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LEAVING CERTIFICATE EXAMINATION, 1998

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

MONDAY, 22 JUNE - AFTERNOON 2.00 - 5.00

200 marks

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.
(f)   First or third angle projection may be used.

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1.   An isometric view of a shaped solid is shown in Fig. 1.

   (a)   Draw an elevation of the solid looking in the direction of the arrow.
   (b)   Project a plan from the elevation.
   (c)   Project a new elevation from the plan of the solid which shall show the true shape of surface A.
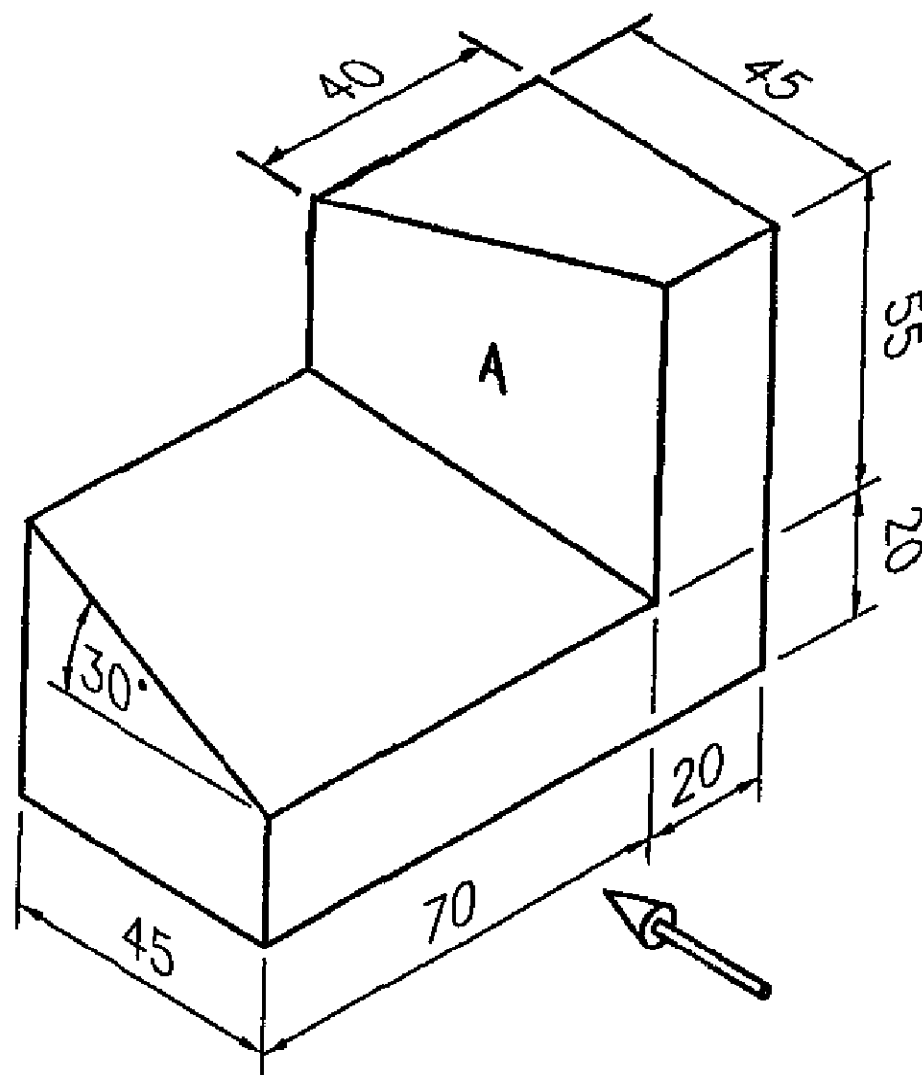
FIG. 1

2. **(a)** Draw the irregular pentagon ABCDE shown in Fig. 2.

(b) Draw a square which shall have the same area as the given pentagon.
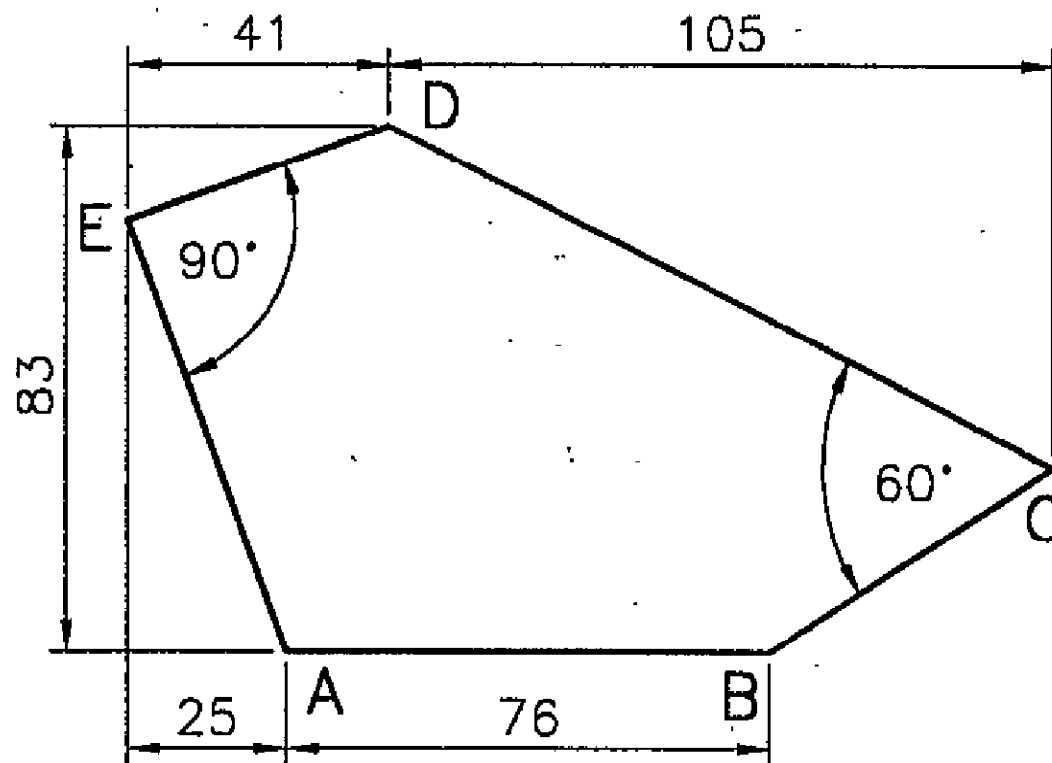
FIG. 2

3. Fig. 3 shows the plan of a right cone resting on the horizontal plane. The cone has an altitude of 60 mm.

(a) Draw the plan of the cone and project the elevation showing the points A, B and P on the surface of the cone in plan and elevation.

(b) Draw the plan and elevation of a sphere which rests on the horizontal plane and touches the cone at the point P.

(c) Draw the projections of the shortest line on the surface of the cone from A to B.
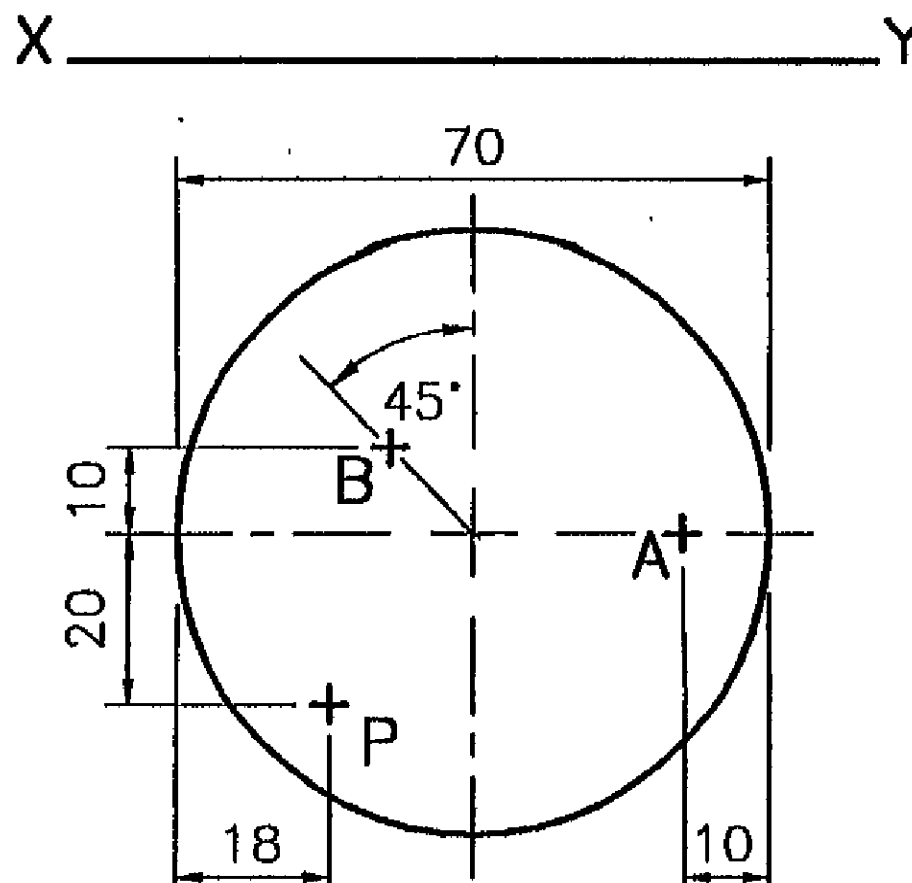
FIG. 3

4. Fig. 4 shows a circle which rolls clockwise along the line AB for one complete revolution.

(a) Draw the locus of the point P on the circle for this movement.

(b) On a separate diagram draw the involute to the circle from C to P in an anti-clockwise direction.
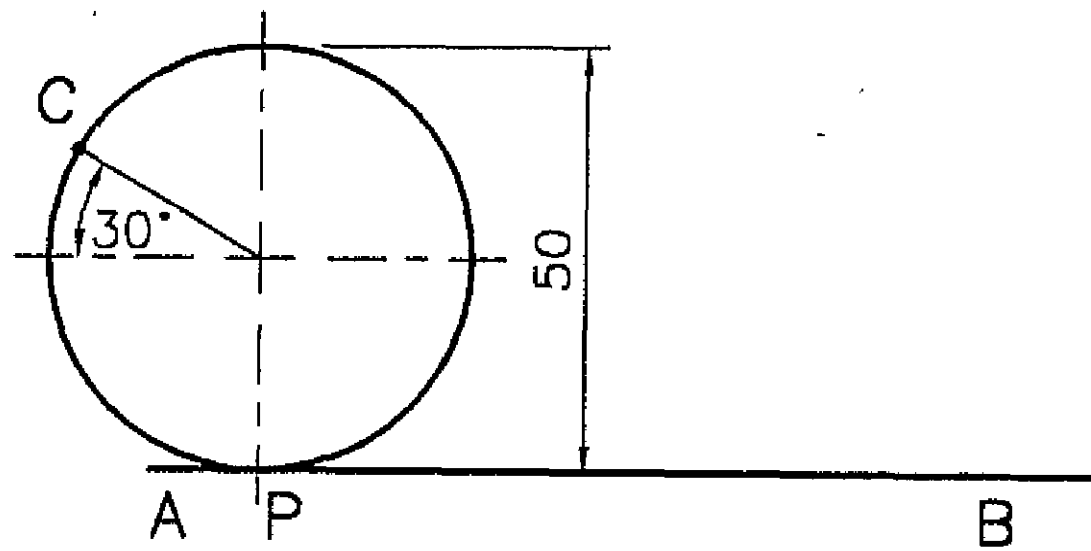
FIG. 4

5. The elevation and plan of a solid which is to be cut by the oblique plane VTH are shown in Fig. 5.

(a) Draw the plan and elevation of the solid when it is cut by the oblique plane VTH.
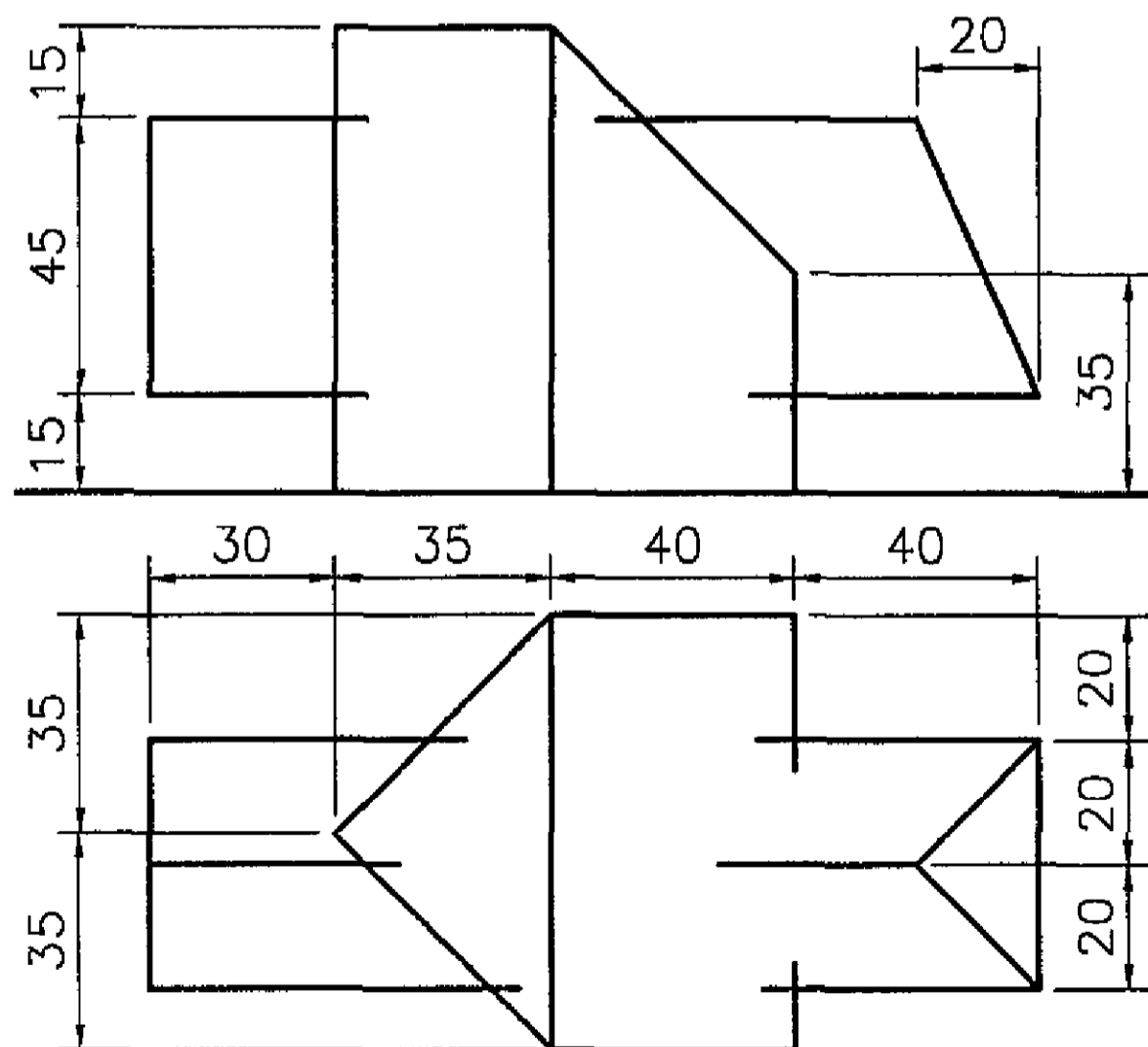(b) Draw the true shape of the cut surface of the solid.

FIG. 5

OVER →
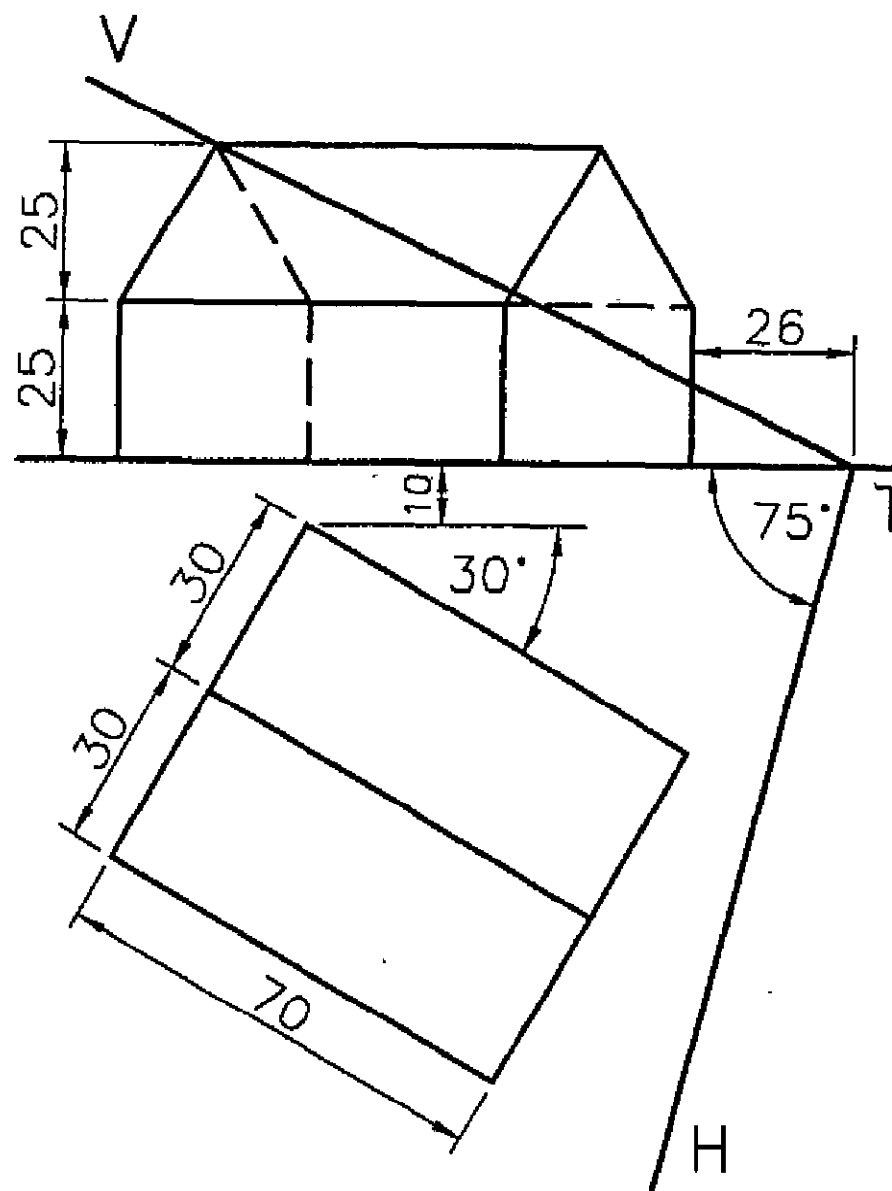
6. (a) In a hyperbola the distance from the focus to the vertex is 30 mm and the eccentricity is 1.5. Draw a portion of the hyperbola.

(b) In Fig. 6 the line DD is the directrix of a parabola and A and B are points on the curve. The position of the focus F is shown. Show how the position of the focus is determined and draw a portion of the curve.
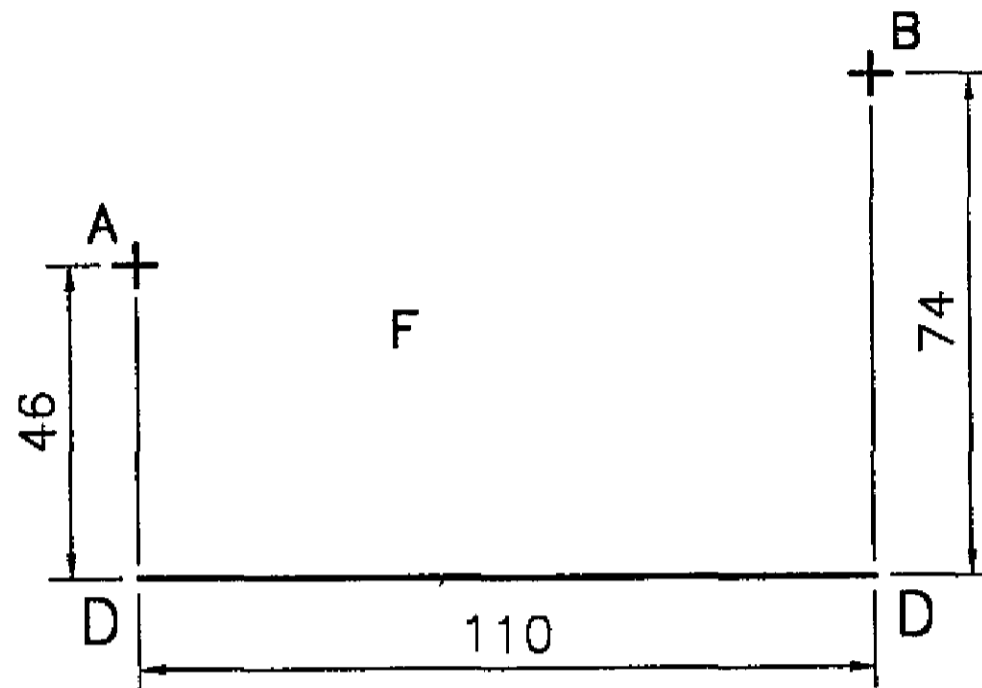
FIG. 6

7. Fig. 7 shows the incomplete elevation and plan of two solids which intersect each other.

Draw the plan, elevation and end-view of the solids showing all lines of interpenetration.

FIG. 7