

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

FRIDAY, 19 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. A pictorial view of a shaped solid is shown in Fig. 1.

- (a) Draw an elevation of the solid when looking in the direction of the arrow.
- (b) Project a plan from the elevation.
- (c) Project a new plan of the solid which shall include the true shape of surface A.

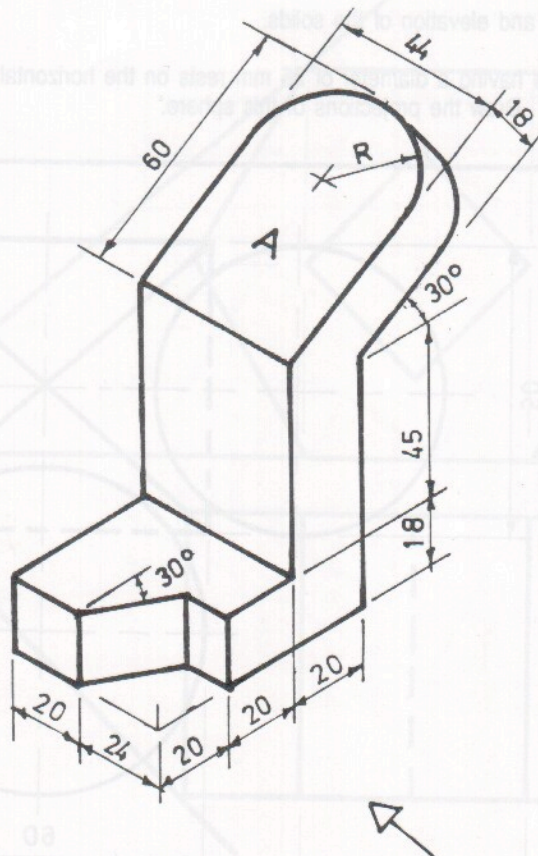


Fig. 1

2. The quadrilateral ABCD shown in Fig. 2 is made up of two triangles ABD and BCD. The perimeter of the triangle ABD is 245 mm. The area of the triangle BCD is half that of triangle ABD.
- Draw the quadrilateral ABCD.
 - Draw a square which shall have an area 1.25 times that of the quadrilateral ABCD.

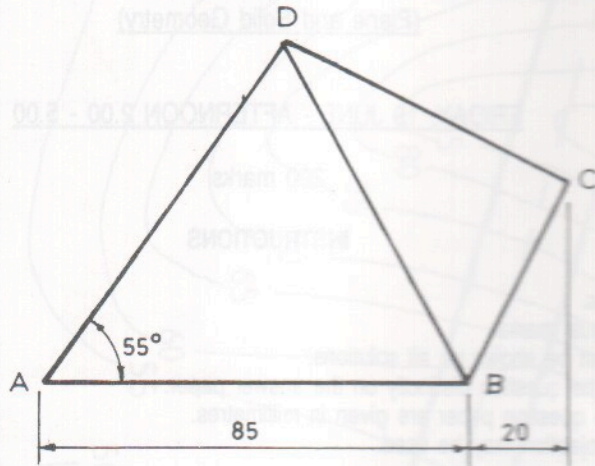


Fig. 2

3. Fig. 3 shows the plan of a rectangular pyramid and two spheres which are in contact with the pyramid. The altitude of the pyramid is 55 mm. All the solids rest on the horizontal plane.
- Draw the plan and elevation of the solids.
 - Another sphere having a diameter of 25 mm rests on the horizontal plane and is in contact with the given spheres. Draw the projections of this sphere.

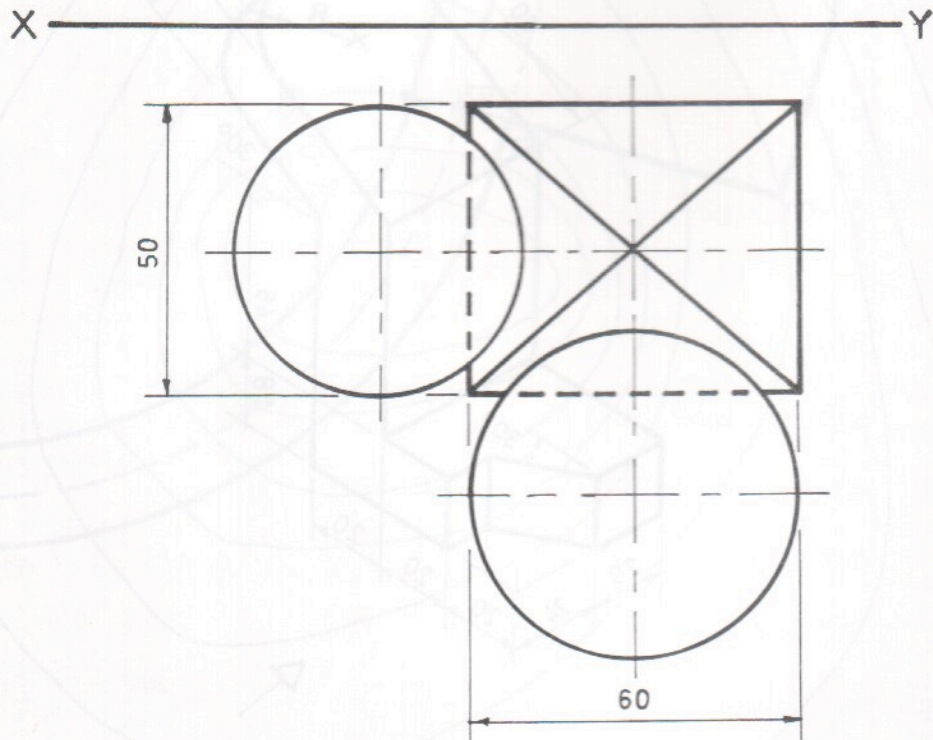


Fig. 3

4. Fig. 4 shows a circle passing through the point P and tangential to the line AB.
- Determine the radius of the circle shown in Fig. 4.
 - Draw the locus of the point P as the circle rolls clockwise along the line AB for one complete revolution.

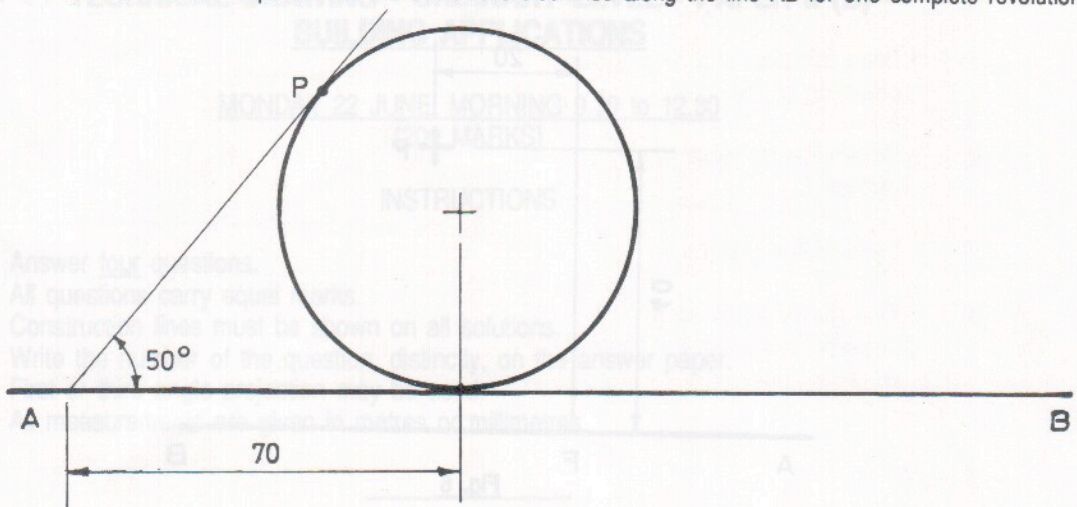


Fig. 4

5. Fig. 5 shows the plan and elevation of a regular hexagonal prism which has a square hole through it. This solid is to be cut by the oblique plane VTH.
- Draw the elevation and plan of the solid when it is cut by the oblique plane VTH.
 - Show the true shape of the cut section of the solid.

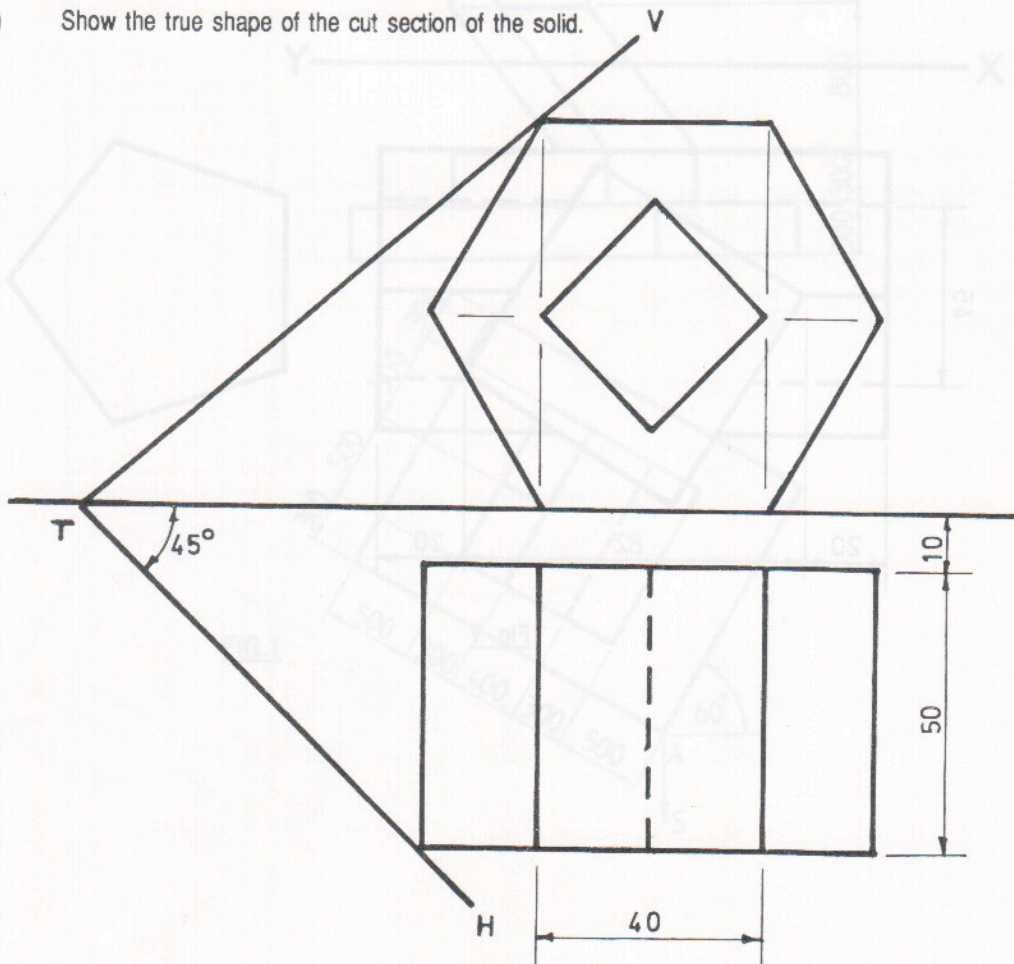
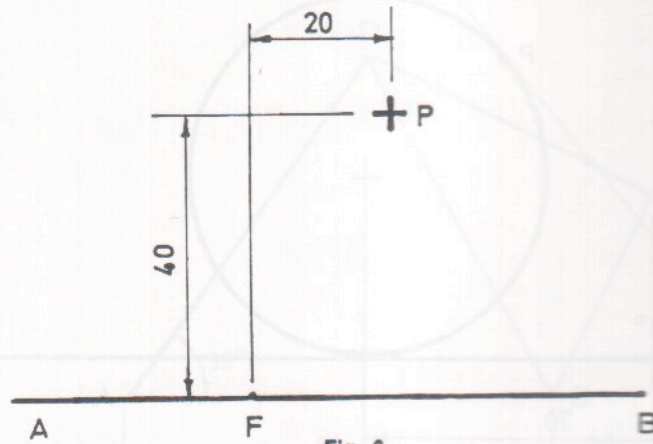


Fig. 5

6. (a) In an ellipse the distance between the focal points is 96 mm and the lengths of the axes are in the ratio 7:5. Draw the ellipse.
- (b) In Fig. 6 the line AB is the direction of the axis of a parabola, F is the focus and P is a point on the curve. Draw a parabola to satisfy these conditions and draw a tangent to the curve at the point P.



7. Fig. 7 shows the plan of a regular pentagonal prism and a square-based prism which intersect each other. The cross-section of the pentagonal prism is also shown. The height of the square-based prism is 100 mm. Both solids rest on the horizontal plane.

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

