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A – 2692

Reg. No. :

Name :

Sixth Semester B.Tech. Degree Examination, May 2016
(2013 Scheme)
13.603: COMPUTER AIDED DESIGN (MPU)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **2** Marks :

(10×2=20 Marks)

1. Give some practical applications of solid modeling.
2. What are the advantages of wire frame models ?
3. What is the situation when CAD/CAM implementation will be successful ?
4. Discuss the classification of computer graphics.
5. What is mirror transformation ?
6. Distinguish between mirror and scaling.
7. Differentiate between orthographic and oblique projection.
8. Enlist the viewing parameters while displaying 3D object on a 2D Screen.
9. What is convergence ?
10. Briefly discuss the requirements for Good Mesh.

PART – B

Answer **any one full** question from **each** Module :

(4×20=80 Marks)

Module – 1

11. A) With a block diagram, explain the different phases of design. 10
B) Explain solid models with suitable example. 10
12. Discuss the B-rep and CSG technique for solid modelling. 20

P.T.O.



Module - 2

- 13. Explain Bresenham's algorithm for circle generation. 20
- 14. A) Find the effect of a translation in the x, y, z direction by -2, -4, -6 respectively on the homogeneous coordinate position vector [1, 6, 4]. 10
- B) Find the matrix that represents rotation of an object by 45 degree in 2D about the origin and what are the new coordinates of the point P (2, -4) after the rotation? 10

Module - 3

- 15. A) Use the Cohen Sutherland to clip the line $P_1 (70, 20)$ and $P_2 (100, 10)$ against a window, lower left hand corner (50, 10) and upper right hand corner (80, 40). 10
- B) Explain in brief scan line algorithm. 10
- 16. Explain the different types of hidden surface removal algorithms. 20

Module - 4

- 17. A) Explain the basic steps involved in FEM. 10
- B) Derive an expression for stiffness matrix for 2D CST element. 10
- 18. For the truss shown in figure 1, Determine i) The displacement of joints 2 and 3
ii) Stress, Strain and Internal forces in each member. Take $A_{AL} = 200 \text{ mm}^2$, $A_{ST} = 100 \text{ mm}^2$. All other dimensions are in mm $L_{13} = 260 \text{ mm}$, $L_{12} = 150 \text{ mm}$ and $L_{23} = 300 \text{ mm}$. 20

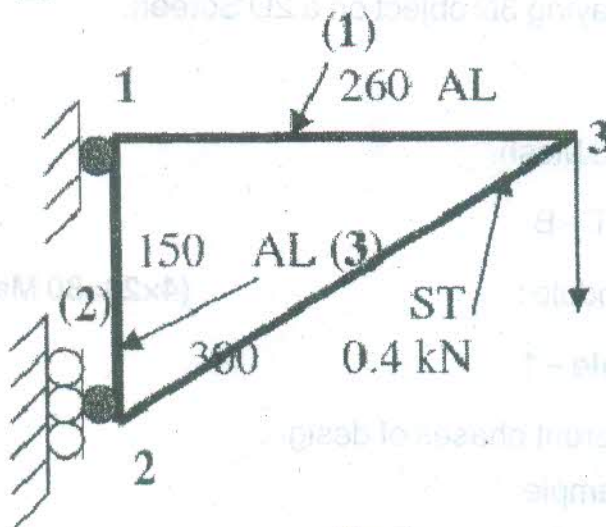


Fig. 1