

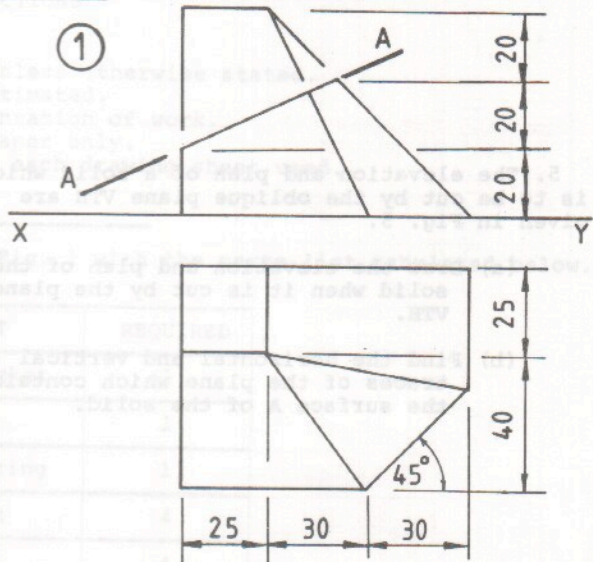
TECHNICAL DRAWING - ORDINARY LEVEL - PAPER I  
(Plane and Solid Geometry)

200 marks

INSTRUCTIONS

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

1. Fig. 1 shows the elevation and incomplete plan of a solid cut by the plane A-A.

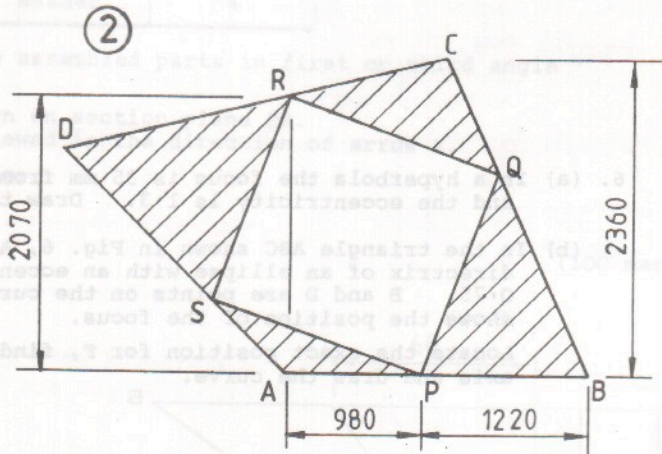


- Draw the elevation and complete the plan of the cut solid.
- Project a new plan of the cut solid which shall include the true shape of the cut surface.

2. (a) Construct a diagonal scale of 1 : 25 to show metres and centimetres and to read up to 3 metres.

(b) Fig. 2 shows a quadrilateral ABCD and inscribed square PQRS. Using the above scale of 1 : 25 draw the quadrilateral ABCD and inscribed square PQRS.

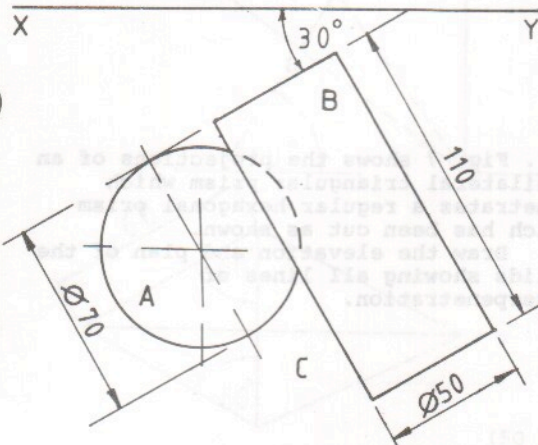
(c) Construct a square which shall have an area 1.75 times the area of the shaded portion of the quadrilateral ABCD.



3. The plan of a hemisphere A in contact with a cylinder B is shown in Fig. 3. Both solids rest on the horizontal plane.

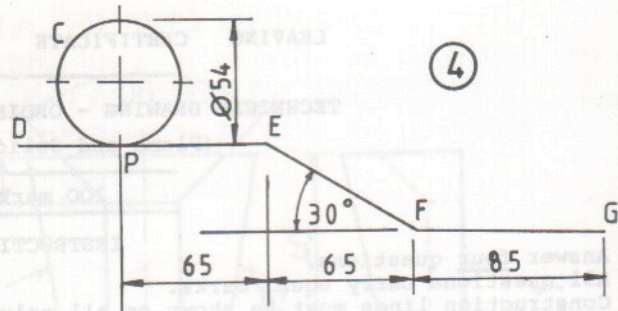
(a) Draw the elevation and plan of the solids.

(b) A sphere, diameter 32 mm, is placed on the horizontal plane in position C so that it is in contact with the hemisphere A and cylinder B. Draw the projections of the sphere C in the given position.



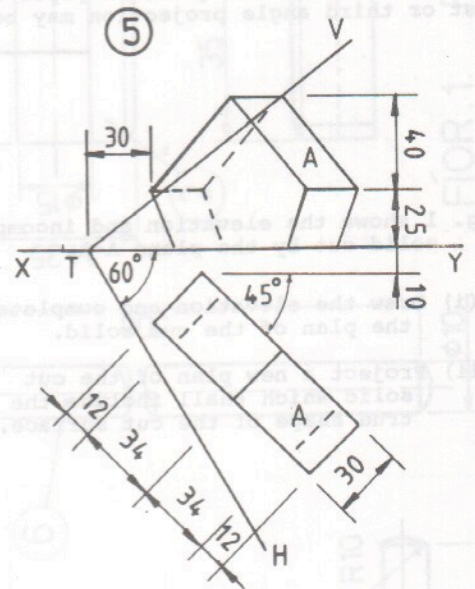
4. In Fig. 4 the circle C rolls along the line DEFG until it reaches the point G.

Draw the locus of the point P on the circle for this movement.



5. The elevation and plan of a solid which is to be cut by the oblique plane VTH are given in Fig. 5.

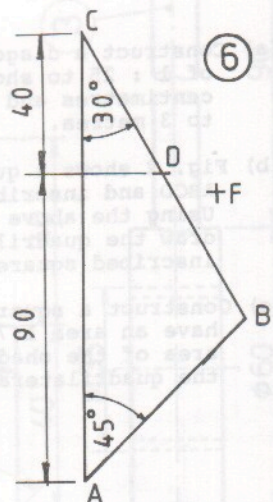
- Draw the elevation and plan of the solid when it is cut by the plane VTH.
- Find the horizontal and vertical traces of the plane which contains the surface A of the solid.



6. (a) In a hyperbola the focus is 35 mm from the directrix and the eccentricity is 1.3. Draw the hyperbola.

(b) In the triangle ABC shown in Fig. 6, AC is the directrix of an ellipse with an eccentricity of 0.75. B and D are points on the curve and F shows the position of the focus.

Locate the exact position for F, find the major axis and draw the curve.



7. Fig. 7 shows the projections of an equilateral triangular prism which penetrates a regular hexagonal prism which has been cut as shown.

Draw the elevation and plan of the solids showing all lines of interpenetration.

