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14MCM13

First Semester M.Tech. Degree Examination, Dec.2014/Jan.2015
Computer Aided Design

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Explain with a flow diagram, application of computer to the design process. (07 Marks)
b. Explain the 4 functional areas of CAD. (06 Marks)
c. List and explain functions of a graphics package. (07 Marks)
- 2 a. What is 2D transformation? Explain by mentioning translation and rotation techniques of transformations. (06 Marks)
b. Derive an expression for 2D rotation about an arbitrary point. (07 Marks)
c. Mention various steps of 2-buffer algorithm for hidden surface removal. (07 Marks)
- 3 a. What is geometric modeling? Briefly explain geometric construction methods. (10 Marks)
b. Explain constraint based modeling with a example. (10 Marks)
- 4 a. Explain modeling facilities. (06 Marks)
b. What are graphics standards? Explain GKS and PHIGS. (07 Marks)
c. Explain data transfer between CAD/CAM systems using IGES format. (07 Marks)
- 5 a. Explain curve fitting and representation by deriving parametric equations for B-spline curve. (12 Marks)
b. Mention and explain parametric representation of circle and ellipse. (08 Marks)
- 6 a. Give the mathematical representation of Bezier surface. (10 Marks)
b. Explain generation of Cubic Hermite Surface. (10 Marks)
- 7 a. Explain boundary representation of solid. (06 Marks)
b. Explain constructive solid geometry method of solid modeling. (07 Marks)
c. Explain half space method of solid representation. (07 Marks)
- 8 a. Explain how an assembly model is created with a block diagram. (06 Marks)
b. Mention and explain various mating conditions in assembly. (05 Marks)
c. Explain graph structure and location graph with condition of an example assembly. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

