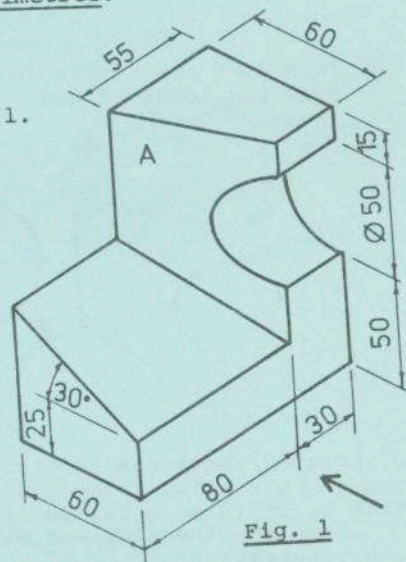


INSTRUCTIONS

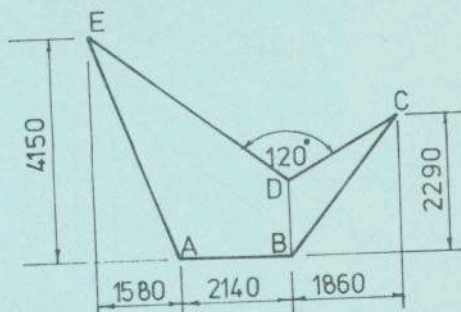
- (a) Answer four questions.
- (b) All questions carry equal marks.
- (c) Construction lines must be shown on all solutions.
- (d) Write the number of the question distinctly on the answer paper.
- (e) All dimensions on the question paper are given in millimetres.
- (f) First or third angle projection may be used.

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

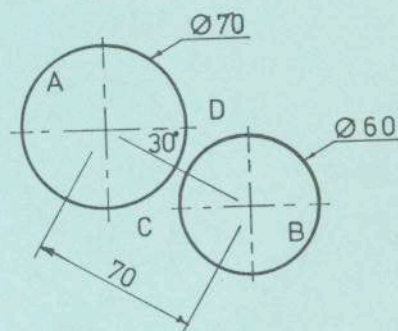
- (a) Draw an elevation of the solid looking in the direction of the arrow and project a plan.
- (b) Draw a new elevation of the solid which shall show the true shape of surface A.



- 2. (a) Construct a diagonal scale of 1 : 50 to show metres and hundredths of a metre and to read up to 5 m.
- (b) Using the above scale construct the diagram shown in Fig. 2.
- (c) Draw a square which shall have an area equal to the difference in area between the quadrilateral ABDE and the triangle BCD in Fig. 2.



- 3. Fig. 3 shows the plan of a cone A (altitude 80 mm) and a sphere B resting on the horizontal plane. Two other spheres of 40 mm and 50 mm diameter rest on the horizontal plane and are in contact with the given cone and sphere. The 40 mm diameter sphere is in the position marked C and the 50 mm diameter sphere is in the position marked D on the drawing. Draw the plan and elevation of the four solids. Hidden detail must be shown.



- 4. (a) The design shown in Fig. 4 contains a regular pentagon and an ellipse whose major axis is 136 mm long and whose minor axis is 80 mm long. Construct this design showing clearly how the tangents to the ellipse and the sides of the pentagon are obtained.
- (b) Draw a parabola in which the distance from the focus to the directrix shall be 60 mm.

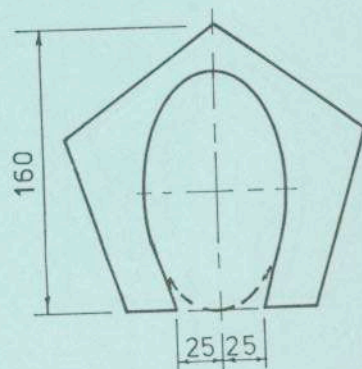


Fig. 4

5. Fig. 5 shows the elevation and plan of a solid which is cut by the given oblique plane V.T.H.

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

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

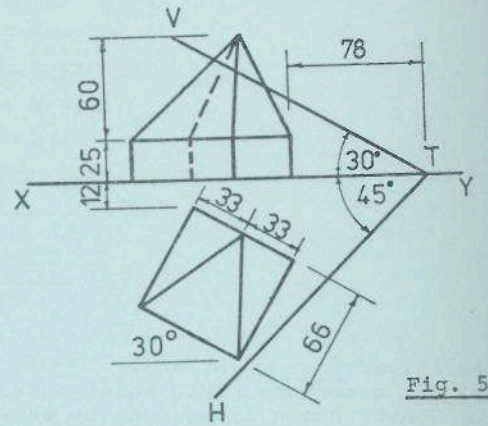


Fig. 5

6. In Fig. 6 the circle rolls along the line ABC for one complete revolution. Draw the locus of the point P on the circle for this movement.

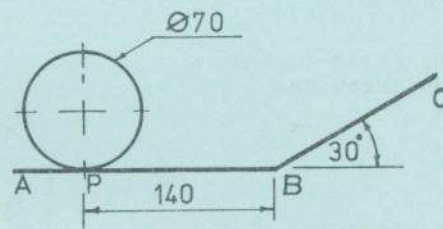


Fig. 6

7. Fig. 7 shows the incomplete plan and elevation of two solids which penetrate each other. One solid is an equilateral triangular prism surmounted by a pyramid and the other solid is an equilateral triangular prism of side 70 mm and length 160 mm. Complete the plan and elevation of the solids showing all lines of interpenetration.

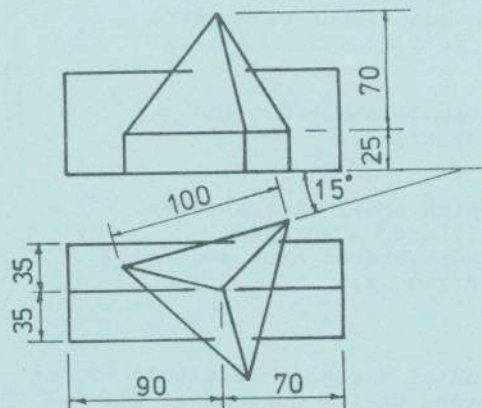


Fig. 7

