SHANTILAL SHAH ENGINEERING COLLEGE, BHAVNAGAR

MECHANICAL ENGINEERING DEPARTMENT

List Of Drawing Sheet-ODD-2018

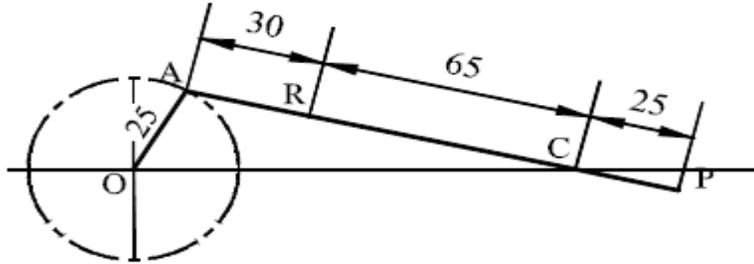Students must prepare sketch book and drawing sheets on the following topics.

1. **Practice sheet (which includes dimensioning methods, different types of line, construction of different polygon, divide the line and angle in parts, use of stencil)**
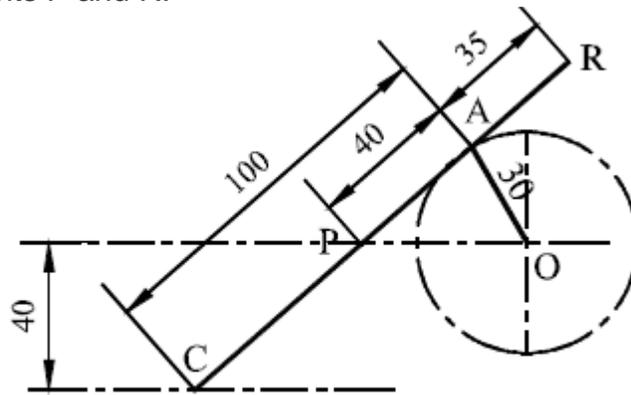
2. **Plane scale and diagonal scale**

1.	Construct a plain scale of 1:50 to read meters and decimeters. Indicate on this scale 8 meters and 4 decimeters.
2.	The distance between two cities is 750 kilometers. On inspection of map, it is equivalent of 15 centimeters. Decide Representative Fraction. Draw diagonal scale and indicate on following distances: (1) 635 Kilometer (2) 424 Kilometer (3) 184 Kilometer
3.	The distance between two towns is 250 km and is represented by a line of length 50mm on a map. Construct a scale to read 600 km and indicate a distance of 530 km on it.

## 3. Loci of points (only sketch book)

1.	For the given Slider crank mechanism OAC, OA is the crank of 25mm and AC is the connecting rod of 95mm. AC is extended in the direction of A to C by 25mm at point P. Also the point R is 30mm from A on the connecting rod. Find the locus of points P and R when the crank rotates in counter clockwise direction.
2.	The crank OA, 30mm long rotates in anticlockwise direction. The slider C is constraint to slide on the line parallel to a horizontal line passing through O at a distance of 40mm. The point P is 40mm from A on the connecting link AC=10mm. R is the extension point or rod, 35mm From A. Draw the loci of points P and R.
3.	Two cranks O₁A and O₂B are rotate in opposite direction as shown in fig. Draw the locus of point P and R of the given mechanism.
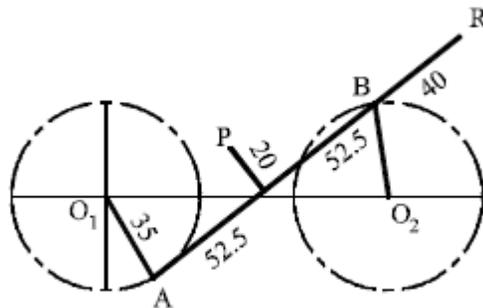
4. Engineering curves

1.	Drawn an ellipse, when the distance between the focus and directrix is equal to 50mm and eccentricity = 2/3. Draw a tangent and a normal to the curve at a point 45 mm from the focus.
2.	Construct a parabola by tangent method, given the base = 80 mm and axis = 40 mm.
3.	Draw an epicycloid and a hypocycloid, given the generating circle radius r = 20 mm and directing circle radius R = 60 mm.
4.	Draw an involute of a given hexagon of side, S=15 mm, also draw tangent and normal to the curve at given point R.

5. Projection of line

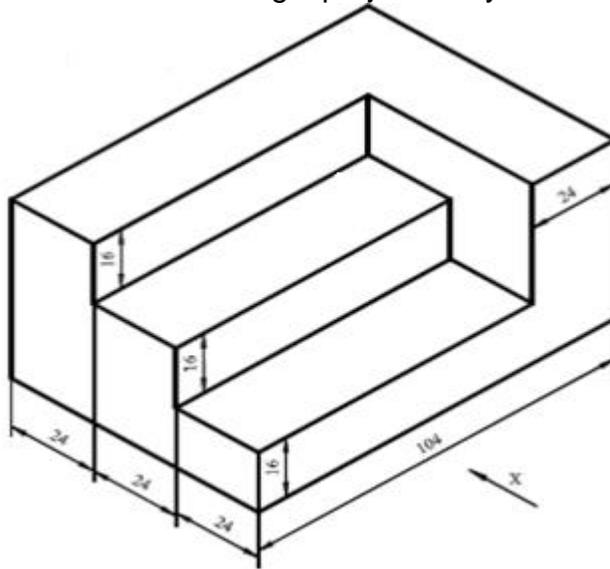| 1.	A Line AB, 75mm long, is in V.P. It makes an angle of 30^0 with the H.P. Point A is 20mm above H.P. Draw the projections of line AB.
2.	A Line AB, 90 mm long, is inclined to H.P. by 30° and inclined to V.P. by 45^0. The line is in first quadrant with Point A 15 mm above H.P. and 25 mm in front of V.P. Draw the projection of line AB.
3.	The distance between the end projectors of a straight line AB is 80mm. Point A is 10mm above H.P. and 30mm in front of V.P. Point B is 40mm above H.P. and 50mm behind V.P. Draw the projections and find the inclination of straight line AB with H.P & V.P. and the true length of the line.
4.	Line AB 75mm long makes 45^0 inclination with VP while it's Front View makes 55^0. End A is 10 mm above HP and 15 mm in front of VP. If line is in 1st quadrant draw it's projections and find it's inclination with HP.

6. Projection of plane

1.	A regular triangle side 40mm is resting on H.P. on one of its sides with surface of the plate perpendicular to V.P. and inclined to H.P. by 45_0. Draw its two projections.
2.	A regular pentagonal plate 25mm side is resting on H.P. on one of its edge. The surface is inclined to H.P. at 45^0. The side, on which the plate is resting, makes an angle of 60^0 to V.P. The corner, opposite to that edge, is nearer to V.P. Draw the projections.
3.	A regular hexagon, 25mm side, is resting on one of its corner on H.P. the diagonal through that corner is inclined to H.P. such that the plan of that diagonal becomes 30mm. Find the inclination with H.P. The plan of the diagonal is inclined 30^0 with V.P. Draw the projections.
4.	A regular hexagonal plate, 30mm edge, has one of its edges in V.P. and is inclined 55^0 with H.P. The surface of plate is inclined in such a way that the opposite edge which is in V.P. is 40mm away from V.P. Draw the projection of plate and find the inclination with V.P.

## 7. Projection of solid, section of solid and development of surfaces

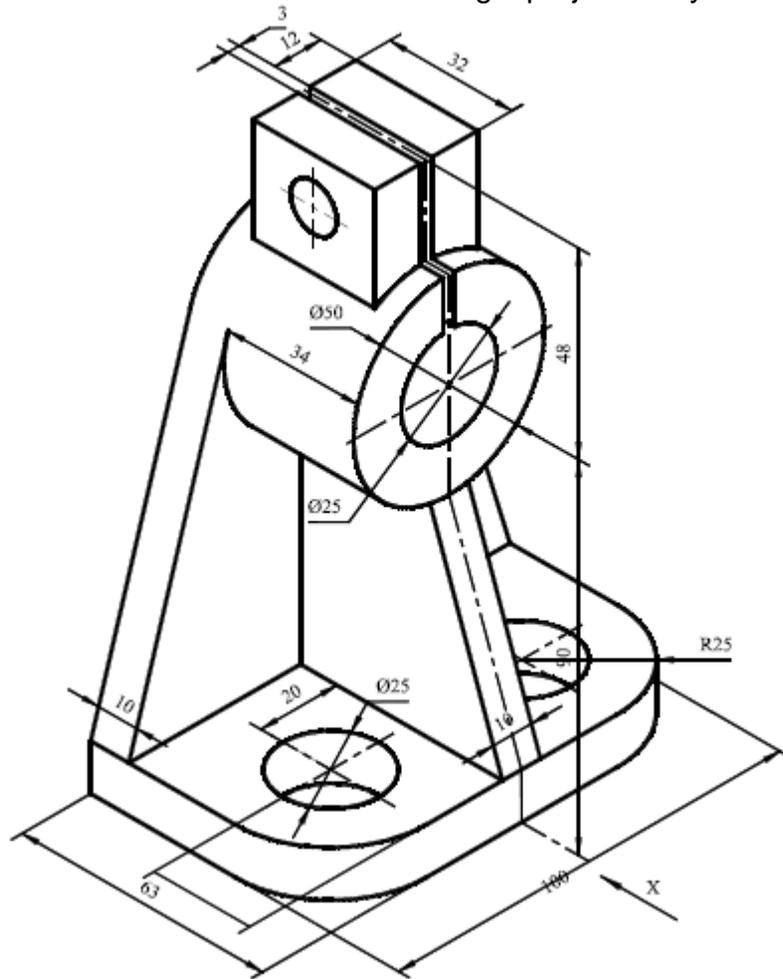|	
1.	A square pyramid edge of base 25mm long and axis 60mm long, is lying on an edge of its base on the horizontal plane in such a way that it makes an angles of 45^0 to VP. The slant face containing the same edge makes an angle of 60^0 to the HP. Draw its projections.
2.	A square prism of side length of base 40 mm and height of 90 mm is resting on HP on its base such that one of the edge of the base is inclined at 30^0 to VP. It is cut by an AIP inclined at 60^0 HP and intersecting the axis at 20 mm from the top towards the bottom. Draw projection and section of prism. Also draw true shape of the solid.
3.	A pentagonal pyramid of 25 mm side length of base and 60 mm height is resting on HP on its base with one edge of base parallel to VP and nearer to VP. It is cut by an AIP inclined at 45^0 degree to HP and intersecting the axis at 18 mm from base. Draw projection and section of pentagonal pyramid and true shape of section.
4.	A pentagonal prism of 30 mm side length of base and of height 70 mm is resting of HP on its base with one of the edge of base is perpendicular to VP. A square prism is cut by an AIP such that AIP bisects the axis of prism and inclined at 45^0 to HP. Draw Development of surface of prism.
5.	A right circular cone of base diameter of 50mm and height 60 mm is resting on HP on its base. Cone is cut by a cutting plane perpendicular to VP and inclined at 30^0 to HP and passing through a point which is 30 mm away from the apex of cone (bisects the axis of cone). Draw the development of surface of cone.

8. Orthographic projection

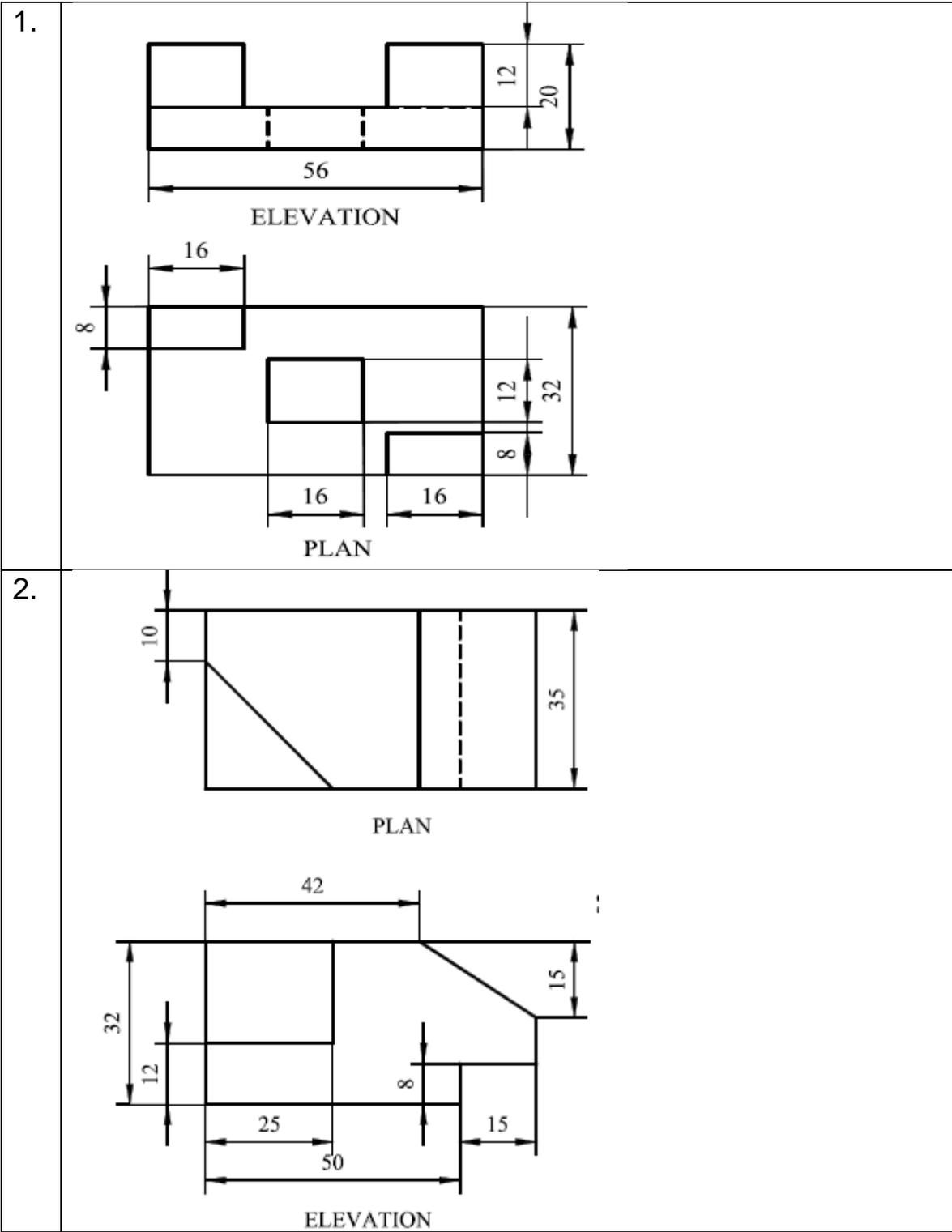| 1.	Draw the following orthographic views. (i) Elevation (ii) Top view (iii) L.H.S.V. Use the 1st angle projection system.
2.	Draw the following orthographic views. (i) Elevation (ii) Top view (iii) L.H.S.V. Use the 3rd angle projection system.
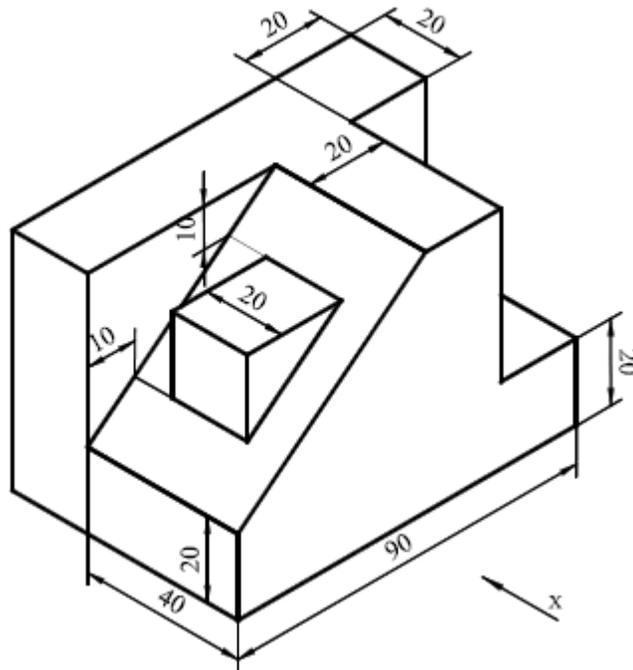
3.	Draw the following orthographic views. (i) Sectional Elevation (ii) Top view (iii) Sectional R.H.S.V. Use the 3rd angle projection system.

9. Isometric projection

1.

12
20
56
ELEVATION

16
8
12
32
16   16
8
PLAN

2.

10
35
PLAN

42
32
12
15
8
25   15
50
ELEVATION

3.

35

15

F.V.

L.H.S.V.

Ø20

R20

R20

40

Ø20

R20

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