



(b) (i) A straight line AB of length 100 mm has its end A 10 mm in front of VP and B 20 mm above HP. The front view and top view of the line measure 80 mm and 60 mm respectively. Draw the projections of the line and obtain the true angles of inclination with HP and VP.

(10)

(ii) A hexagonal lamina of side 30 mm is resting on HP on one of its corners with the sides containing the corner being equally inclined to HP. The surface of the lamina makes an angle of  $30^\circ$  with HP. Draw the top view and front view of the lamina if the plan of the diagonal passing through that corner is inclined at  $50^\circ$  to xy-line.

(10)

3. (a) Draw the projections of a cube of edge 45 mm resting on one of its corners on HP, with a solid diagonal perpendicular to HP. (20)

Or

(b) A square pyramid of base 40 mm and axis 70 mm long has one of its triangular faces on VP and the edge of base contained by that face perpendicular to HP. Draw its projections. (20)

4. (a) A cylinder of diameter 60 mm and height 80 mm has a central hexagonal slot of side 20 mm running right through the length. The cylinder is lying on the HP with its axis perpendicular to the VP. A vertical cutting plane cuts the cylinder in such a way that it meets the bases at 6 mm from diametrically opposite ends. Draw the sectional front view and the true shape of the section. (20)

Or

(b) A pentagonal pyramid side of base 30 mm and height 52 mm, stands with its base on HP and an edge of the base is parallel to VP and nearer to it. It is cut by a plane perpendicular to VP, inclined at  $40^\circ$  to HP and passing through a point on the axis, 32 mm above the base. Draw the sectional top view. Develop the lateral surfaces of the truncated pyramid. (20)

5. (a) A sphere of radius 50 mm is kept centrally over a frustum of square pyramid of side 120 mm at the bottom and 80 mm at the top and height 100 mm. Draw the isometric view of the assembly.

Or

(b) A square pyramid of base edge 20 mm and altitude 40 mm rests on its base on the ground with a base edge parallel to the picture plane. The axis of the pyramid is 25 mm behind the PP and 25 mm to the right of the eye. The eye is 50 mm in front of the PP and 50 mm above the ground. Draw the perspective view of the pyramid.