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Question Paper Code: 12012

M.E. DEGREE EXAMINATION, DECEMBER 2013.

First Semester

CAD / CAM

01PCD101 - COMPUTER APPLICATIONS IN DESIGN

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is Bezier and B-spline curves?
2. List different transformation process.
3. List different Boolean operators.
4. Illustrate the difference between geometry and topology.
5. What is coherence? What are its types?
6. What is the principle behind visualization of parts?
7. Why tolerance analysis is important in parts assembly?
8. Distinguish centroid and mass moment of inertia.
9. Distinguish assembly modeling and behavioural modeling.
10. State the limitations of FEA.

PART - B (5 x 14 = 70 Marks)

11. (a) (i) Explain different 2 D and 3 D scaling. (7)
(ii) Derive decision parameter for the Bresenham's circle generating algorithms assuming the starting point as (0,10) and generate the pixel position for one fourth of a circle. (7)

Or

(b) Explain Bezier curve and its behavior. (14)

12. (a) Explain the following.

(i) Types of polyhedral objects in B-representation. (7)

(ii) Sweep representation. (7)

Or

(b) (i) Discuss the term “Constructive Solid Geometry”. (7)

(ii) Explain the consolidated features of data exchange standards. (7)

13. (a) State the types of algorithms used for hidden surface removal. Explain any two types. (14)

Or

(b) Explain briefly with sketches the tests used for hidden line identification. (14)

14. (a) Explain different types of form tolerance. (14)

Or

(b) Discuss the sequential steps in mechanism simulation and its important features. (14)

15. (a) Use the top – down approach to create a model with example. (14)

Or

(b) Explain the step by step procedure of finite element analysis. (14)

PART - C (1 x 10 = 10 Marks)

16. (a) Explain the process of creating a model and analysis of any one automobile component using simulation software. (10)

Or

(b) Discuss some of common problem encountered in using CAE software in design analysis. Suggest ways to alleviate these problems. (10)