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Question Paper Code : X 20841

B.E./B.Tech. DEGREE EXAMINATIONS, NOV./DEC. 2020

Fifth Semester

Mechanical Engineering

ME 6501 – COMPUTER AIDED DESIGN

(Common to Mechanical Engineering (Sandwich)/Manufacturing Engineering/

Mechatronics Engineering)

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. Mention any four applications of computer aided design in mechanical engineering.
2. List and differentiate the types of 2D geometric transformations.
3. What are the limitations of Hermite curves ?
4. What are the advantages and disadvantages of wireframe modelling ?
5. Name the hidden line removal algorithms.
6. What is powder shading ?
7. List out four parameters which are calculated by mass property calculations.
8. Define assembly modeling.
9. What is meant by open GL ?
10. What is IGES ?



11. a) Compare and Contrast Sequential and Concurrent Engineering with suitable examples.

(OR)

- b) Explain with block diagram, the CAD process with suitable examples.

12. a) Briefly explain the different schemes used to generate a solid model.

(OR)

- b) Write short notes on approximated synthetic curves.

13. a) Describe an algorithm for removal of line surface. Also illustrate with an example how the algorithm can be implemented. (13)

(OR)

- b) i) Explain the depth-buffer (z-buffer) algorithm for hidden surface removal. (7)

- ii) Explain the procedure to compute the z-values in two successive locations in a scan-line and intersection positions on two successive scan lines. (6)

14. a) i) Describe bottom up and top down assembly design with an example for each. (6)

- ii) What is meant by tolerance analysis ? List different methods and explain one of the methods in detail. (7)

(OR)

- b) i) Discuss about software used for mechanism simulations. (7)

- ii) Explain CAD interference checking capabilities. (6)

15. a) Briefly explain any one of the known graphic standards.

(OR)

- b) Write short note on Drawing Exchange Format (DXF) standard.

16. a) Summarize the three representation forms (Parametric, Implicit and Explicit) for plane curves, space curves and surfaces. Compare the three representations and write any three inferences.

(OR)

- b) Explain the following terms regarding CAD standards :

- i) GKS (5)

- ii) IGES (5)

- iii) STEP (5)