Roll No. ....

Total No. of Questions : 08]

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M.Tech.

COMPUTER AIDED DESIGN AND MANUFACTURING

SUBJECT CODE : PE - 505

Paper ID : [E0445]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours

Maximum Marks : 100

Instruction to Candidates:

1) Attempt any **Five** questions.

2) **All** questions carry equal marks.

Q1) (a) Discuss the benefits of CAD/CAM to engineering design as compared to conventional methods.

(b) What are the various interactive input devices used in CAD/CAM? List down their advantages and disadvantages.

Q2) (a) Explain the three types of coordinate systems used to input, store and display model geometry and graphics.

(b) What is CAD/CAM database? List down the advantages of having centralized control of the data. Explain some of the common database models.

Q3) (a) Discuss the use of various display commands available in a drafting package.

(b) Compare the splines created by B-spline and Bezier spline techniques for the same control points.

Q4) (a) Write down the various techniques used for the construction and editing of solid objects. Explain any two of them in detail.

(b) How can you use a cylinder primitive to generate a sphere?

Q5) (a) Show that scaling and two-dimensional rotation about the z-axis are commutative.

(b) Define the transformation matrix needed to reflect an object of rectangular shape about a line given by $y = x + 2$. The dimensions of the 2D object are [2,2; 3,2; 2,3; 3,3].

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Q6) (a) Explain the various representation schemes used in mechanical assembly.

(b) Explain the concept of geometric tolerancing with the help of a suitable example.

Q7) (a) Give the basic classification of manufacturing processes.

(b) What is process planning? Describe the three approaches used to accomplish the task of process planning.

Q8) Write short notes on the following :

(a) Precedence diagram.

(b) Constructive Solid Geometry.

(c) Concatenation.

(d) Operating Systems.

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