Reg. No. :

Question Paper Code : 91843

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019
Fifth/Seventh/Tenth 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. What are the drawbacks of sequential engineering in handling design change requests ?

2. Why do you require geometric transformations in CAD software ?

3. Write the major difference between the three 3D geometric modeling methods.

4. Differentiate between interpolated curves and approximated curves.

5. Mention the importance of coloring of three dimensional objects in computer graphics.

6. What are the improvements brought by Gouraud shading compared with other shading techniques ?

7. Define assembly modeling.

8. What are the uses of tolerance stackups ?

9. What is the need for standards in computer graphics ?

10. List the uses of "OpenGL" application-programming interface.

PART – B   (5×13=65 Marks)

11. a) Describe the following basic 2D transformations with the appropriate example.
    i) Scaling
    ii) Translation
    iii) Rotation

                              (OR)

    b) Discuss with suitable example, the various activities involved in generic product development process.

12. a) i) Describe the characteristics of Bezier curve with the control points and
the order of continuity. **(10)**

ii) What do you understand by blending function ? **(3)**

(OR)

b) Briefly explain the CSG modeling technique with the suitable examples.

13. a) Briefly describe the procedure of Warnock's algorithm with the suitable
example.

(OR)

b) Illustrate the following color models.
i) RGB color model **(6)**
ii) CMY color model **(7)**

14. a) Discuss briefly, the following traditional tolerance analysis methods :
i) Worst case analysis **(7)**
ii) Root sum of squares. **(6)**

(OR)

b) Discuss the mass property calculations in the design with the examples.

15. a) Explain the salient features of Graphical Kernel System.

(OR)

b) Explain the architecture of IGES standard format.

PART – C   (1×15=15 Marks)

16. a) Analyse the use of clipping algorithms in the design. Explain any one of the
line clipping algorithm in detail. **(15)**

(OR)

b) Take two solid objects of your choices and with the help of neat diagrams,
explain various Boolean operations. **(15)**

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