Reg No.: _____ Name : _____

Jyothi Engineering College(Autonomous)

M.Tech Degree S1 (R) Examination, December 2025 (2025 Scheme)

25PIAT103- CAD/CAM

Total Mark: 60 Total Time: 2hr 30min

CO MARK

PART A

Answer All Questions

1. Explain the functions of a CAD system for geometric modelling. CO1 (5)
2. What is the difference between a reflection and a rotation in geometric transformations? Are they related in any sense? CO2 (5)
3. Write a short note on sweep representation for creating three-dimensional objects. Distinguish between translational sweep and rotational sweep. CO3 (5)
4. Explain faceted shading process. Why does it create a polygonal appearance for objects. CO4 (5)
5. List out the various mating conditions in assembly modelling and explain with neat sketches. CO5 (5)

PART B

Answer Any Five Question(s)

6. What is the role of computer graphics in CAD? Explain generative and cognitive graphics in context of CAD. CO1 (7)
7. A square having coordinates (3,3), (6,3), (6,5) and (3,5) is to be rotated about the point (3,3) in clockwise direction at an angle 50 and after that it is scaled to 4 unit in X direction and 3 unit in Y direction. Find and plot the final coordinates of the geometry. CO2 (7)
8. A cubic Bezier curve is defined by four control points, P0 = (0, 0), P1 = (3, 1), P2 = (2, 5), and P3 = (6, 6). What is the equation of the Bezier curve in terms of t, where t is the parameter that varies from 0 to 1? What are the coordinates of the point on the curve at t = 0.5, and what is the slope of the curve at that point? CO2 (7)
9. Explain B-Rep used in solid modelling. Why is it recommended for modelling complex solid models? CO3 (7)
10. Describe the process of primitive instancing used in solid modelling. CO4 (7)
11. Draw a block diagram and explain how the CAD data transfer is accomplished using neutral files. CO5 (7)
12. Explain the z-buffer algorithm for hidden line and surface elimination. CO5 (7)

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