

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

FRIDAY, 18 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. The elevation A and end view B of a shaped solid are shown in Fig. 1.

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

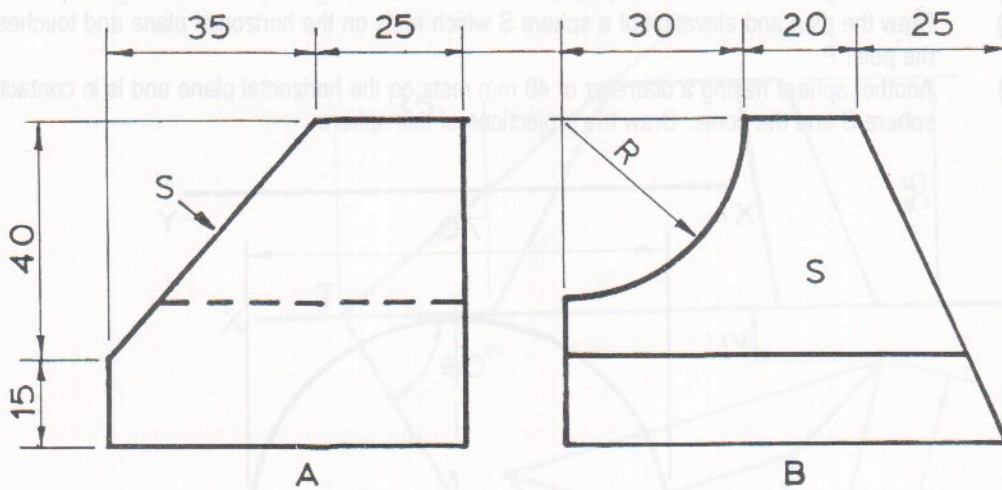


Fig. 1



2. In Fig. 2 the area of the triangle ACD is twice that of the triangle ABC.

- Draw the quadrilateral ABCD.
- From B draw a line which shall divide the area of the quadrilateral ABCD into two equal areas.
- Draw a square which shall have an area 1.4 times that of the quadrilateral ABCD.

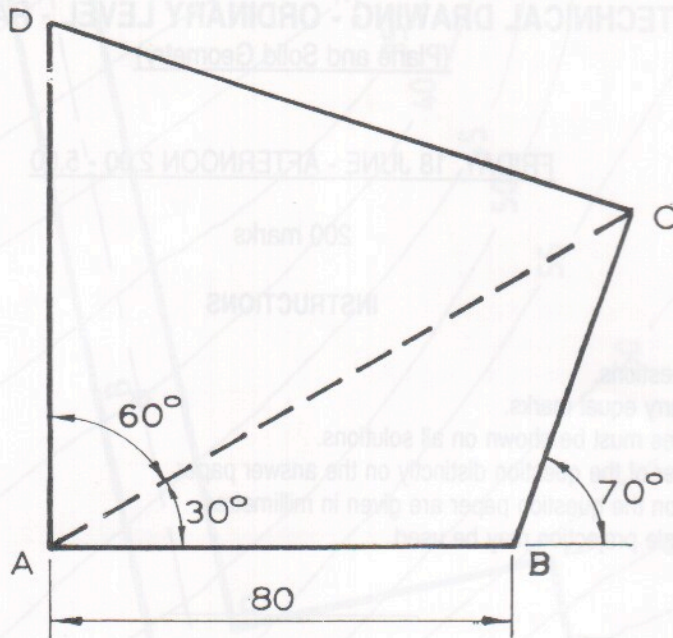


Fig. 2

3. Fig. 3 shows the plan of a right cone which has a point P on its curved surface. The cone rests on the horizontal plane and has an altitude of 50 mm.

- Draw the plan of the cone and project the elevation showing the point P in its given position.
- Draw the plan and elevation of a sphere S which rests on the horizontal plane and touches the cone at the point P.
- Another sphere having a diameter of 40 mm rests on the horizontal plane and is in contact with the sphere S and the cone. Draw the projections of this sphere.

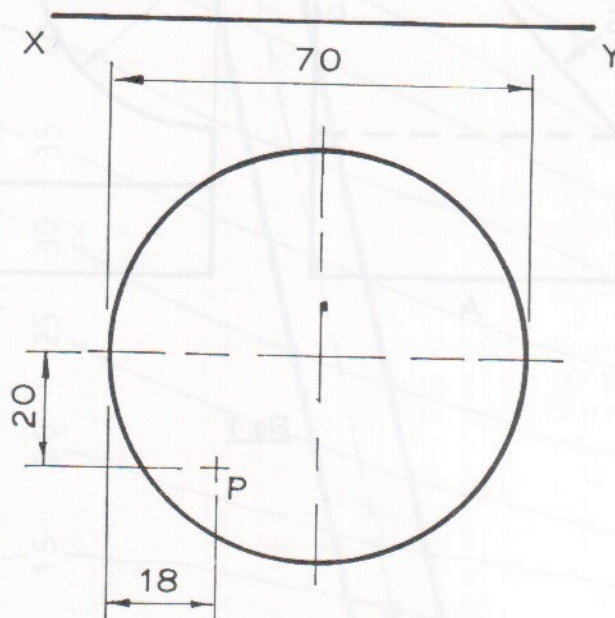


Fig. 3



4. (a) A cylinder has a diameter of 50 mm and an altitude of 80 mm. Draw the cylinder in plan and elevation and show the path of a helix which moves from the base to the top of the cylinder in one complete revolution.
- (b) The sector of the circle shown in Fig. 4 represents the development of the curved surface area of a right cone having a base diameter of 64mm. Draw this cone in plan and elevation and show the line AB on the surface of the cone in both projections.

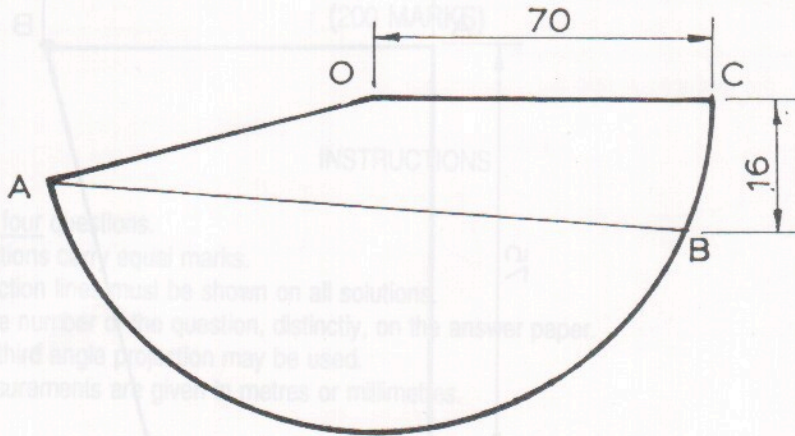


Fig. 4

5. Fig. 5 shows the plan and elevation of a truncated equilateral triangular pyramid. The solid is to be cut by the oblique plane VTH as indicated.
- (a) Draw the plan and elevation of the solid when it is cut by the oblique plane VTH.
- (b) Draw the horizontal and vertical traces of the plane which contains the surface A of the solid.

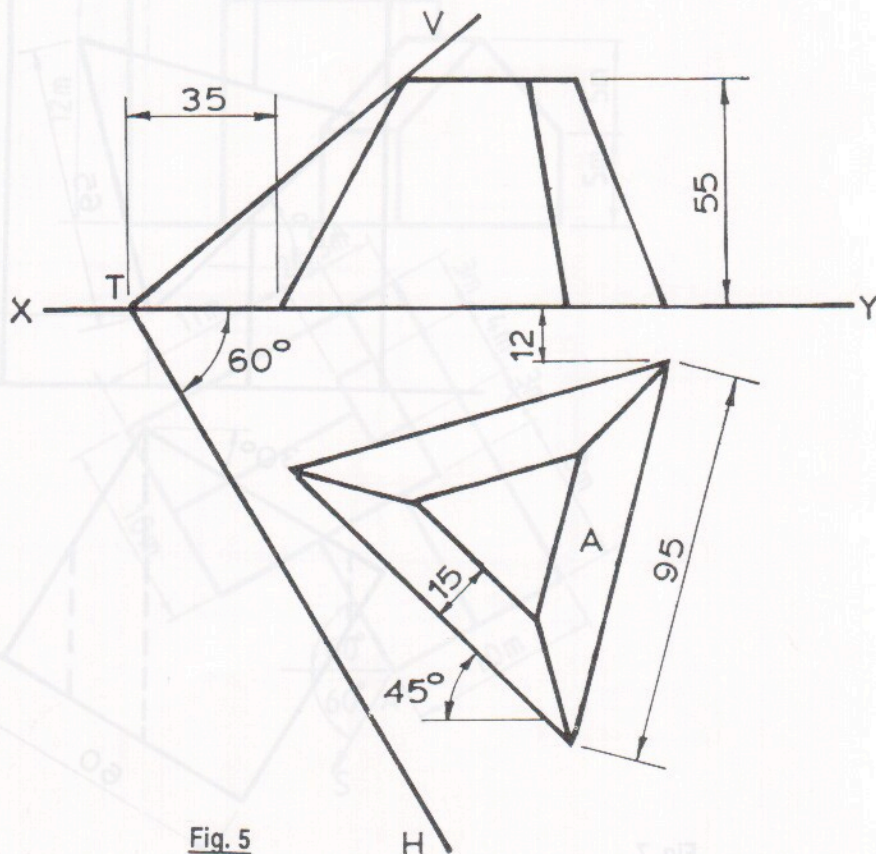


Fig. 5



6. (a) Draw a triangle DEF in which the sides are in the ratio of 2:3:4 and the longest side DE is 86 mm. In this triangle DE is the directrix of a parabola and F is the focus. Draw a portion of the parabola.
- (b) In the quadrilateral shown in Fig. 6, AD is the directrix of a parabola, B and C are points on the curve and the focus lies within the quadrilateral. Locate the focus and axis and draw a portion of the curve. Construct a tangent to the curve from the point D.

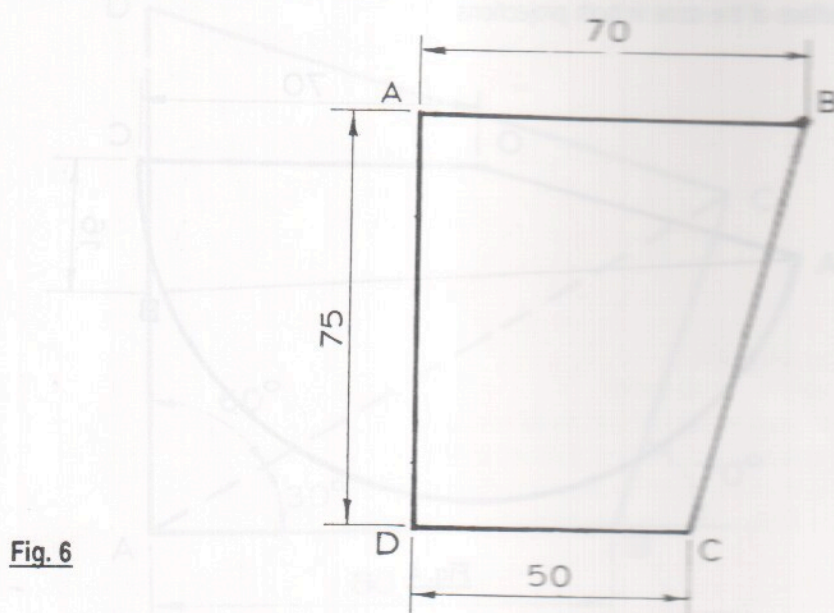


Fig. 6

7. Fig. 7 shows the plan and elevation of a square prism which has an equilateral triangular hole through it as shown.
- (a) Draw the given views.
- (b) Project an end view of the solid when looking in the direction of the arrow.

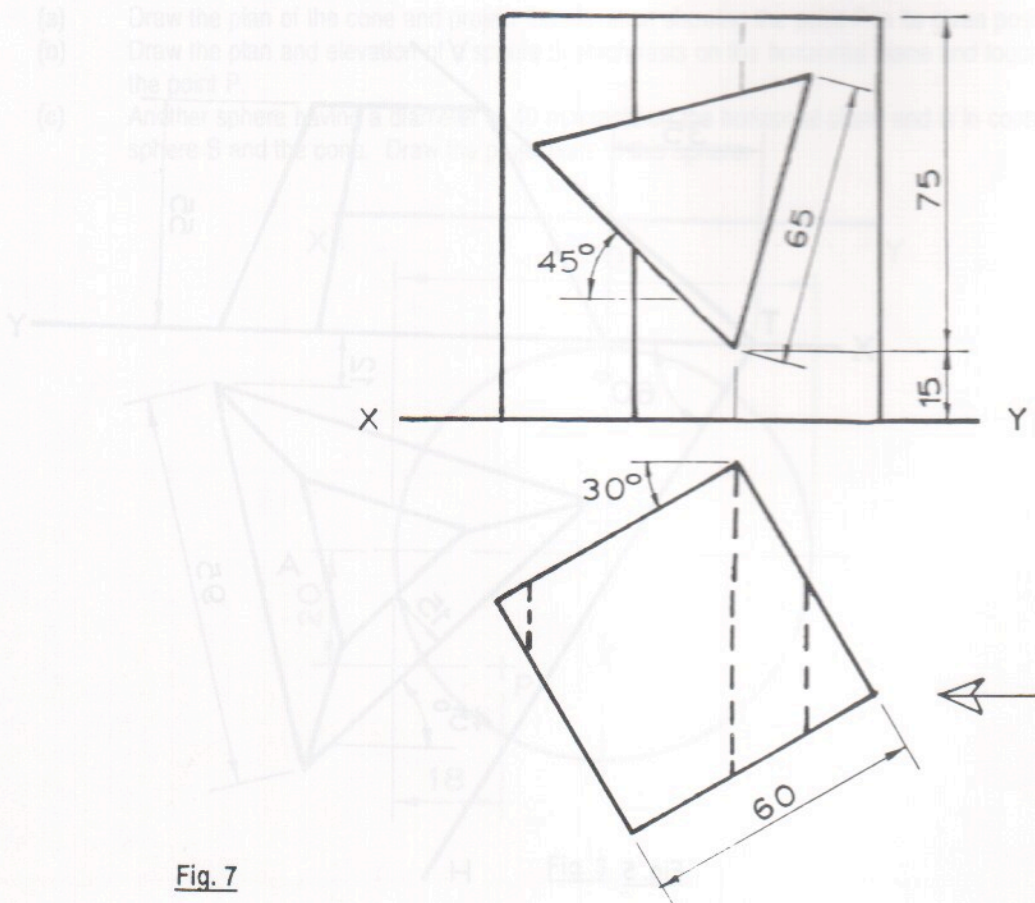


Fig. 7