AN ROINN OIDEACHAIS AGUS EOLAÍOCHTA

LEAVING CERTIFICATE EXAMINATION, 2000

THURSDAY, 15 JUNE - AFTERNOON 2.00 p.m. to 5.00 p.m.

TECHNICAL DRAWING

ORDINARY LEVEL

PAPER I

(Plane and Solid Geometry)

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.

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 will show the true shape of surface A.

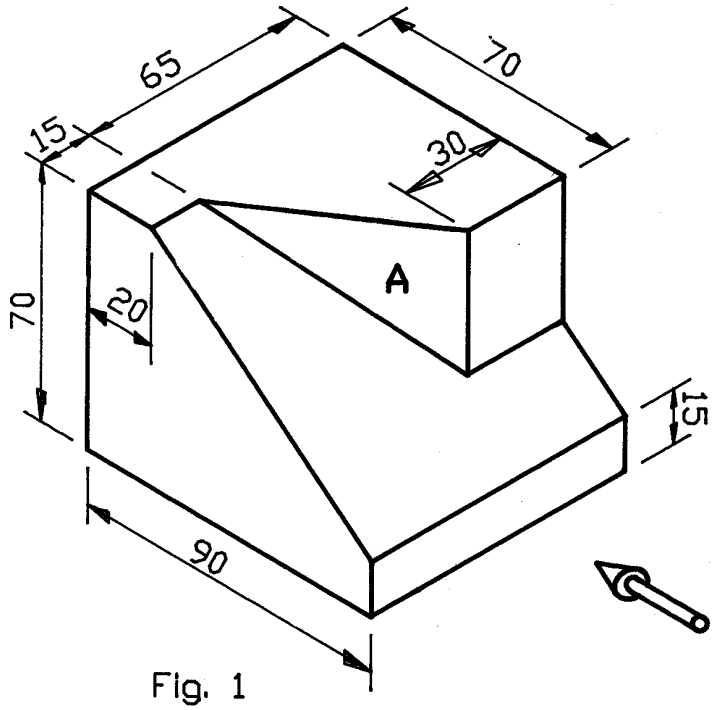

Fig. 1

2. Fig. 2 shows a quadrilateral ABDC in which the triangle BCD is twice the area of the triangle ABC. The triangle ABC has a perimeter of 240mm and its sides are in the ratio of 2:3:4. The sides CD and BD are equal in length.

(a) Draw the quadrilateral ABDC showing clearly how all points are obtained.
(b) Draw a square which is 0.75 times the area of the quadrilateral ABDC.

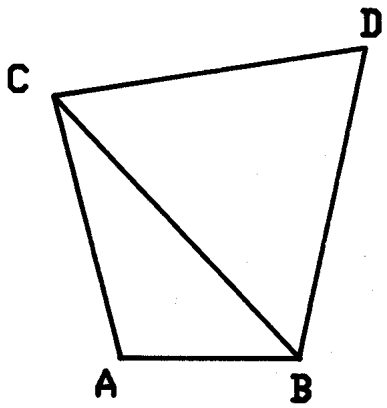

Fig. 2

3. Fig. 3 shows the plan and elevation of a right cone A and a sphere B in contact with each other. Also shown is the plan of a point P on the surface of the cone.

(a) Draw the given views and show the position of point P in elevation.
(b) Draw the plan and elevation of a sphere which shall rest on the horizontal plane and be in contact with the cone at point P.
(c) Draw the plan and elevation of another sphere at C resting on the horizontal plane, having diameter of 50mm, which shall be in contact with the cone A and the sphere B.

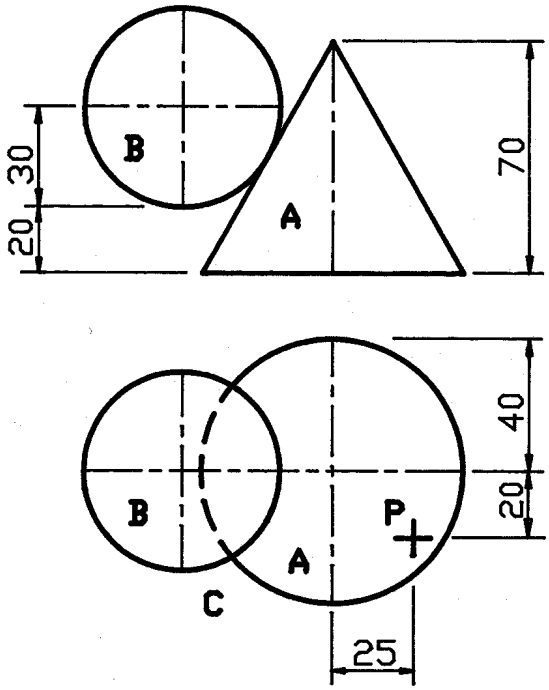

Fig. 3

4. Fig. 4 shows two circles, A and B, touching the line CD. Also shown are two points P and Q on the circumferences of the circles. Circle A rolls clockwise and circle B rolls anti-clockwise along the line CD.

Draw the paths of points P and Q as the circles roll along CD until the paths of P and Q intersect.

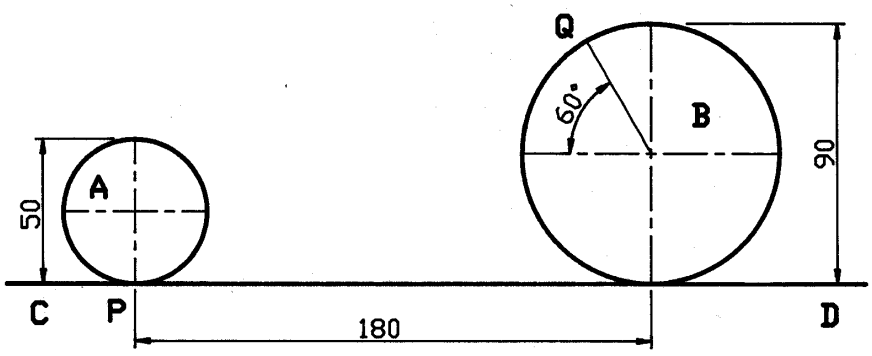

Fig. 4

5. The elevation and plan of a solid cut by an 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.

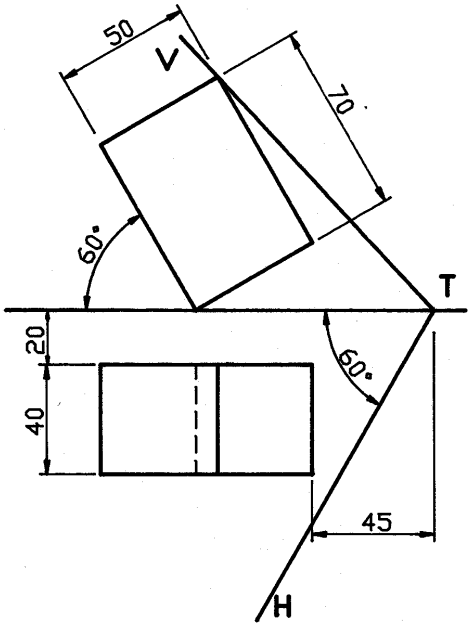

Fig. 5

6. **(a)** In an ellipse the minor axis is 100mm in length and the focal points are 96mm apart. Determine the major axis and draw the ellipse.

(b) Fig. 6 shows the direction of the axis and the focus of a hyperbola with an eccentricity of 1.5. The curve passes through the given point P. Show how the position of the directrix is located and draw a portion of the hyperbola.

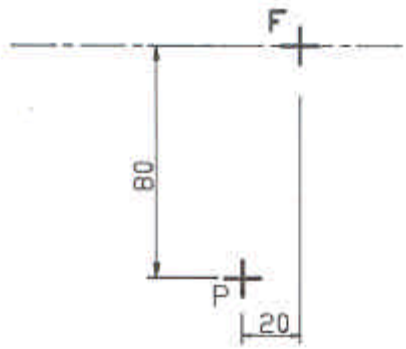

Fig. 6

7. Fig. 7 shows the elevation and incomplete plan of a solid resting on the horizontal plane which is intersected by a triangular prism.

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

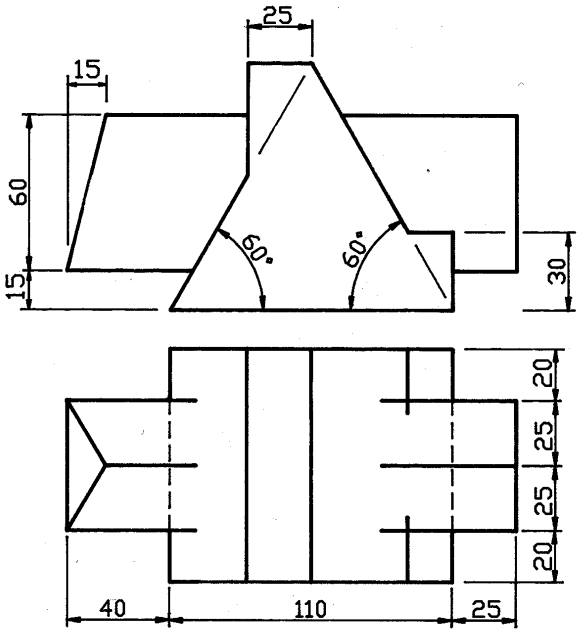

Fig. 7