COMPUTER AIDED ENGINEERING GRAPHICS **QUESTION BANK**

**UNIT - I**

**GEOMETRICAL CONSTRUCTIONS:**

1. Draw a line AB of 150 mm and mention the dimensions.
2. Draw a line of 125mm and divide it into 8 equal parts.
3. Draw a circle of 30mm radius. Also draw a circle of 80mm diameter by using the same center as of 30mm radius and divide the 80mm diameter circle into 6 equal parts.
4. Draw a horizontal and vertical line of length 80 mm.
5. Draw an inclined line of length 90mm with an inclination of (i) 600 and (ii) -450
6. Draw Perpendicular to 120 mm long line AB at a point P lying on the Line at a distance of 40 mm from the end A and point Q at a distance of 65 mm from end B.
7. Draw a line AB inclined at 300 to the Horizontal. Draw another Line CD Parallel to and 50 mm away from AB
8. Draw an arc of 60 mm radius connecting two lines inclined at 1450 to each other.
9. Draw an angle of 90⁰ and bisect it.
10. Draw regular pentagon and heptagon having 40 mm long sides using edge method
11. Inscribe regular polygon of 3,4,5,6,7,8 sides in a circle of 75 diameter.
12. Draw concentric circles of 15mm radius by using offset.
13. Draw a regular pentagon, hexagon and heptagon with side 45mm and with common edge by using edge method.
14. Circumscribe regular polygon of 3,4,5,6,7,8 sides in a circle of 40mm diameter.
15. Write “COMPUTER AIDED ENGINEERING GRAPHICS” and “MALLA REDDY UNIVERSITY” with text size as 15mm and at an angle of 500.

**UNIT 2:**

**PROJECTIONS OF POINTS QUESTIONS**

1. Draw the projections of the following points on the same ground line, keeping the projectors 30 mm apart.
   1. A is in the H.P. and 20 mm behind the V.P.
   2. B is 40 mm above the H.P. and 25 mm in front of the V.P
   3. C is in the V.P. and 40 mm above the H.P.
   4. D is 25 mm below the H.P. and 25 mm behind the V.P.
   5. E is 15 mm above the H.P. and 50 mm behind the V.P.
   6. F is 40 mm below the H.P. and 25 mm in front of the V.P.
   7. G is in both the H.P. and the V.P.
2. Draw the orthographic projections of the following points.
   1. Point P is 30 mm. above H.P and 40mm.in frontof VP.
   2. Point Q is 25 mm. Above H.P and 35mm.behind VP.
   3. Point R is 32 mm. below H.P and 45mm behind VP.
   4. Point S is 35 mm. below H.P and 42mm in front to VP.
   5. Point T is in H.P and 30 mm behind VP.
   6. Point U is in V.P and 40 mm. below HP.
   7. Point V is in V.P and 35 mm. above H.P.
   8. Point W is in H.P and 48 mm. in front of VP.
3. Draw the projections of the following points on the same XY line, keeping convenient distance between each projectors. Name the quadrants in which they lie.
   1. Point A is 40 mm above HP and 25 mm in front of VP.
   2. Point B is 25 mm above HP and 40 mm behind VP.
   3. Point C is 30 mm above HP and on VP.
   4. Point D is 25 mm below HP and 40 mm in front of VP.
4. State the quadrants in which the following points are situated:
5. A point P; its top view is 50 mm above xy; the front view, 30 mm below the top view.
6. A point Q, its projections coincide with each other 50 mm below xy
7. A point P is 15 mm above the H.P. and 20 mm in front of the V.P. Another point Q is 25 mm behind the V.P. and 40 mm below the H.P. Draw projections of P and Q keeping the distance between their projectors equal to 90 mm. Draw straight lines joining (i) their top views and (ii) their front views.
8. Draw the projections of the following points on the same XY line, keeping convenient distance between each projector. Name the Quadrants in which they lie.
9. Point E is 20 mm below HP and 25 mm behind VP.
10. Point F is 45 mm below HP and 40 mm in front of VP.
11. Point G is on HP and 20 mm in front of VP.
12. Point H is on HP and 45 mm behind VP.

**PROJECTIONS OF LINES QUESTIONS:**

1. Draw the projections of a 65 mm long straight line, in the following positions:
2. Parallel to both the H.P. and the V.P. and 35 mm from each.
3. Perpendicular to the H.P., 30 mm in front of the V.P. and its one end 25 mm above the H.P.
4. Inclined at 40° to the H.P. and its one end 30 mm above it; parallel to and 20 mm in front of the V.P.
5. A 90 mm Long Line AB Parallel to both planes HP & VP. Draw its Projections when its one end is 30 mm above the HP. & 25 mm in front of the VP.
6. A 100 mm long line PQ parallel to VP And Perpendicular to HP. Draw its projections when its one end 20 mm above the HP & 35mm in front of the VP.
7. A 60mm long line RS has its end R 30mm in front of the VP. The line is perpendicular to the VP and 35mm above the HP. Draw the projections of the line.
8. A line of MN 85 mm long is parallel to VP and Inclined at an angle of 300 to HP. Its end point is 15 mm above the HP. And 20 mm in front of the VP.
9. An 80mm long line PQ is inclined at 400 to the VP and is parallel to the HP. The end P of the line is 20mm above the HP and 40mm in front of the VP. Draw the projections of the line.
10. A line AB 70 mm long has its end A 15 mm above the HP and 30 mm in front of VP. It is inclined at 30° to HP and 45° to VP. Draw the projections of the line.
11. A 95 mm long line AB is inclined to 400 to the HP and 350 to the VP. The ends A and B of the line are 30 mm above the H.P and 45 mm in front of the VP respectively. Draw the projections.
12. A line CD 50mm long has its end C in both HP and VP. It is inclined at 200 to HP and 350 to the VP. Draw the projections.
13. Line AB has its end A 10mm above HP and 15mm in front of the VP. The other end B is 60mm above the HP and 45mm in front of the VP. The distance between the end projectors is 70mm. Draw its projections, determine the apparent lengths and true inclinations.
14. A 60mm long line AB is parallel to and 20mm in front of the VP. The ends A and B of the line are 10mm and 50mm above the HP respectively. Draw the projections of the line and determine its inclination with the HP.
15. The top view of a line measures 60mm, the line is parallel to the VP and inclined at 450 to the HP. One end of the line is 25mm in front of the VP and lies on the HP. Draw the projections and determine the true length.
16. The midpoint of a line AB measuring 80mm is 50mm above HP and 30mm in front of VP. The line is inclined at 450 to HP and 300 to VP. Draw the projections.

**UNIT 3:**

**PROJECTION OF PLANES:**

1. A square plane with 40 mm side has its surface parallel to and 30mm above the HP. Draw its Projections when
   1. A side IS Parallel to VP
   2. A side is Inclined At 300 to VP
   3. All sides are Equally Inclined to VP
2. A Hexagonal Plane with 30 mm side has its surface parallel to and 20mm in front of the VP. Draw its Projections when
   1. A side is parallel to HP
   2. A side is perpendicular to HP
   3. A side is inclined at 450 to HP
3. A hexagonal plane of side 30mm has an edge on the HP. The surface is inclined at 450 to HP and perpendicular to the VP. Draw its projections.
4. A pentagonal plane of side 30mm has a corner in the VO. The surface of the plane is inclined at 450 to the VP and perpendicular to the HP. Draw its projections.
5. A Rectangle 40 mm \* 60 mm resting on the HP on one of its shorter edge the Surface of the Plane is 300 inclined to the HP. Draw Its Projections when the edge which is resting on the HP is makes an angle of 450 to the VP.
6. An equilateral triangle lamina of 30 mm side lies with on of its edges on the HP such that the surface of the lamina is 300 inclined to HP. The edge on which it rests is inclined at 450 to the VP Draw the Projections.
7. A regular Pentagon of 30 mm side is resting on the HP. On one of its sides with its surface 450 to the HP. Draw its projections when the side in the HP makes angle 300 to the VP.

# PROJECTION OF SOLIDS:

1. A Square Pyramid, having base with a 40mm side and 60mm axis is resting on its base on the HP. Draw its Projections when
   1. A side of the base is parallel to the VP.
   2. A side of the base is inclined at 300 to the VP
   3. All the sides of base are equally inclined to the VP
2. A pentagonal Prism having a base with 30 mm side and 60 mm long Axis, has one of Its bases in the VP. Draw Its projections When
   1. A side is parallel to the HP
   2. A side is perpendicular to HP
   3. A side is inclined at 450 to the HP.
3. A pentagonal Prism having a base with a 30 mm side and 60 mm long axis, is resting on one on the HP. the axis of the solid inclined at 450 to HP. Draw its projections?
4. Draw the projections of a hexagonal pyramid of side of base 30mm and axis 60 mm long resting on one of its base edges in HP with its axis inclined at 300 to HP.

# Unit 4:

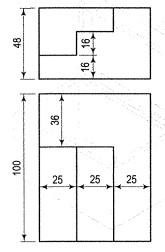
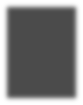
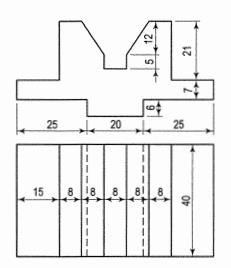
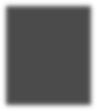
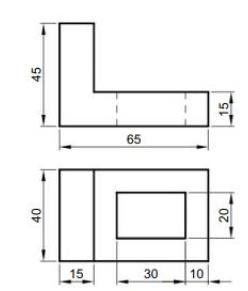
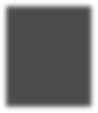
**ISOMETRIC PROJECTIONS:**

1. Draw its isometric views of following plane objects ortho graphic views with 30 mm side
   1. Square
   2. Triangle
   3. Rectangle
   4. Pentagon
   5. Hexagon
2. Draw the isometric view of a square prism, side of the base 20 mm long and the axis 40 mm long, when its axis is (i) vertical and (ii) horizontal
3. Draw the isometric view of a hexagonal prism, side of the base 30 mm long and the axis 60 mm long, when its axis is (i) vertical and (ii) horizontal
4. Draw the isometric view of the pentagonal pyramid, the projections side of the base 30 mm long and the axis 60 mm long, when its axis is (i) vertical and (ii) horizontal
5. A hexagonal prism of base side 30mm and axis 50mm has an axially drilled circular hole of diameter 30mm. Draw its isometric projections
6. Draw the isometric view of a 30 mm side and 50 mm axis square pyramid centrally on the top of a square prism, with 40 mm side and 60 mm axis

# UNIT 5:

**TRANSFORMATION OF OBJECTS**

1. Draw the isometric view of the model of steps, two views of which are shown in fig.



1. Draw the orthographic 1. front view 2. top view 3. side view of the given isometric view

