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B.E / B.Tech DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2014

MANUFACTURING ENGINEERING BRANCH

FIFTH SEMESTER

MF 9304 COMPUTER AIDED DESIGN

(REGULATION 2008)

Time : 3 hr.

Max. Mark : 100

Answer ALL Questions

Part A (10 x 2 = 20 Marks)

- 1 What is concatenated matrix?
- 2 What is a GUI? Why are GUI's popular?
- 3 How does IT facilitate concurrent engineering?
- 4 How will you create the bill of materials from a CAD file?
- 5 How do you classify modeling package?
- 6 List various types of design problems that could be handled by FEA.
- 7 What is relevance of sparse matrix with reference to stiffness matrix?
- 8 Write the need and advantages of networking in a manufacturing shop.
- 9 Describe the importance of curve and surface modeling in computer aided graphics and design
- 10 What are the drawbacks of sequential engineering in handling design change requests?

PART B (5 x 16 = 80 Marks)

- 11 What are the functions of an operating system? Differentiate between control program and processing programs. (16)
- 12a Lamina ABCD with an inner point P with coordinates (4, 3), (3, 1), (8, 1), (7, 4) and (5, 2) respectively is first rotated through 60° and then translated by (5, 4). In another sequence, the trapezoid is first translated by (5, 4) and then rotated through 60°. Depict the significance of the order in transformations (16)

[OR]

- 12b (i) Write briefly the window and view port features of the CAD software you use. (4)
- (ii) Make a comparative study of hidden surface removal algorithms. (12)

- 13a Compare the splines for the same control points created by B-spline and Bezier spline techniques. (16)

[OR]

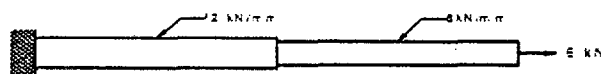
- 13b Describe briefly the following methods of surface modeling with a few application examples: (16)
- Revsurf
 - Tabcyl
 - Edgesurf
 - Rulesurf

- 14a Describe briefly the various data exchange systems currently in use in CAD/CAM systems. (16)

[OR]

- 14b (i) Compare CORE and GKS graphics standards. (4)
- (ii) Describe the structure of an IGES file. (12)

- 15a A short stepped bar is shown below. The stiffness of the large section is 12 kN/mm and the stiffness of the small section is 8 kN/mm. End "1" is fixed and an axial load of 6 kN acts at node 3. Determine the displacements at node 2 which is at the location of the discontinuity of the cross section and node 3. (16)



[OR]

- 15b (i) What are the capabilities of a typical general purpose FEA package? (8)
- (ii) Describe the considerations in selecting elements to model the following: (8)
- Column of a machine tool
 - Connecting rod of an engine
 - Spindle of a lathe
 - Flywheel of a diesel engine