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B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2012

MANUFACTURING ENGINEERING

Fifth Semester

MF 9304 Computer Aided Design

(Regulation 2008)

Time : 3 Hours

Answer ALL Questions

Max. Marks 100

PART- A (10 x 2 = 20 Marks)

1. How do you distinguish between a CPU and a Microprocessor?
2. What is a digitizer?
3. What is concatenation of transformations?
4. What is isometric projection?
5. What is a translational sweep?
6. How is a Torus constructed?
7. What is the need for graphic standard?
8. What are application protocols?
9. List the FEM application areas.
10. What are the different types of forces involved in stress analysis.

Part – B (5 x 16 = 80 marks)

11. a) Show that a 2D reflection through the X-axis followed by a 2D reflection through the line $Y = -X$ is equivalent to a pure rotation about the origin (10)
b) Derive the transformation matrix for pure 2-D rotation. (6)
12. a) Prove that parallel lines transform to parallel lines and intersecting straight lines transform into intersecting straight lines

OR

- b) Consider a rectangular parallelepiped and determine the new position vectors for this object for the following transformation (i) rotation by $\theta = -90^\circ$ about the X-axis and (ii) rotation by $\theta = -90^\circ$ about the Y – axis (Assume object dimensions)

13. a) With figures, equations and examples discuss preprocessing, processing and post processing

OR

- b) Derive the shape function for a 1-D element and with a stepped shaft as example show how the global stiffness matrix is assembled.

14. a) Explain the salient features of any 3 logical and 3 physical topologies of Networks.

OR

- b) Give the specifications of the latest personal computer, Discuss the architecture and features of a Mainframe computer and its applications.

15. a) Discuss the salient features of GKS and IGES Graphic standards.

OR

- b) Discuss surface modeling and constructive solid geometry.