INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY
Department of Mechanical Engineering

ME-119 Engineering Drawing & Graphics 2017-18 Semester II

Sheet 5: Projections of Planes.

Instructions:

- Clearly show all the required dimensions and labels.
- Practice all problems roughly before coming to the Drawing Session.
- For more details of the exercises in this sheet, refer Chapter 12 of the textbook (N. D. Bhatt, Engineering Drawing, 50th Ed.).

Questions:

1. A regular pentagon has sides of 35 mm with one of its edges in the Vertical Plane. Its surface is inclined at 60° to VP. The side in the V.P is inclined at 45° to the H.P. Draw the TV and FV projections.

2. Draw the TV and FV projections of a circle of diameter 75 mm with the end A of the diameter AB in the H.P.. The end B is in in V.P., and the surface is inclined at 30° to the H.P. and 60° to the V.P.

3. A triangle ABC rests on a corner C on the HP. Point A is 15 mm above HP and 25 mm in front of VP. Point B is 40 mm from both the planes. The distance between the projectors of A and B is 50 mm. The sides AC and BC are 45 mm and 60 mm long (ie., true lengths) respectively. Draw the TV and FV projections and determine the true shape of the triangle.

4. A circular plane of 50 mm diameter is resting on HP on end A of its diameter AC. The plane is 30° inclined to HP, while AC makes 45° inclination to VP. Draw the TV and FV projections of the plane.

5. A thin semicircle of 100 mm diameter is suspended from a point on its straight edge 30 mm from the midpoint of that edge so that the surface makes an angle of 45° with VP. Draw its FV and TV projections. (Note that for suspended lamellas line joining point of contact & centroid of the object remains vertical.

6. A thin hexagonal plate of 35 mm side has a central equilateral triangular hole of side equal to that of the plate. The plate is kept in such a way that one of its edges is parallel to the ground and inclined at 30° to the VP. The plate makes 45° with ground. Draw the FV and TV projections of the plate with hole if one of the sides of the hole is parallel to the ground.