National Institute of Technology Durgapur
Engineering Graphics Sessional (XES 51), 2018-19

**PROJECTION OF SIMPLE SOLIDS**

1. Draw plan and elevation of the following objects when the axis is making $30^o$ to HP and parallel to VP. The objects will touch the ground and to be tilted to your right hand side**:**
   [a] one hexagonal prism tilted about one side of the base which is at right angle to VP and the dimension of the solid are: base side 16 mm, height 40 mm.
   [b] one cone, diameter of base 32 mm, height 45 mm.
2. Draw plan and elevation of a right pentagonal prism, 20 mm edge, with its axis parallel to HP but inclined at $60^o$ to VP. The prism is lying on ground on one of its rectangular faces. Height of the prism 48 mm. Also draw the end view looking from left.
3. Draw plan and elevation of a pentagonal pyramid of height 36 mm and side of base 16 mm, when its axis is parallel to VP but inclined to HP at $45^o$. One of the edges of its base rests on ground. Also draw an elevation of the pyramid when the plan of its axis is inclined to VP at $30^o$.
4. Draw plan and elevation of a tetrahedron of 36 mm edges in the following positions:
   [a] standing with one face on the HP and one edge at right angle to VP
   [b] standing on one of its edges with one of its faces parallel to VP.
5. Draw plan, elevation and end view from left of a cone lying with its curved surface on the HP, its axis being parallel to VP. Base diameter 25 mm and height of axis 32 mm.
6. The base of a right pyramid is an equilateral triangle of 20 mm sides. The height of the pyramid is 36 mm. Draw the plan and elevation of the pyramid when it lies with one triangular face (not the base) on the ground. Draw also the end view from left.
7. Draw the projection of a regular hexagonal pyramid, base side 20 mm and height 50 mm when one of its longer edges is vertical. Draw end view from left.
8. Draw plan and elevation of a cube of edges 32 mm, when
   [a] one of its solid diagonals is $81^o$ to HP,
   [b] one of its solid diagonals is parallel to HP and perpendicular to VP.
9. Draw plan and elevation of a cube of edge 32 mm when one of its faces inclines at $30^o$ to HP and edge on which it rests makes an angle of $30^o$ to GL.
10. A hexagonal prism of 16 mm sides and 55 mm height has a longitudinal hole 16 mm dia at the centre and rests on HP with one of its rectangular faces. Draw plan and elevation of the prism when its axis makes an angle of $45^o$ with VP.
11. Draw plan and elevation of a pentagonal prism of 20 mm sides and 40 mm height resting on HP with one edge of base so that the axis of the prism makes $45^o$ with HP and the plan of the axis makes $25^o$ with VP. The nearest point of the edge (which is on HP) is 36 mm in front of VP.
12. A cylinder 32 mm diameter and 50 mm height has its axis inclined to HP at $45^o$ and the plan of the axis makes an angle of $30^o$ to VP. Draw its plan and elevation.

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Plan $\Rightarrow$ View from above, Elevation $\Rightarrow$ View from front,
(End view / Side view / Side elevation) from left or right $\Rightarrow$ View from left or right

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Class Assignment: Prob. # 3, 4, 7, 12
Home Study: Rest of the problems (with special attention to Prob. # 5, 8, 10)

Plate No. 4 includes PROJECTION OF SIMPLE SOLIDS and SECTION OF SOLIDS