LEAVING CERTIFICATE EXAMINATION. 1986

TECHNICAL DRAWING - ORDINARY LEVEL - PAPER I

(Plane and Solid Geometry)

TUESDAY, 24 JUNE - MORNING 9.30 - 12.30

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 (a).

(c) Project a new elevation of the solid which shall show the true shape of surface A.

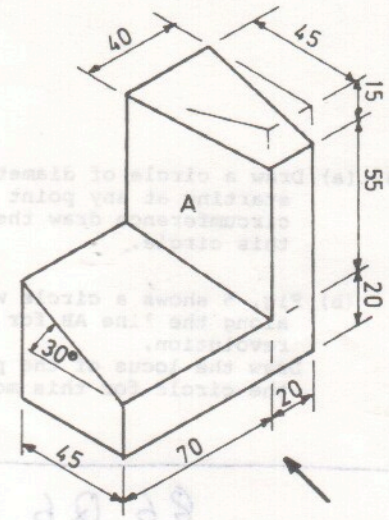

Fig. 1

2. (a) Construct the irregular pentagon shown in Fig. 2.

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

(c) On a separate diagram construct a similar pentagon which shall have 1·75 times the area of the given pentagon.

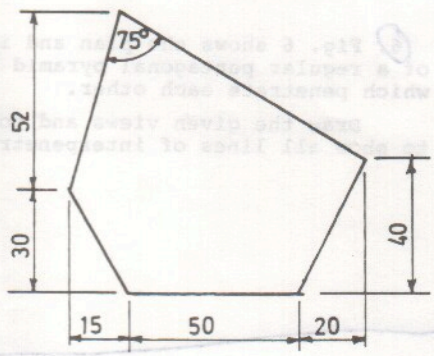

Fig. 2

3. Fig. 3 shows the elevation of a cone and sphere in mutual contact.

(a) Draw the elevation and plan of the solids. Show the point of contact of the solids in plan and elevation.

(b) Another sphere having a diameter of 28 mm rests on the horizontal plane and is in contact with the given cone and sphere. Draw the projections of the sphere showing the points of contacts.

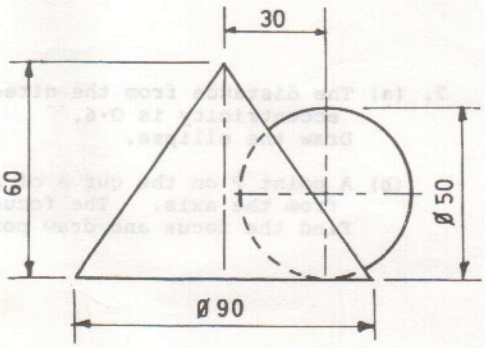

Fig. 3

4. Fig. 4 shows the plan and elevation of a solid which is cut by the oblique plane VTH.

(a) Draw the plan and elevation of the cut solid.

(b) Show the true shape of the section of the solid.

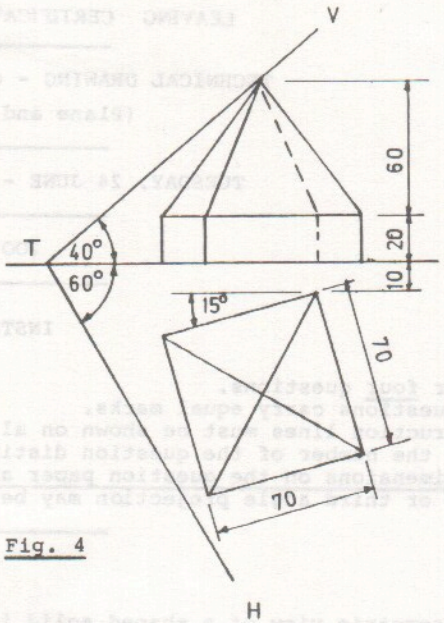

Fig. 4

5. (a) Draw a circle of diameter 44 mm and starting at any point on the circumference draw the involute to this circle.

(b) Fig. 5 shows a circle which rolls along the line AB for one complete revolution.
Draw the locus of the point P on the circle for this movement.

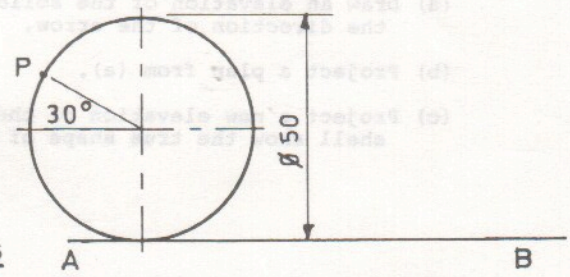

Fig. 5

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6. Fig. 6 shows the plan and incomplete elevation of a regular pentagonal pyramid and a square prism which penetrate each other.

Draw the given views and complete the elevation to show all lines of interpenetration.

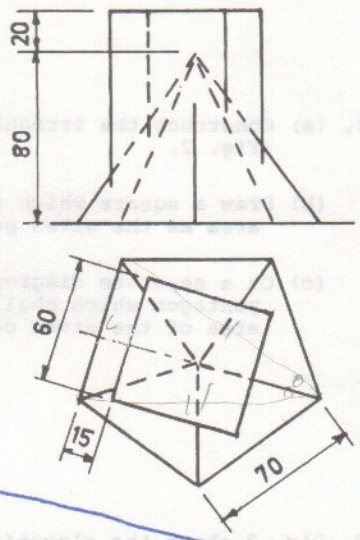

Fig. 6

7. (a) The distance from the directrix to the focus of an ellipse is 60 mm. The eccentricity is 0·6.
Draw the ellipse.

(b) A point P on the curve of a parabola is 100 mm from the directrix and 80 mm from the axis. The focus is nearer the directrix than the point P.
Find the focus and draw portion of the curve.