R22 Regulation *Subject code:4E2AE*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech II Semester Supplementary Examinations, January 2026

ENGINEERING GRAPHICS

(CE)

Maximum Marks: 60 Date: 24.01.2026 Duration: 3 hours

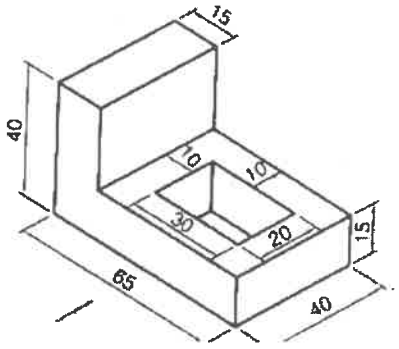
Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	BTL
1.a	Name two specific types of "roulette" curves mentioned that are formed by a rolling circle.	1M	1	L1
b	What essential tools or "Instruments" are used in engineering drawing?	1M	1	L1
c	If a point is on the vertical plane, where do we get the topview?	1M	2	L3
d	What is the front view and top view of a line when it is parallel to H.P.	1M	2	L3
e	When a solid is standing on H.P. and axis is parallel to V.P. what is the front view?	1M	5	L3
f	Draw a rectangular prism of top view and front view 30X60mm.	1M	2	L4
g	What is an auxiliary inclined plane?	1M	2	L1
h	When a pentagonal pyramid is developed it net consists of what?	1M	4	L2
i	At which angle isometric views are drawn?	1M	5	L1
j	How a hidden portion is represented in orthographic projection?	1M	1	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	Draw the path traced out by a point on the circumference of a circle but opposite to the contact point. The circle rolls without slipping vertically downwards for the distance equal to its perimeter. The diameter of the circle is 40 mm. Name the curve and also draw the tangent and normal to the curve at any point.	10M	1	L2
	OR			
3	a) Construct a hyperbola, when the distance of the focus from the directrix is equal to 60 mm and eccentricity 2/3. Also draw a normal and tangent to the curve at a point 35 mm from the focus. b) Construct a conic section, when the distance of the focus from the directrix is equal to 50 mm and eccentricity 1. Name the curve.	5M 5M	1 1	L2 L2
4	A regular hexagonal lamina with its edge 50 mm has its plane inclined at 45° to H.P and lying with one of its edges in H.P. The plane of one of its diagonals is inclined at 45° to XY. The corner nearest to VP is 15mm in front of it. Draw its projections.	10M	2	L3
	OR			

5	A 90mm line PQ is inclined at 45^0 to the H.P and 30^0 to V.P. Its end P is the H.P. and 40mm in front of V.P. Draw its projections keeping the end Q in the fourth quadrant.	10M	2	L3
6	A square prism base 40 mm side and height 65 mm has its axis inclined at 45 degrees to the HP and has an edge of its base on the HP and inclined at 30 degrees to the V.P. Draw its projections	10M	5	L3
	OR			
7	A cone of base 60 mm diameter and axis 80 mm long lies on H.P with its axis inclined 45° and 30°to H.P and V.P respectively. Draw the top and front views of the cone.	10M	5	L3
8	A pentagonal pyramid with a 55 mm base and a 90 mm slant height, has its base on the HP with a side of base perpendicular to the VP. It is cut by a section plane whose VT is inclined at 60° to XY and intersecting the axis at 40 mm from its base. Draw the Front View, Sectional Top View, Sectional Side View, and the true shape of the section.	10M	3	L4
	OR			
9	A cone of base diameter 50 mm and height 70 mm is resting on its base on the ground. A square hole of 15 mm sides passes through the object. The axis of the hole and the cone intersect and are at right angles to each other. One of the shorter edges of the hole is parallel to and 10 mm above the base. Draw the development of the surface of the object.	10M	4	L4
10	Draw an isometric view of a pentagonal prism having a base with 30 mm side and 60 mm long axis, resting on its base in H.P. with a face parallel and nearer to the V.P.	10M	5	L3
	OR			
11	Draw the front view, top view and side view of the object whose isometric view is shown in the Figure 1 below (All dimensions are in mm).  Figure 1	10M	5	L3