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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

First Semester M.Tech Degree (S,FE) Examination May 2024 (2022 Scheme)



Discipline: MECHANICAL ENGINEERING

Course Code & Name: 221TME008 CAD/CAM

Max. Marks: 60

Duration: 2.5 Hours

PART A

Answer all questions. Each question carries 5 marks

Marks

- 1 What are the common input devices used in a typical CAD workstation? (5)
- 2 What is the difference between a reflection and a rotation in geometric transformations? Are they related in any sense? (5)
- 3 Explain sweep representation used in solid model representation (5)
- 4 Explain faceted shading process. Why does it create a polygonal appearance for objects. (5)
- 5 Why are CAD data exchange standards necessary? (5)

PART B

Answer any 5 questions. Each question carries 7 marks

- 6 What is the role of computer graphics in CAD? Explain generative and cognitive graphics in context of CAD. (7)
- 7 A cubic Bezier curve is defined by four control points, $P_0 = (0, 0)$, $P_1 = (3, 1)$, $P_2 = (2, 5)$, and $P_3 = (6, 6)$. 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? (7)
- 8 Explain B-Rep used in solid modelling. Why is it recommended for modelling complex solid models? (7)
- 9 Describe the process of primitive instancing used in solid modelling. (7)
- 10 What is meant by visual realism? What is its importance in CAD? (7)
- 11 Explain any one hidden surface removal algorithm in detail. (7)
- 12 Explain top-down assembly approach and compare it with bottom-up approach. (7)