

TME-701

PAPER ID : 4011

Paper ID and Roll No. to be filled in your Answer Book

Roll No.

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B. Tech.

SEM VII (ODD SEM) (REG.) EXAMINATION, 2012-13

CAD / CAM

Time : 3 Hours]

[Total Marks : 100

- Note :
- (1) Answer all questions.
 - (2) Assume any missing data suitably.

- 1 Attempt any four of the following 5×4=20
- (a) Define CAD. Explain the reasons for adopting CAD in an engineering organization.
 - (b) Write down the advantages to be gained by the adoption of CAM.
 - (c) A computer display system has a resolution of 800 horizontal × 600 vertical pixels. If the screen aspect ratio is 4:3, show how a square box of 400 pixels can be drawn.
 - (d) Briefly explain the requirements of a graphic database.
 - (e) Describe the method of defining Bezier curve. Give some of its advantages in CAD application.
 - (f) Compare Bezier curve and B-splines for CAD applications.

2

Attempt any four of the following

5×4=20

- (a) Find the equation for a line passing through (80, 60) and (30, 30). Find the equation of a line that is perpendicular to the above line and passing through a point (60, 30).
- (b) Show that a bicubic surface patch degenerates to a cubic spline if the four corner points of the patch are collapsed to two.
- (c) What different methods are available for preprocessing when using a CAD system in conjunction with FEM software?
- (d) Explain the functioning of Liquid Crystal Display terminals as used in CAD.
- (e) Explain the importance of colors in CAD/CAM applications.
- (f) Show that two successive reflections about either of the coordinate axes is equivalent to a single rotation about the coordinate origin.

3 Attempt any two of the following :

10×2=20

- (a) A cube of 10 unit length has one of its corners at the origin (0,0,0) and the other three edges along the three principal axes. If the cube is to be rotated about the Z-axis by an angle of 30° in the counter-clockwise direction, calculate the new position of the cube.
- (b) What do you mean by mechanical tolerances? Discuss the relationship between tolerance and cost with neat sketch. Also explain the Geometric tolerance in brief.
- (c) Find the equation of a Bezier curve which is defined by the four control points as (80, 30, 0), (100, 100, 0), (200, 100, 0) and (250, 30, 0).

5. Write short notes on any four of the following: $5 \times 4 = 20$

- a) Adaptive control
- b) Stepping motor
- c) Evaluation of data exchange format
- d) IGES and DXF
- e) Collaborative design
- f) Feedback Devices