : 1.

4. Fig. 4 shows the focus F of an ellipse, the directrix DD and a point P on the curve.
Determine the eccentricity and draw the ellipse.
     Draw a tangent to the curve which will be inclined at 30° to the axis and show its
point of contact with the ellipse.   Scale 1 : 1.

5. Fig. 5 shows a disc which rolls along the line AB until the point P touches the line
AB.   The rod PCD is attached to the disc and is pivoted at P and C.   The rod BC rotates
about the point B.   Draw the locus of the point D during the movement of the disc.
Scale 1 : 1.

6. A machine block is shown in isometric projection in Fig. 6.

   (a) Draw the elevation, plan and end-view of the block.

   (b) Draw another elevation which shows the true angle between the surfaces A and B.
        Scale 1 : 1.

7. Fig. 7 shows the plan of a shaped thin metal plate lying on the horizontal plane.
The part ABCH is bent along the line CH so that it makes an angle of 60° with the part
CDGH.   The part DEFG is bent along the line DG so that the corner E meets the corner A.

   (a) Draw the plan and elevation of the plate in its bent position.

   (b) Determine the angle between the part DEFG and the part CDGH.

   (c) Determine the angle between the surfaces ABCH and DEFG.   Scale 1 : 1.

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Part I Plane and Solid Geometry