# PROJECTION OF PLANES

## TYPE A

1. A square ABCD side 25mm is parallel to H.P. and is in the first quadrant. One of the edges of the square is parallel to V.P. Draw its three principle projections.

2. A circular plate of 30mm in diameter is parallel to VP. Its center is 20mm above HP and 22mm in front of V.P. Draw its three projections.

3. An equilateral triangular plate UKP side 40mm is parallel to V.P. and 40mm from it, with one of the edges of plate inclined to H.P. at 45°. Draw the projections.

4. A square plate of side 40mm is parallel to H.P. and 20mm above it. One of the edges of plate is inclined at 30° to V.P. Draw the projections.

## TYPE B

5. A regular hexagonal plate of 25mm side is resting on H.P. on one of the edges with surface of the plate making 45° with H.P. and perpendicular to V.P. Draw the projections.
6. A regular pentagonal plate of 25mm side is resting on H.P. on one of its corners with surface of its plate perpendicular to V.P. and inclined to H.P. by 60°. Draw its projections.

7. A regular pentagonal plate of 25mm side is resting on H.P. on one of its sides. Plate makes an angle 45° to H.P. and perpendicular to V.P. Draw the projections.

8. A square plate of side 25mm side is in space with one of its corners on V.P. Surface of the plate makes 50° with V.P. and is perpendicular to H.P. Draw the projections.

9. A circular plate of 50mm diameter is resting on H.P. on a point with surface of plate perpendicular to V.P. and inclined to H.P. by 30°. Draw the projections.

10. A circular plate of 50mm diameter is vertical and inclined to V.P. by 30°. Its center is 30mm above H.P. and 20mm in front of V.P. Draw the projections.

11. The top view of a lamina whose surface is perpendicular to V.P. and inclined at an angle of 45° to H.P. appears as a regular hexagon of 30mm side, having a side parallel to the reference line. Draw the projections.

12. The top view of a plane is a regular hexagon of a side 35mm with a center hole of 30mm diameter with two sides of the hexagon is parallel to X-Y line. When the surface of the objects is inclined at 45° to HP and with corner on H.P. Determine its true shape.

13. A rectangular plate PQRS 25mm*40mm side is in space with shorter edge parallel to H.P. and 15mm above it. Plate is perpendicular to V.P. and inclined to H.P. by such an angle such that its plan becomes square. Draw the projections and find its inclination with H.P.

## TYPE C

14. A regular pentagonal plate of 40mm side has one of its corner on H.P. The plate of the pentagonal is at 30° to H.P. The side of the pentagon which is opposite to the corner is inclined at 45° to V.P. Draw the projections.

15. A square plate of 40mm side has its corner A in HP. The plane is inclined at 30° to H.P. and diagonal BD inclined at 45° to V.P. and parallel to H.P. Draw the projections.

16. A regular pentagonal lamina of side 25mm is resting on H.P. on one of its side such that the plane is inclined at 30° to H.P. and side on which it rest is inclined at 45° to V.P. Draw the projections.
17. A regular hexagonal plate of 40mm side is resting on H.P. on one of its corner. The diagonal through that corner is inclined at 40° to H.P. and the plan of the diagonal is inclined at 30° to V.P. Draw the projections.

18. A thin rectangular lamina ABCD - 40mm*20mm is resting on H.P. on shorter edge AD such that corner A is 25mm in front of V.P. Draw its projections when plane is inclined at 30° to H.P. and diagonal AC is parallel to V.P.

19. A semicircular plate of 80mm in diameter is resting on its straight edge in VP and inclined at 45° to H.P. The surface makes an angle 30° to V.P. Draw the projections.

20. ABCDE is a pentagon of 40mm side, has its corner A on H.P. The plate is at 30° to H.P. such that the side CD is parallel to both the reference planes. Draw the projections.

21. The pentagonal plate of 40mm is resting on V.P. on one of its corner with surface of plate making 45° with V.P. and side of the pentagonal opposite to the corner is inclined at 60° to H.P. Draw the projections.

22. An isosceles triangular plate having its base XY 40mm and altitude 60mm is resting on H.P. on its base with surface of plate making 45° with H.P. The base XY which is in H.P. makes 60° to V.P. Draw the projections.

23. A regular hexagonal plate of 40mm side is resting on H.P. on one of its edge and is inclined to V.P. by 60°. The surface of the plate inclined at 45° to H.P. Draw the projections.

24. An isosceles triangular plate having its base XY 35mm and altitude 50mm is resting on VP on its base XY. The plane is inclined to V.P. by such an angle such that its front view becomes an equilateral triangle. The side XY makes an angle 60° to H.P. Draw the projections and find its inclination with H.P.

25. A 30° - 60° set square has its shorter side 50mm long and is in the H.P. The plan of the set square is an isosceles triangle and the plan of hypotenuse of set square is inclined at 35° to V.P. Draw the projections and find its inclination with H.P.

26. A 30° - 60° set square has its shorter side 50mm long and is in the H.P. The top view of the set square is an isosceles triangle and hypotenuse of the set square is inclined at 40° to V.P. Draw the projections with H.P.

27. A circular plane of 60mm diameter is resting on H.P. on a point A of its circumference; the plane is inclined at 30° to H.P.
    (a) The diameter AE of the plane makes an angle 45° with V.P.
    (b) Plan of diameter AE of the plane makes angle 45° with V.P. Draw the projections.

28. A regular pentagonal plate ABCDE of 40mm side has corner A on H.P. Plane is inclined to H.P. such that plan length of edges AB and AE is each 35mm, side CD is parallel to both reference planes. Find inclination with H.P.

29. Draw the projection of a rhombus having diagonals 120mm and 60mm. Smaller diagonal of which is parallel to both the principle planes while other is inclined at 30° to H.P.

30. A square plate of 50mm side has one of its corner on H.P. The plane is inclined to H.P such that its plan becomes rhombus having diagonal 30mm. Diagonal BD is inclined to V.P by 45°. Draw the projections and find its inclination with H.P.

31. A circle of 70mm diameter appear as an ellipse in plan having minor axis 45mm long. Draw projections when major axis of ellipse is parallel to both planes. Find its inclination with H.P.

32. A thin 30° - 60° set square of longest side 125mm is in V.P & inclined at 30° to H.P. Its surface makes an angle of 45° with V.P. Draw the projection of set square.

33. A regular pentagonal plane of 35mm side is resting on H.P. on one of its corner A such that side CD is 35mm above H.P. & inclined to V.P. by 60°. Draw the projections.

34. A composite plate of negligible thickness is made up of a rectangle 60mm*40mm and a semi-circle on its longer side. Draw its projections when the longer side is parallel to H.P. and inclined at 45° to V.P. The surface of the plate making 30° angle with H.P. Draw the projections.

35. A thin circular plane of 70mm diameter is resting on its circumference such that its plane is inclined 60° to the H.P. & 30° to the V.P. Draw the projections.