



# NARSIMHA REDDY ENGINEERING COLLEGE

## UGC AUTONOMOUS INSTITUTION

Maisammaguda (V), Kompally - 500100, Secunderabad, Telangana State, India

UGC - Autonomous Institute  
Accredited by NBA & NAAC with 'A' Grade  
Approved by AICTE  
Permanently affiliated to JNTUH

### B.TECH. FIRST YEAR

### QUESTION BANK

**Course Title:** COMPUTER AIDED ENGINEERING GRAPHICS

**Course Code :** 23ME103/23ME203

**Regulation :** NR23

#### **Course Objectives:**

1. To develop the ability of visualization of different objects through technical drawings.
2. To acquire computer drafting skill for communication of concepts, ideas in the design of engineering products.

**Course Outcomes:** At the end of the course, the student will be able to:

1. Apply computer aided drafting tools to create 2D and 3D objects
2. Sketch conics and different types of solids
3. Appreciate the need of Sectional views of solids and Development of surfaces of solids Read and interpret engineering drawings
4. Conversion of orthographic projection into isometric view and vice versa manually and by using computer aided drafting

S.No	Questions	BT	CO	PO
<b>Long Answer Questions</b>				
1	The Gap between two towns by road is 250 Km and it is represented on a certain map by a 6 cm long line. Find R.F and Construct a diagonal Scale showing single kilometer and long enough to measure upto 1000 Km. Show a distance of 700Km on this Scale.	L2	1	1,2,10
2	Construct a Plain scale of 1:4550 to read miles, furlongs and chains and long enough to measure up to 8 miles. Show a distance of 3 miles 4 furlongs 8 chains on it.	L2	1	1,2,10
3	Design a diagonal scale showing yards, feet and inches in which 3 inches long line represents 1.75yards and is long enough to measure up to 6 yards. Find R.F. and mark a distance of 5 yards 3 feet 13 inches.	L3	1	1,2,10
4	Construct a parabola when the distance between its focus and directrix is 60mm. Also, draw a tangent and normal at a point 80 mm from the directrix.	L2	1	1,2,10
5	Bring out a hyperbola when the distance of its focus from its directrix is 60mm and eccentricity is 3/2. Also draw tangent and normal to the hyperbola at a point 35 mm from the directrix.	L2	1	1,2,10

**UNIT-I**

	Mark the largest possible ellipse in a rectangle of sides 160 mm and 120mm.	L2	1	1,2,10
7	The Larger axis of an ellipse is 120 mm and smaller axis is 80 mm long. Draw an ellipse by concentric method.	L3	1	1,2,10
8	Sketch a cycloid of a circle of diameter 70 mm for one revolution. Also draw a tangent and a normal to the curve at a point 40 mm above the base line.	L2	1	1,2,10
9	Sketch an epicycloid of a circle of diameter 80 mm which rolls outside a circle of diameter 160 mm for one revolution. Also, draw a tangent and normal to the epicycloids at a point 120 mm from the center of the directing circle.	L3	1	1,2,10
10	Design a parabola of base 140 mm and axis 70 mm by oblong method.	L3	1	1,2,10



## UNIT – II

S.No	Questions	BT	CO	PO
<b>(Long Answer Questions)</b>				
1	1. Draw the projections of the following points (a) Point A is 20 mm below the H.P. and 50 mm in front of the V.P. (b) Point B is in the H.P. and 40 mm behind the V.P. (c) Point C is 30 mm in front of the V.P. and in the H.P. (d) Point D is 50 mm above the H.P. and 30 mm behind the V.P. (e) Point E is 20 mm below the H.P. and 50 mm behind the V.P. (f) Point F is in the V.P. and 50 mm below the H.P.	L2	2	1,2,10
2	Draw the projection of a line AB, whose end A is in HP and 20 mm in front of VP. The line makes an angle of $40^\circ$ with VP and $70^\circ$ with HP. The line is 80 mm long	L2	2	1,2,1,0
3	Differentiate between the first angles and third angles projection.	L2	2	1,2,10
4	Draw the projection of the following points on the same reference line keeping their projectors 20 mm apart. (i) Point A is 20 mm above H.P. and 40 mm in front of V.P. (ii) Point B is 25 mm below H.P. and 30 mm in front of V.P. (iii) Point C is in H.P. and 25 mm behind V.P.	L2	2	1,2,10
5	Draw the projection of a line AB, whose end A is in HP and 10 mm in front of VP. The line makes an angle of $30^\circ$ with VP and $60^\circ$ with HP. The line is 50 mm long	L2	2	1,2,10
6	A line PS 65mm has its end P, 15mm above the HP and 15mm in front of the VP. Its is inclined at $55^\circ$ to the HP and $35^\circ$ to the VP. Draw its projection.	L3	2	1,2,10
7	A line AB 80 mm long is parallel to and 35 mm above HP. Its ends are 30 mm and 50 mm in front of the V.P. Draw its projections and determine its inclination with V.P.	L3	2	1,2,10
8	A line AB of 25mm long is perpendicular to the V.P. and parallel to the H.P. The end point A and B of line are 10 mm and 35 mm in front of V.P. respectively. The line is 20mm above the H.P. Draw its projection.	L3	2	1,2,10
9	A regular hexagonal lamina of side 20 mm rests on one of its side on Hp such that it is perpendicular to V.P. and inclined to HP at $45^\circ$ . Draw it projection in first angle.	L3	2	1,2,10
10	A regular hexagonal lamina of side 20 mm rests on it's sides on HP such that it is perpendicular to VP and inclined to the HP at $45^\circ$ . It's corner nearest to VP is 15 mm away from VP. Draw its projection	L3	2	1,2,10

## UNIT - III

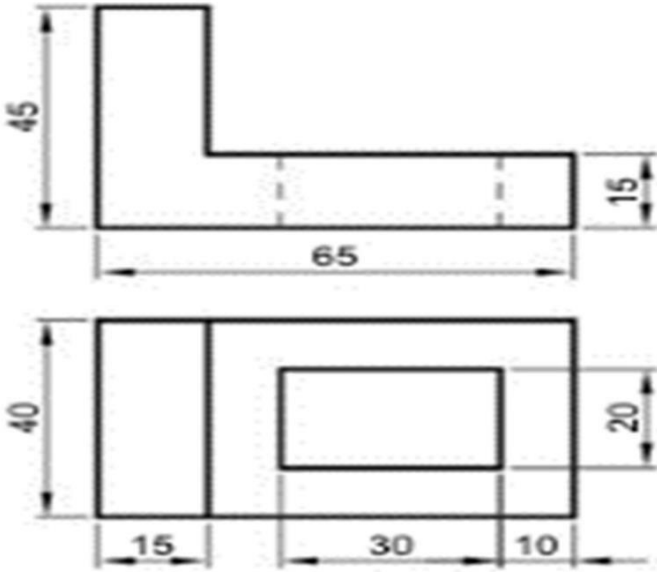
S.No	Questions	BT	CO	PO
<b>(Long Answer Questions)</b>				
1	A right circular cone of 30mm diameter of base and axis 50 mm long is resting on a point of base circle on horizontal plane with its axis inclined at angle of 45° to the H.P. and parallel to the V.P. Draw its projection.	L2	3	1,2,10
2	A right pentagonal prism 100 mm high with each side of the base 25 mm is resting on one of the corner on the horizontal plane and inclined at 45° to the V.P. and 30° to the H.P. Draw the projections of the pentagonal prism.	L3	3	1,2,10
3	A right pentagonal prism 90 mm high with each side of the base 30 mm is resting on one of the base edges on the horizontal plane and inclined at 30° to the V.P. and the face containing that edge is inclined at 45° to the H.P. Draw the projections of the pentagonal prism.	L3	3	1,2,10
4	A right regular pentagonal prism edge of base 30 mm and height 75 mm is resting on one of its base edges in H.P. and inclined at 30° to V.P. and the face containing that edge inclined at 45° to the H.P. Draw the projection of the solid.	L3	3	1,2,10
5	A pentagonal pyramid of edge of base 25 mm and height 60mm is resting on the corner of its base on H.P. and the slant edge containing that corner is inclined at 45° with H.P. Draw the projection of the solid when its axis makes an angle of 30° with V.P.	L3	3	1,2,10
6	A right regular pentagonal pyramid edge of base 30 mm and axis 60 mm long, has its base in HP such that base edge towards the VP is parallel to it. A section plane perpendicular to the HP and inclined at 45° to VP cuts the pyramid at a distance 7 mm from the axis. Draw its top view, sectional front view and development of lateral surface.	L3	3	1,2,10
7	A pentagonal prism of side 3 cm height 7 cms is resting on its base in H.P. such that one of the base edges is parallel to V.P. It is cut by a section plane perpendicular to V.P and inclined at 60° to H.P. and passes through a point 15 mm below the top center. Draw the sectional top view and true shape of section.	L2	3	1,2,10
8	A cone of 40 mm diameter 70 mm height is resting on its base in H.P. It is cut by a section plane perpendicular to V.P, parallel to one of the generators and passes through a point 15 mm below the apex. Draw the sectional top view and true shape of section.	L2	3	1,2,10
9	Right regular hexagonal prism edge of base 30 mm and height 75 mm is resting on it's base on ground such that one of its base edges B parallel to VP. A cutting plane perpendicular to VP and inclined to HP at 45° meets its axis at a distance of 10 mm from its top end. Draw its front view, sectional top view, sectional right side view and true shape of the section.	L2	3	1,2,10

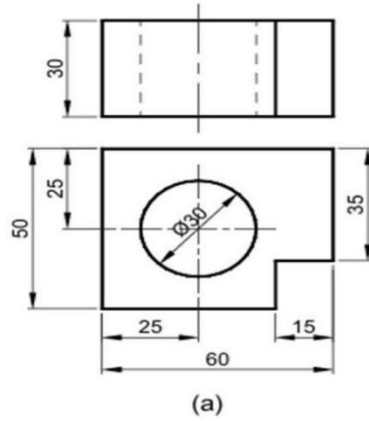
10	A hexagonal pyramid of 25 mm edge of base and axis 50 mm long is resting on its triangular face in the HP with its axis parallel to the VP. It is cut by a section plane perpendicular to the HP and inclined at 30° to VP, and passing through a point on the axis 20 mm from the base. Draw the top view, sectional front view and true shape of the section when the apex is removed.	L3	3	1,2,10
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**UNIT-IV**

S.No	Questios	BT	CO	PO
<b>Part– A (Long Answer Questions)</b>				
1	A square prism of side of base 40 mm and axis 80 mm long is resting on its base on H.P. such that rectangular face of it is parallel to V.P. Draw the development of the prism.	L2	4	1,2,10
2	A hexagonal prism of a base side 25 mm and axis 50 mm is resting on HP on its base with two of its vertical faces perpendicular to VP. It is cut by a plane inclined at 50° to HP and perpendicular to VP and meets the axis of the prism at a distance 10mm from the top end. Draw the development of the lateral surface of the prism.	L2	4	1,2,10
3	A cylinder of diameter of base 40 mm and axis 55 mm long is resting on its base on H.P. It is cut by a section plane perpendicular to V.P. and inclined at 45° to H.P. The section plane passes through the top end of an extreme generator of the cylinder. Draw the development of the lateral surface of the cut cylinder.	L3	4	1,2,10
4	A hexagonal prism of base side 30 mm and height 70 mm, is resting on its base on the H.P. with a side of the base perpendicular to the V.P. The prism has a cylindrical hole of diameter 40 mm, drilled centrally such that the axis of hole is perpendicular to the V.P. Draw the development of the lateral surface of the prism	L2	4	1,2,10
5	A pentagonal pyramid of side of base 30 mm and axis 60 mm long is resting on its base on H.P. with an edge of the base parallel to V.P. Draw the development of the lateral surface of the pyramid.	L2	4	1,2,10
6	Draw the development of the frustum of a hexagonal pyramid of side of base 35 mm at the bottom and 15 mm at the top, the height of the frustum being 50mm.	L2	4	1,2,10
7	A cylinder of 45 mm base dia. And 55 mm long axis rests with its base on H.P. It is cut by a plane perpendicular to V.P. inclined at 60° to H.P. and passing through a point on the axis 12 mm from its top. Draw the top view and development of lateral surface of truncated cylinder.	L3	4	1,2,10
8	A cylinder of base diameter 50 mm and axis 70 mm is resting on ground with its axis vertical. It is cut by a section plane perpendicular to the V.P., inclined at 45° to the H.P., passing through the top of a generator and cuts all the other generators. Draw the development of its lateral surface.	L3	4	1,2,10
9	.A square pyramid side of base 30mm and axis length 40mm is resting on it's base on H.P. with sides of base equally inclined to V.P. A circular hole of diameter 20mm is drilled through the pyramid so that axis of the hole is perpendicular to V.P. And parallel to H.P. and intersecting the axis of the pyramid at 12.5mm above the base. Draw the development of the pyramid	L3	4	1,2,10
10	A square pyramid of base side 40 mm and axis 60 mm is resting on its base on the H.P. such that a side of the base is parallel to the V.P. It is cut by a section plane perpendicular to the V.P. and inclined at 30° to the H.P., bisecting the axis. Draw the development of its lateral surface.	L3	4	1,2,10

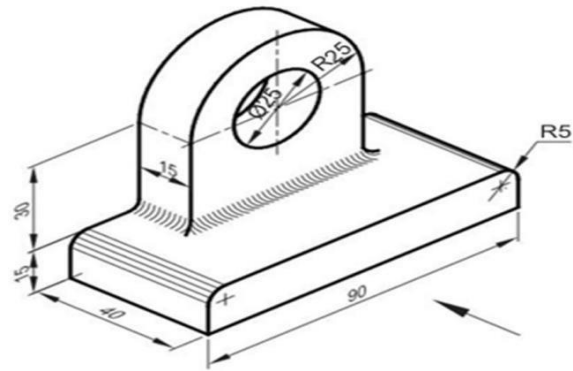
**UNIT-V**

S.No	Questions	BT	CO	PO
<b>Part– A (Short Answer Questions)</b>				
1	Draw the isometric view of a hexagonal prism of base side 30 and axis 70 mm. The prism is resting on its base on the H.P. with an edge of the base parallel to the V.P.	L3	5	1,2,10
2	Draw the isometric view of a cylinder of base diameter 50 mm and axis 60 mm. The axis of the cylinder is perpendicular to the (a) H.P., (b) V.P.	L3	5	1,2,10
3	A hexagonal pyramid of base side 30 mm and axis 60 mm long has an edge of its base on the H.P. Its axis is inclined at $30^\circ$ to the ground and parallel to the V.P. Draw the isometric view of the pyramid in the stated condition.	L3	5	1,2,10
4	Draw the isometric projection of the frustum of a hexagonal pyramid of base side 40 mm, top side 25 mm and height 70 mm. The frustum rests on the base on the H.P.	L3	5	1,2,10
5	A hexagonal prism of base side 30 mm and axis 70 mm is resting on its base on the H.P. with a side of the base parallel to the V.P. It is cut by an A.I.P. inclined at $45^\circ$ to the H.P. and bisecting the axis. Draw its isometric view.	L3	5	1,2,10
6	A hexagonal prism of base side 25 mm and axis 70 mm is placed centrally on its rectangular face over a cylindrical block of base diameter 80 mm and thickness 30 mm. Draw the isometric projection of the arrangement.	L3	5	1,2,10
7	The front and top views of an angle plate are shown in Fig. Draw its isometric view. 	L4	5	1,2,10
8	The front and top views of a casting are shown in Fig. Draw its isometric view	L3	5	1,2,10



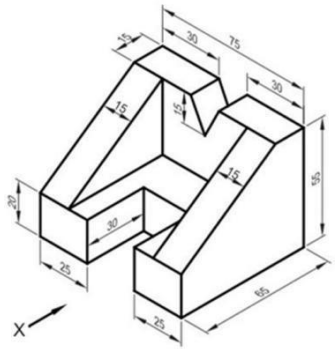
9 Pictorial view of an object is shown in Fig. Using first angle projection, draw its (a) front view, (b) top view and (c) side view.

L4 5 1,2,10



10 Pictorial view of an object is shown in Fig. Using first angle projection, draw its (a) front view, (b) top view and (c) side view

L4 5 1,2,10



\* Blooms Taxonomy Level (BT) (L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analyzing; L5 – Evaluating; L6 – Creating)

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