Enrolment No._____

BHAGWAN MAHVIR UNIVERSITY

B.TECH SEMESTER I/II EXAMINATION WINTER 2024

Subject Code: 2010201102 **Date:21/01/2025**

Subject Name: Engineering Graphics & Design-Theory

Time:2.00PM TO 4.30PM **Total Marks: 60**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			Marks
Q.1	**(a)**	Define Representative Fraction. With reference to Representative Fraction, classify the scales.	**02**
	(b)	Construct a scale of 1:40 to read meters and decimeters and long enough to measure 6 m. Mark on it a distance of 4.7 m and 3.2 m.	**04**
	(c)	Draw an ellipse having major axis 120 mm and minor axis 80 mm by using ½ concentric circle method and ½ arc of circle method.	**06**
Q.2	**(a)**	Show by sketches the difference between **1)** aligned dimensioning and **2)** unidirectional dimensioning	**02**
	(b)	Classify basic engineering curves.	**04**
	(c)	A pentagonal prism is resting on one of the corner of its base on the H.P. The longer edge containing that corner is inclined at 45° to the H.P. The axis of the prism makes an angle of 30° to the V.P. Draw the projections of the solid.	**06**
		OR	
	(c)	A point P moves towards another point O, 90 mm from it, and reaches it during 1.5 revolutions around it in clockwise direction. Its movement towards O is uniform with its movement around it. Draw the curve traced out by the point P and name it.	**06**
Q.3	**(a)**	Define : **(1)** Eccentricity **(2)** cycloid	**02**
	(b)	Draw projection of following points: **1.** Point A is in HP and in VP **2.** Point B is in VP and 25 mm below HP **3.** Point C is 10 mm below HP and 20 mm in front of VP **4.** Point D is 20 mm above HP and 20 mm in front of VP	**04**
	(c)	A thin circular disc of 50 mm diameter is allowed to roll without slipping from upper edge of sloping board which is inclined at 15° with the horizontal plane. Draw the curve traced by the point on the circumference of the disc. Consider the point is at contact surface of disc and sloping board initially.	**06**
		OR	
Q.3	**(a)**	Differentiate between Epitrochoid and Hypotrochoid.	**02**
	(b)	Draw symbol and write application of following line: **1.** Continues thin line **2.** Chain line with thick end	**04**
	(c)	Construct the Involute of circle of 35 mm diameter for one turn.	**06**
Q.4	**(a)**	Differentiate between prism and pyramid	**02**
	(b)	A cylinder of base diameter 50 mm and axis 70 mm rest in the HP, has its inclination 30° to the HP. Draw the projection of the cylinder.	**04**

(c) A line AB, 80mm long is inclined to HP at 30° and to VP at 45°. The end A is in HP and VP. Draw projection of line AB. Find length of top view and front view of line and inclination of them with HP and VP. **06**

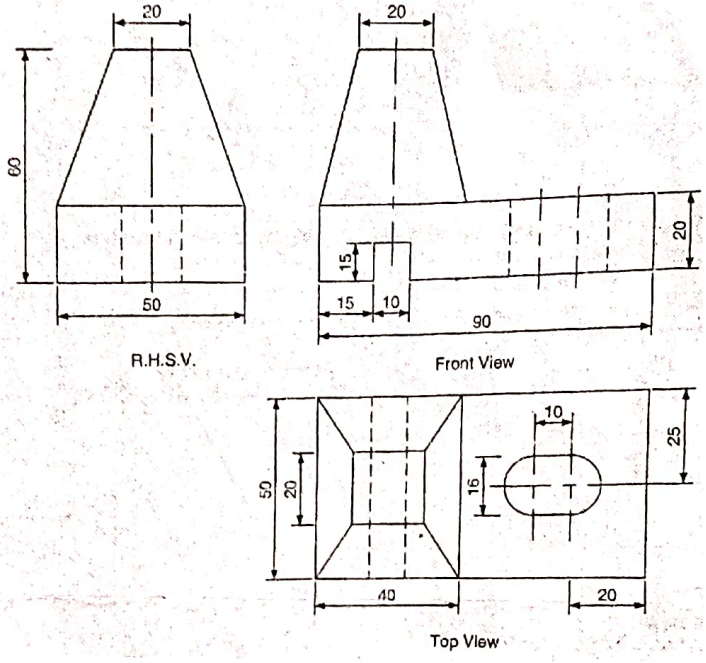
OR

Q.4 (a) Explain the difference between I[st] angle and III[rd] angle orthographic projection **02**

(b) Distinguish between isometric projection and isometric view. **04**

(c) A square pyramid, base 45 mm side and axis 70 mm long has its base in H.P. all edges of the base are equally inclined to V.P. It is cut by a section plane Perpendicular to V.P. and inclined at 45 degree to the H.P. such that it bisects the axis. Draw the projection. **06**

Q.5 (a) Draw isometric projection for following object. **12**



OR

Q.5 (a) Draw front view, top view and right hand side view of object shown in Figure. (as per first angle projection system). **12**