



(Pages : 2)

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

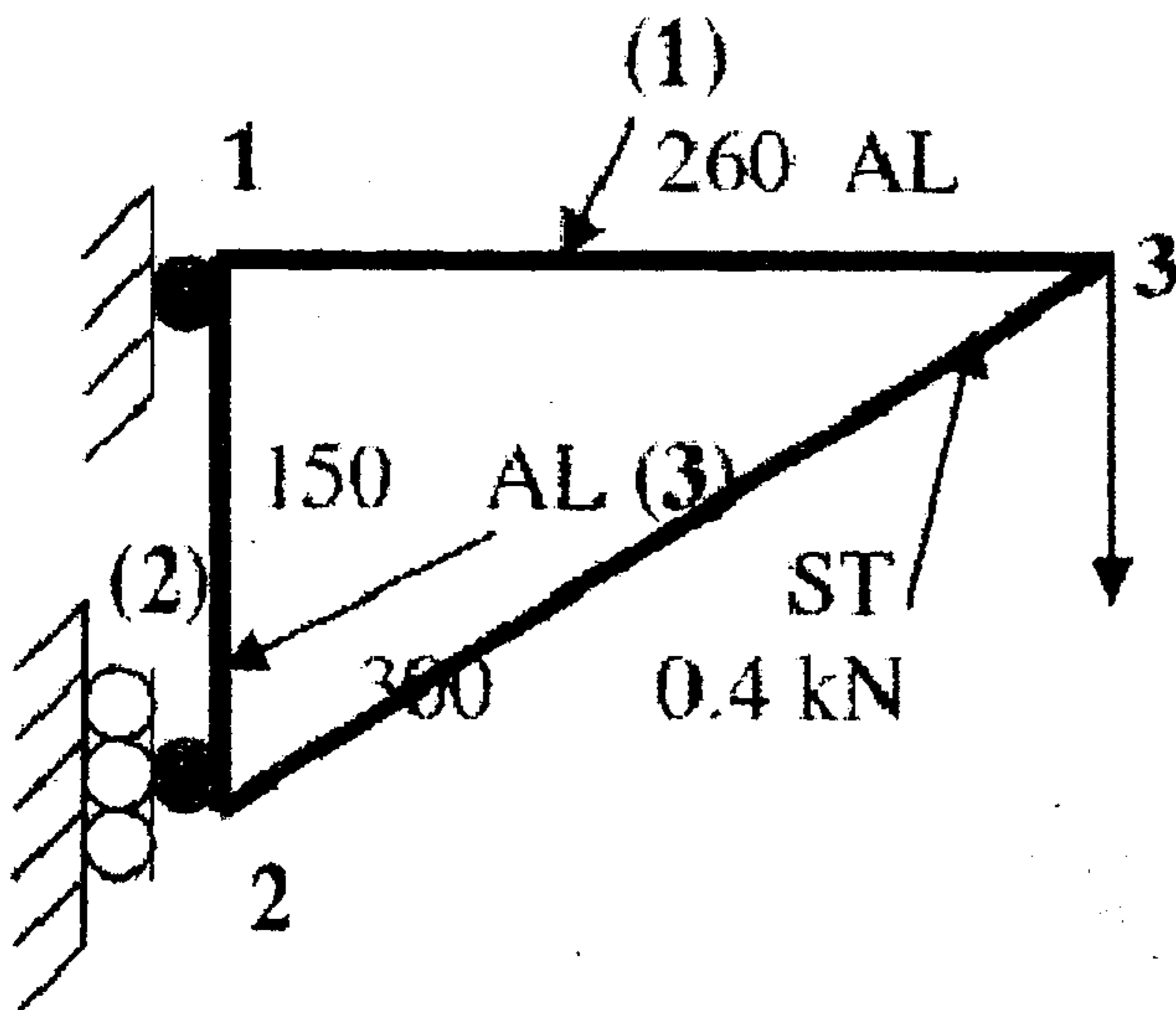


Fig. 1