

II B.Tech I Semester ( R18) Regular Examinations November 2019  
ENGINEERING DRAWING FOR MECHANICAL ENGINEERS  
(Mechanical Engineering)

Time : 3 hours

Max. Marks: 70

(Answer all five units, 05 X 14 = 70 Marks)

## UNIT-1

1. A square pyramid, base 25mm side and axis 40mm long, has its base on the ground and all the edges of the base equally inclined to the V.P. It is cut by a section plane, perpendicular to the V.P., inclined at  $30^\circ$  to the H.P. and passing through a point on the axis at 21mm from the base. Draw the sectional top view and the true shape of the section.

(OR)

2. A cylinder of 50mm diameter and axis 80mm long lies with one of its rectangular faces on H.P and its axis is inclined at  $45^\circ$  to V.P it is cut by a section plane, parallel to V.P bisect the axis of the cylinder . Draw its top and sectional front view.

## UNIT-II

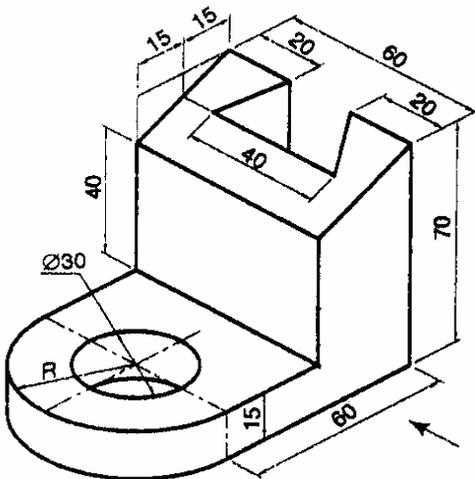
3. A Right regular hexagonal prism of side of base 25mm and height 55mm has a square hole of 20mm side at the centre. The axis of the prism and the hole coincide one of the faces of the square hole parallel to one of the faces of hexagon. Draw the isometric view of the prism of the hole.

(OR)

4. A Sphere of radius 20mm is kept on the top phase of the prism of side of base 40mm and height 20mm which is later placed on the top phase of the cylinder of 60mm diameter and 25mm height. All the three solids have the common axis. Draw the isometric view of combination of solids.

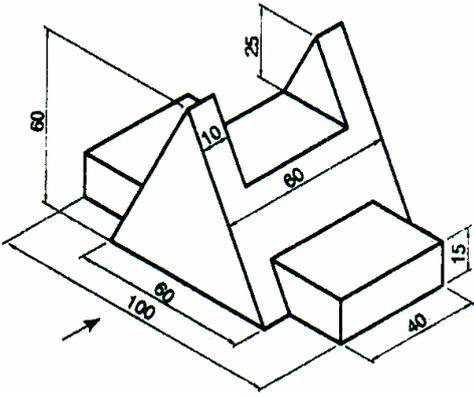
## UNIT-III

5. Draw the front view, top view and left hand side views of the isometric view given below in figure. All dimensions are in mm.



(OR)

6. Draw the front view, top view and right hand side views of the isometric view given below in figure. All dimensions are in mm.



#### UNIT-IV

7. A vertical square prism with 50 mm sides and 100 mm length has its side faces equally inclined to the VP. It is completely penetrated by a horizontal cylinder 60 mm in diameter and 100 mm in length. The axes of the two solids bisect each other perpendicularly. Draw the projections showing curves of intersection when the plane containing the two axes is parallel to the VP.

(OR)

8. A square prism of base 60mm, is resting on its base on the H.P. It is completely penetrated by another square prism of base side 40mm, such that their axes are 10mm apart. The axes of the penetrated prism is parallel to both H.P. and V.P., while the faces of both the prisms are equally inclined to the V.P. Draw the projections of the combinations and show lines of intersections.

#### UNIT-V

9. A Square prism side of base 40mm and height 60mm rest with its base on the ground such that one of its rectangular faces is parallel to and 10mm behind PP. The station point is 30mm in front of PP and 80mm above GP and lies on CP and 45mm to the right of the centre of the prism. Draw the perspective projection of the prism.

(OR)

10. A Cylinder with 40mm base diameter and 50mm long axis rest on GP with its axis parallel to 30mm behind PP. Its station point is 80mm above GP and 50mm in front of PP and 30mm towards the right of the axis. Draw the perspective projection.

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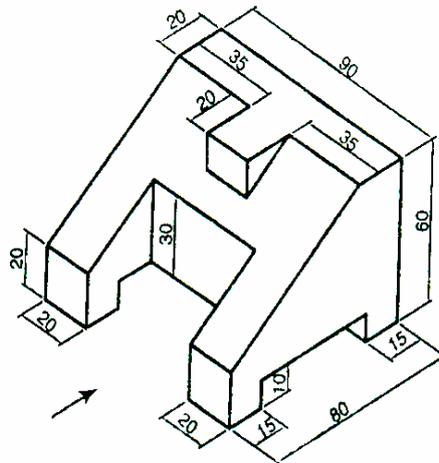
1. A Pentagonal prism side of base 25mm and axis 60mm long rests with one of the edges of its base on HP. Its axis is inclined at  $30^\circ$  to H.P and parallel to V.P. It is cut by a horizontal section plane passing through the highest corner of the base. Draw the sectional top view.

(OR)

2. A cone base 50mm diameter and axis 65mm long, rests with its base on HP, It is cut by a section plane perpendicular to V.P inclined at  $45^\circ$  to HP and passing through a point on the axis 35mm above the base. Draw sectional top view and true shape of section.
3. A Square pyramid rest centrally over a cylindrical block which is resting centrally on the top of the square block. Draw isometric view of the arrangement. Consider the pyramid of base 25mm side and 40mm long axis, the cylindrical block has 50mm base diameter and 20mm thickness, and the square block has 70mm base side and 15mm thickness.

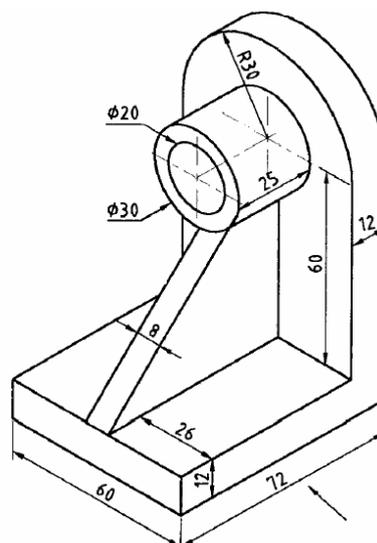
(OR)

4. A sphere of 40mm diameter is placed centrally over a cylinder of 50mm diameter and 60mm long such that the sphere rest on the center of cylinder. Draw isometric view of combination of solid.
5. Draw the front view, top view and right hand side views of the isometric view given below in figure. All dimensions are in mm.



(OR)

6. Draw the front view, top view and left hand side views of the isometric view given below in figure. All dimensions are in mm.



7. A cylinder of 60 mm diameter having its axis vertical is penetrated by another cylinder of 40 mm diameter. The axis of the penetrating cylinder is parallel to VP and bisects the axis of the vertical cylinder. Draw the orthographic projections showing the curves of intersection.

(OR)

8. A Vertical Square Prism, base 50mm sides is completely penetrated by a Horizontal Square prism, base 35mm sides, so that their axes are 6mm apart. The axis of the Horizontal prism is parallel to VP while the faces of both prisms are equally inclined to the VP. Draw the projections of the prisms showing lines of intersection. Assume suitable lengths for prisms.
9. A square prism of 40mm base side, height 60mm rests with its base on the ground such that one of its rectangular face is parallel to and 10mm behind the picture plane. The station point is 30mm in front of picture plane and 80mm above ground plane and lies in a central plane 45mm to the right of the center of the prism. Draw the perspective projection.

(OR)

10. A Square pyramid having base with 40mm side and 60mm height rest on the GP with an edge on the base parallel to and 15mm behind the PP and the station point with 90mm above GP and 75mm in front of PP and lies in CP which is 40mm towards the right of the axis of the pyramid . Draw the perspective projection.