Reg. No. : | | | | | | | | | | | | |

Question Paper Code : R 3780

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Fifth Semester

Mechanical Engineering

ME 335 — COMPUTER AIDED DESIGN

(Common to Mechatronics Engineering)

(Regulation 2001)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the use of computer in the design of a product?

2. What are the various stages in Design process?

3. What is data structure?

4. Name any four applications of CAD.

5. Give two hidden line removal algorithms.

6. What are the three aspects of data life cycle?

7. Mention the important phases of a FEM package.

8. Define the term 'computer interface'.

9. Mention any four elements used in Finite Element Techniques.

10. State four applications of Concurrent Engineering.

PART B — ($5 \times 16 = 80$ marks)

11. (a) Describe the direct methods of formulating characteristics matrices and vectors for the FEM. (16)

Or

(b) (i) Explain the functional areas of a basic CAD system and their applications in design process. (10)

(ii) Discuss the principle of design for manufacturability. (6)

12. (a) (i) Define C.A.E. List main applications of Computer Aided Engineering. (8)

(ii) Differentiate between form and structure models. Discuss their applications. (8)

Or

(b) (i) Distinguish between operating software, graphics software and application software. State their major functions. (8)

(ii) What are the objectives of a database? Discuss the features that are to be considered while designing a database. (8)

13. (a) What is geometric modeling? Explain the geometric models, bringing out their limitations and applications. (16)

Or

(b) (i) Classify data structures and explain each of them. (8)

(ii) Enumerate the features of Engineering Data Management system. (8)

14. (a) (i) List the various input devices for graphics and state their functions. (8)

(ii) Write short notes on mathematical formulation for graphics. (8)

Or

(b) (i) Explain wire frame modeling and discuss its advantages and disadvantages. (8)

(ii) Distinguish between plane stress and plane strain analysis. Give an example for each. (8)

13. (a) (i) What do you understand by design for manufacture and assembly? Explain. (8)

(ii) What are the various steps involved in the product cycle? Explain briefly. (8)

Or

(b) Why are standard CAD interfaces required? Explain three important interfaces to CAD. (16)