Reg. No. :

Question Paper Code : 80661

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Fifth Semester

Mechanical Engineering

ME 6501 — COMPUTER AIDED DESIGN

(Common to Seventh Semester Mechatronics Engineering)

(Regulations 2013)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is homogeneous coordinate?
2. What do you mean by synthesis of design?
3. State advantages of Bezier curves.
4. Why B-rep modeling approach are widely followed than CSG approach?
5. List out various visualization approaches.
6. Define key framing.
7. List out four parameters which are calculated by mass property calculations.
8. Define assembly modeling.
9. State the needs for data exchange standards.
10. What is GKS cell array?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe various stages of design process with an example. (8)

(ii) Explain a line drawing algorithm. (8)

Or

(b) (i) Define clipping. Also explain the working of a simple Line clipping algorithm. (8)

(ii) Deduce windowing and viewing transformation matrix parametrically. (8)

12. (a) (i) Explain different features of a Bezier curve with construction details. (8)

(ii) Derive the transformation matrix for a Hermite curve. (8)

Or

(b) (i) Explain in detail B-rep solid modeling approach. (8)

(ii) Write notes on bicubic patches. (8)

13. (a) (i) Explain Z- buffer algorithm with its operations. (8)

(ii) Write notes on computer animation. (8)

Or

(b) (i) Describe RGB color model with neat sketch. (8)

(ii) Explain the working of simple hidden line removal algorithm. (8)

14. (a) (i) Describe bottom up and top down assembly design with an example for each. (8)

(ii) What do you mean by tolerance analysis? List different methods and explain one of the methods in detail. (8)

Or

(b) (i) Discuss about software used for mechanism simulations (8)

(ii) Explain CAD interference checking capabilities. (8)

15. (a) (i) Explain IGES file format. (8)

(ii) Explain with an example how the information are modeled in STEP. (8)

Or

(b) (i) Explain about various layers of GKS. (8)

(ii) Write notes on communication standards. (8)
