

Reg. No. :

**M 2501**

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2008.

Fifth Semester

Mechanical Engineering

ME 335 --- COMPUTER AIDED DESIGN

(Common to Mechatronics Engineering)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A -- (10 × 2 = 20 marks)

1. List the various design related tasks performed by CAD.
2. Define the term 'product cycle'.
3. What is direct manipulation style of user interface?
4. Differentiate between computer graphics and interactive computer graphics.
5. Outline the basic concepts of Networking of Data structure.
6. What is meant by constructive solid geometry?
7. How a cubic polynomial curve can be represented?
8. What are shape functions?
9. How CAD systems can be applied to FEM?
10. What are isoparametric elements?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss any two design morphology of design with neat sketches. (10)  
(ii) Write a note on 'Concurrent Engineering'. (6)

Or

- (b) (i) List and explain the important guidelines to be followed in DFM and DFA. (8)  
(ii) Explain the architecture of a CAD system with a neat block diagram. (8)
12. (a) (i) Identify the various entity manipulation techniques used in CAD. Explain briefly. (8)  
(ii) Explain how data structures can be stored. (8)

Or

- (b) (i) Explain the blending functions for B'ezier surfaces and B-spline surfaces. (10)  
(ii) Discuss any two hidden line elimination algorithms. (6)
13. (a) (i) Explain any two 2D display control facilities used in CAD with sketches. (8)  
(ii) Discuss about EDMS in detail. (8)

Or

- (b) (i) Bring out the steps involved in solid modeling. List the features of solid modelers. (10)  
(ii) What do you understand by B-Rep techniques? (6)
14. (a) (i) Explain about 'parametric design analysis' with respect to complex solid model. (8)  
(ii) Discuss the linear interpolation of a one-dimensional polynomial. (8)

Or

- (b) Describe any one direct method of formulating characteristic matrix and vector for FEM. Give examples.

15. (a) Write short notes on the following : (2 × 8 = 16)

(i) Weighted residual method.

(ii) Post processing methods in FEM.

Or

(b) (i) What is the need for discretizing a domain? Explain in detail. (8)

(ii) Write about Nodal, approximation and Global connectivity in FEM. (8)

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