



B.E / B.Tech. DEGREE EXAMINATIONS: NOV/ DEC 2024

(Regulation 2024)

First Semester

COMMON TO EEE / EIE / BT

24MEI103: Computer Aided Engineering Graphics

COURSE OUTCOMES

- CO1: Apply the principles of engineering graphics to create accurate orthographic and isometric projections
 CO2: Design free-hand sketches of orthographic views from pictorial representations to improve spatial understanding and communication of engineering concepts
 CO3: Apply CAD software tools to create, edit, and annotate technical drawings and analyse them using ISO and ANSI standards
 CO4: Analyse the parametric and non-parametric CAD models, producing detailed two-dimensional documentation, including sectional views and annotations.
 CO5: Apply geometric and topological concepts to design 3D models for additive manufacturing.
 CO6: Apply the principles of engineering graphics to create accurate orthographic and isometric projections

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (20 x 4 = 80 Marks)

- | | | | | |
|----|--|----|-----|-------------------|
| 1. | Design a parabolic archway for an entrance where the distance from the vertex to the focus is 70 mm. Using the eccentricity method, draft the parabola. | 20 | CO1 | [K ₃] |
| 2. | a) Explain the concept of absolute coordinates in CAD software. Provide an example scenario where absolute coordinates are used to accurately place objects in a drawing. Illustrate your explanation with a simple sketch. | 8 | CO3 | [K ₃] |
| | b) Sketch an isometric view of a triangular prism with a base side of 40 mm and a height of 60 mm. Explain the construction steps and how to accurately represent the prism in isometric projection. | 8 | CO3 | [K ₃] |
| | c) Explain the impact of 3D modeling software on the design and visualization of complex biomedical structures. Mention an industry where this technology is particularly beneficial. | 4 | CO3 | [K ₃] |
| 3. | a) Explain how ISO and ANSI standards for coordinate system in the creation of CAD drawings. Provide an example of how these standards ensure consistency and accuracy in manufacturing drawings. | 8 | CO4 | [K ₃] |
| | b) Explain the importance of using object snap (OSNAP) settings in CAD software. Describe how you would configure OSNAP settings to enhance precision when drawing complex geometries. Provide an example of using OSNAP in a specific scenario. | 8 | CO4 | [K ₃] |

- c) In a CAD drawing, you need to ensure that different views of an object are aligned correctly. Discuss the role of orthographic constraints in achieving this alignment. 4 CO4 [K₂]
4. a) You need to create orthographic projections of hexagonal lamina. Explain the techniques you would use to generate the front, top, and side views. Discuss how orthographic projection helps in accurately representing the dimensions and geometry of the part. 16 CO5 [K₃]
- b) While drafting a mechanical part in CAD software, you need to organize different components using layers. Explain how you would create and use customized layers to differentiate between dimensions, annotations, and part geometry. 4 CO5 [K₂]

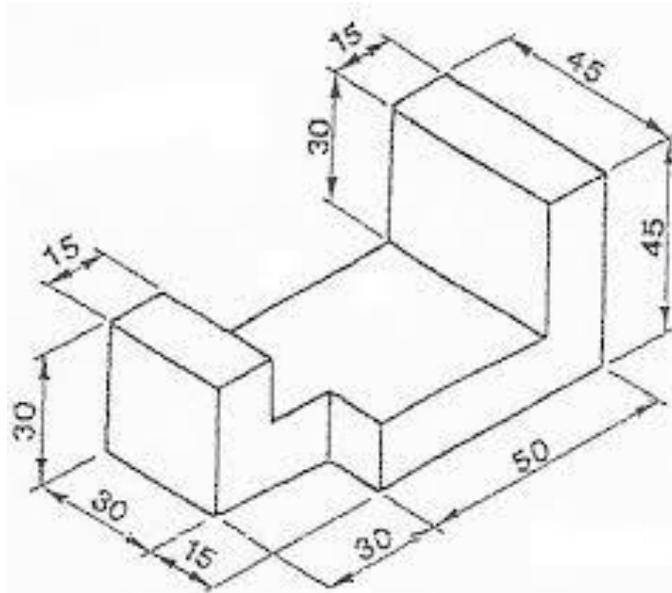
Answer any one question:-

PART B (20 x 1 = 20 Marks)

5. A triangular prism with a base side of 50 mm and a height of 100 mm is to be drawn in isometric projection. Create the isometric view of the prism using the isometric scale. 20 CO2 [K₃]

OR

6. Convert an isometric view of the given drawing into its corresponding orthographic views (front, top, and side views). 20 CO6 [K₃]



CO distribution summary:

	CO1	CO2	CO3	CO4	CO5	CO6
Marks (%)	16.6	16.6	16.6	16.6	16.6	17
