Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–I&II EXAMINATION – SUMMER 2025

Subject Code:BE01000061 Date:10-06-2025

Subject Name:Engineering Graphics & Design

Time:10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Draw regular pentagon and hexagon of 30 mm side using UNIVERSAL METHOD	**03**
	(b)	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.	**04**
	(c)	Draw an Archemedian spiral of 1.5 convolutions, the largest & the smallest radius being 55 mm & 10 mm respectively. Draw tangent & normal to the spiral at a point 40 mm from the pole	**07**
Q.2	**(a)**	Draw following projection of points: (1) Point 'A' is 25 mm above HP and 20 mm Infront of VP. (2) Point 'B' is 35 mm behind VP and 40 mm above HP. (3) Point 'C' is in the HP and 10 mm Infront of VP	**03**
	(b)	Draw projections of line AB=85 mm inclined to 60° HP & 30° VP	**04**
	(c)	The distance between the end projectors of a straight-line PQ is 130mm. The end P is 40mm below HP and 25mm in front of the VP. Q is 75 mm above HP and 30 mm behind VP. Draw its projections. Find TL of the line	**07**
		OR	
	(c)	The elevation of line AB, 80 mm long, measures 55 mm. The end A is 20 mm above H.P. and 10 mm in front of V.P. Draw the projection of the line and finds its true inclination with H.P. and V.P, if the end B is 25 mm below H.P. and is behind V.P	**07**
Q.3	**(a)**	Enlist types of lines.	**03**
	(b)	ABC is a triangle of sides AB = 75 mm, BC = 60 mm and CA = 45 mm. Its longest side is in H.P. Its surface makes an angle of 45°with the H.P. Draw its projections.	**04**
	(c)	A pentagonal plate, side 25 mm is resting on H.P. on one of its corners with opposite edge to the corner making 30° with V.P. The plate is inclined to H.P. by 45°. Draw the projections of regular pentagonal plate	**07**
		OR	
Q.3	**(a)**	Define the following curves : involute, ellipse and cycloid.	**03**
	(b)	A hexagonal plane of 30 mm side, rests on the V.P. on an edge such that the surface is inclined at 45º to the V.P. Draw its projections	**04**
	(c)	A circular plane having the diameter 50 mm is resting with point A of its periphery on H.P. The surface of the plane is inclined to H.P. such that the plan of the plane becomes an ellipse with minor axis 30mm.Draw the projection of the plane when the plan of the diameter through point A is inclined at 30o to V.P.and the centre of the plane is 40mm from V.P.Find the inclination of the plane with H.P.	**07**

Q.4	**(a)**	Classify solids with shapes of drawings	**03**
	(b)	Differentiate between aligned system and unidirectional system of dimensioning	**04**
	(c)	A square pyramid, side of base 35 mm and axis length 50 mm is lying on the H.P. on one of its triangular faces. Draw the projections of the pyramid when the base edge contained by the triangular face on H.P. makes an angle of 45° on the V.P. keeping apex of the pyramid towards the observer	**07**

OR

Q.4	**(a)**	Differentiate between 1) Square pyramid and tetrahedron 2) Cube and square prism	**03**
	(b)	A cone 40 mm diameter and 50 mm axis is resting on one generator on HP. Draw it's projections	**04**
	(c)	A hexagonal prism, edge of base 20 mm and axis 50 mm long, rests with its base on HP such that one of its rectangular faces is parallel to VP. It is cut by a plane perpendicular to VP, inclined at 45° to HP and passing through the right corner of the top face of the prism. (i) Draw the sectional top view.	**07**
Q.5	**(a)**	Define Representative Fraction. With reference to Representative Fraction, classify the scales	**03**
	(b)	Differentiate between prism and pyramid	**04**
	(c)	Fig. 1 shows pictorial view of an object. Draw Sectional Elevation from – X and Plan. In the figure 1, the arrow shows "X" direction.	**07**

OR

Q.5	**(a)**	Enlist methods for drawing Ellipse.	**03**
	(b)	Write the comparison between first angle projection method and third angle projection method	**04**
	(c)	Draw the front view looking from X –direction and plan of a object shown in Figure 2 using first angle projection method	**07**

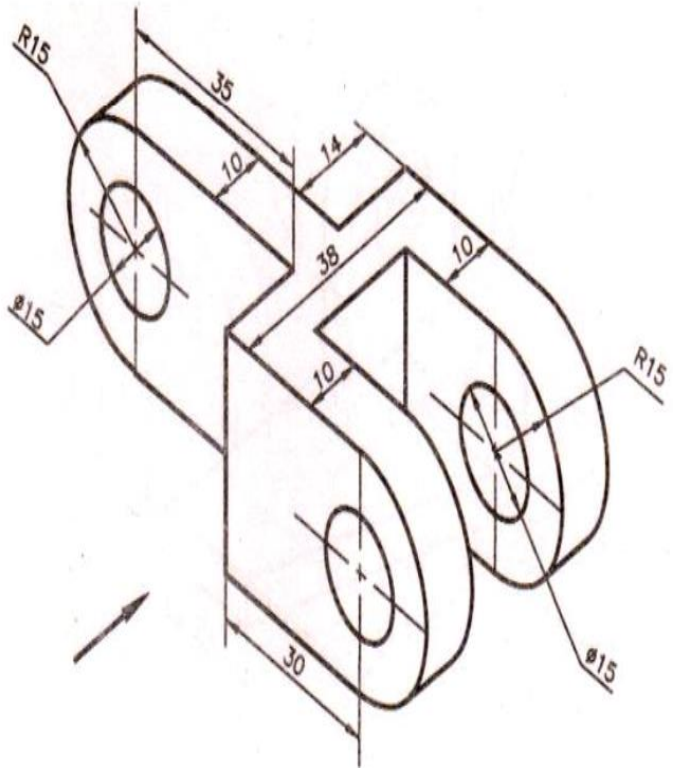

Figure 1

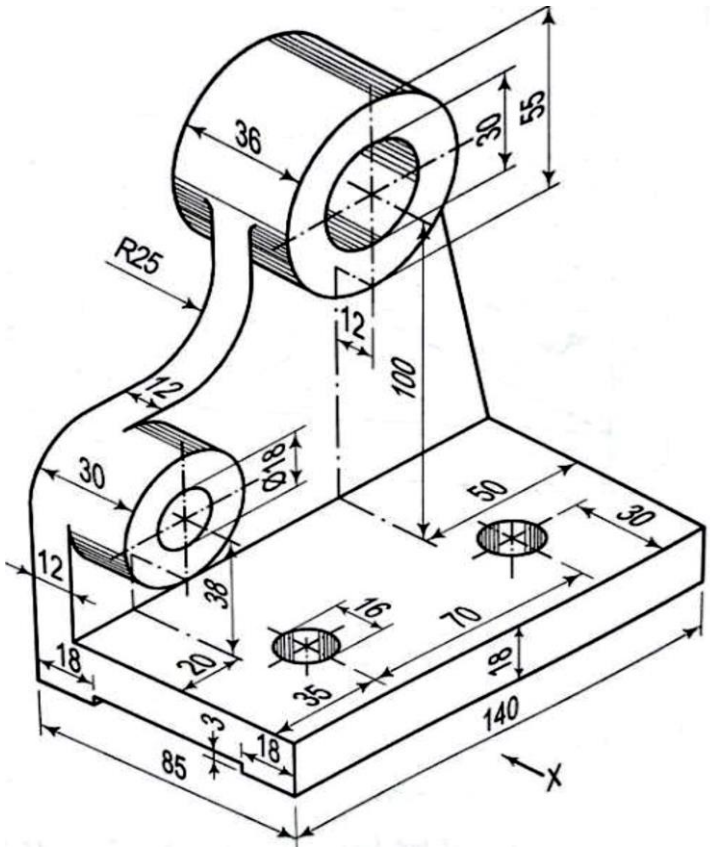

Figure 2