

LEAVING CERTIFICATE EXAMINATION, 1996**TECHNICAL DRAWING - ORDINARY LEVEL - PAPER I**
(Plane and Solid Geometry)FRIDAY, 14 JUNE - AFTERNOON 2.00 - 5.00

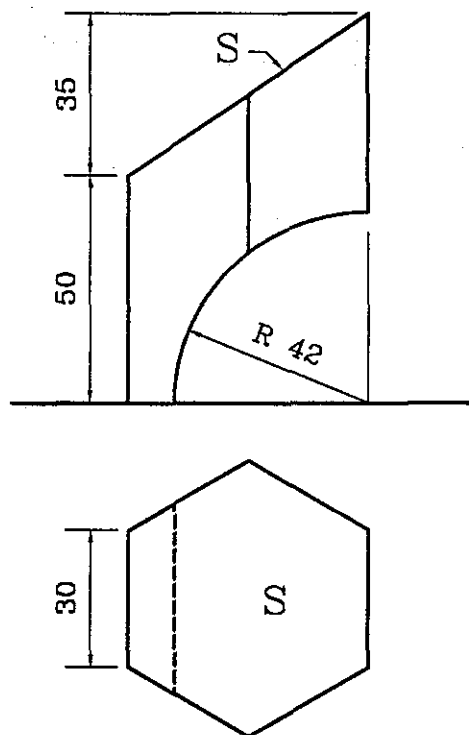
200 marks

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.

1. Fig. 1 shows the elevation and plan of a regular hexagonal prism which has been cut as shown.

- (a) Draw the elevation and plan of the cut prism and project an end view.
 (b) Project a new plan of the cut prism which shall include the true shape of the surface S.

**Fig. 1**

2. Fig. 2 shows a quadrilateral ABCD in which the triangles ABC and ACD are equal in area.

(a) Draw the triangle ABC to the given dimensions and complete the quadrilateral ABCD showing clearly how the point D is located.

(b) Using a geometric construction, draw a rectangle which shall have one side 110mm long and have an area 1.5 times the area of the quadrilateral ABCD.

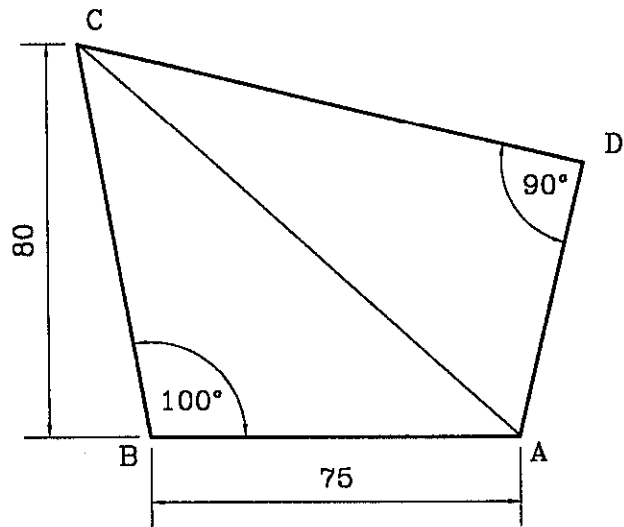


Fig. 2

3. Fig. 3 shows the plan and elevation of a solid. Two points, P and Q, on the surface of the solid are shown in plan.

(a) Draw the given views and show the position of the points P and Q in plan and elevation.

(b) Two spheres rest on the horizontal plane and touch the solid at P and Q, respectively. Draw the projections of these spheres.

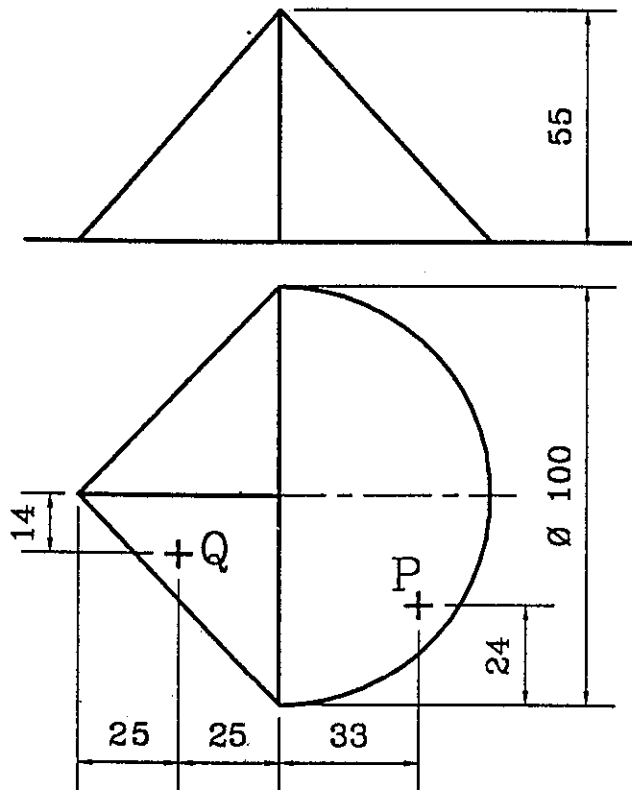


Fig. 3

4. Fig. 4 shows a circle which touches the line AB. Also shown are two points, D and E, on the circumference of the circle.

Draw the given figure and show the paths of the points D and E as the circle rolls clockwise along the line AB until the point D reaches the line AB.

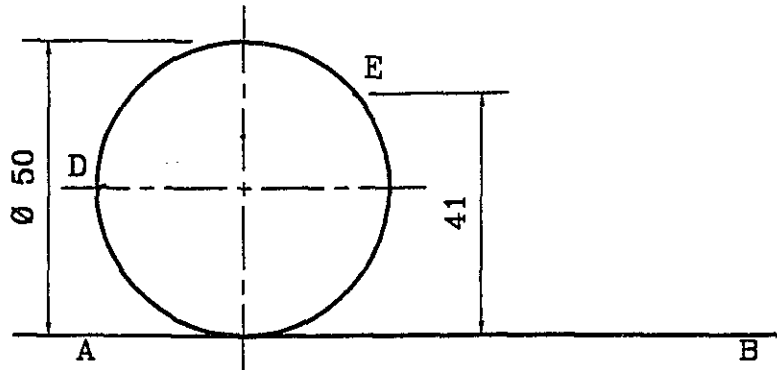


Fig. 4

5. The elevation and plan of a solid which is to be cut by the oblique plane VTH are shown in Fig. 5.
- Draw the plan and elevation of the solid when it is cut by the oblique plane VTH.
 - Draw the true shape of the cut surface of the solid.

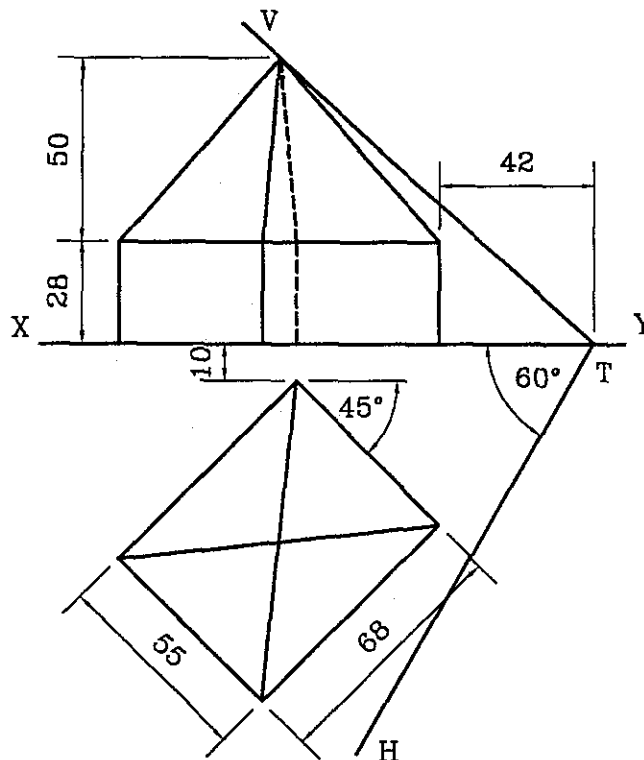


Fig. 5

6. (a) Draw a triangle ABC in which $AB = 70\text{mm}$, $BC = 40\text{mm}$ and $AC = 75\text{mm}$. In this triangle A and B are the focal points of an ellipse, and C is a point on the curve.
- Find the major and minor axes for the ellipse and draw half the curve.
- (b) In the quadrilateral PQRS shown in Fig. 6, the line RS is the directrix of a parabola and P and Q are points on the curve. The focus lies within the quadrilateral. Locate the focus and axis and draw a portion of the curve to contain the points P and Q.

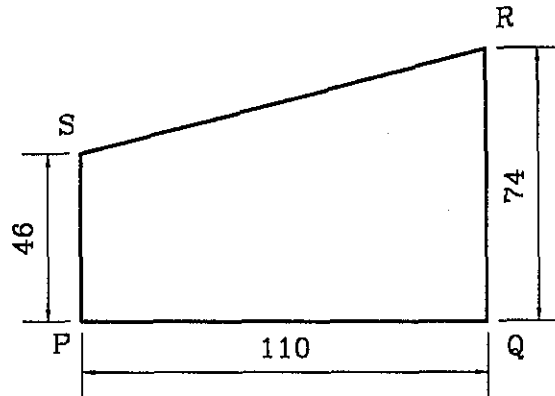


Fig. 6

7. The elevation (i) and end-view (ii) of a solid which has an equilateral triangular hole through it are shown in Fig. 7.

Draw the given views and project a plan of the solid.

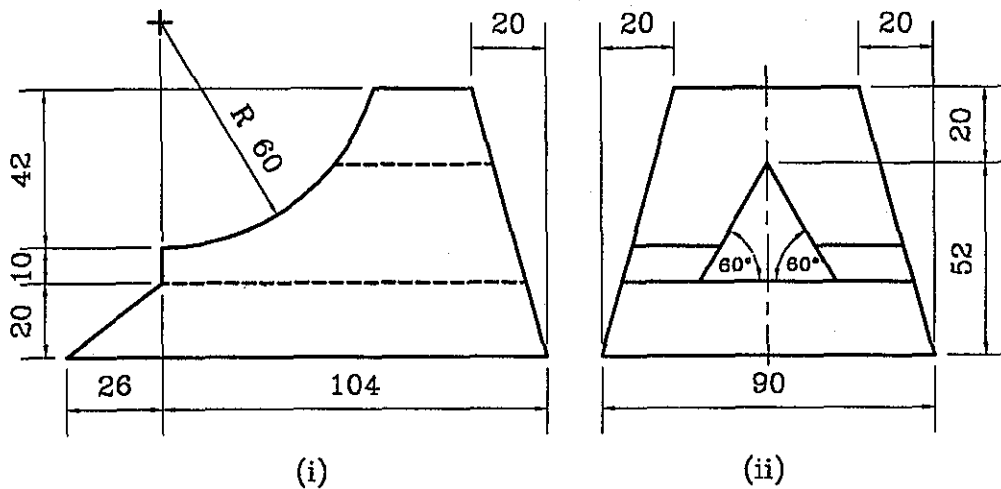


Fig. 7