



(Pages : 2)

E – 1948

Reg. No. :

Name :

**Sixth Semester B.Tech. Degree Examination, May 2018
(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. Explain automated drafting.
2. Explain the methods of defining circle.
3. What is engineering analysis ?
4. List the various components of computer graphics.
5. What is 2D and 3D transformation ?
6. Enlist the different methods of defining the arcs and line.
7. What is point clipping ?
8. What is oblique projection ?
9. What is plane stress and plane strain analysis ?
10. Define shape functions and list their properties.

PART – B

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

(4×20=80 Marks)

Module – 1

11. A) Discuss the benefits of CAD /CAM to engineering design as compared to conventional methods. **10**
- B) Explain wireframe models with suitable example. **10**



12. A) What are advantages and limitations of CAD /CAM Technology ? 10
- B) Explain Constructive Solid Geometry technique (CSG) with suitable example. 10

Module – 2

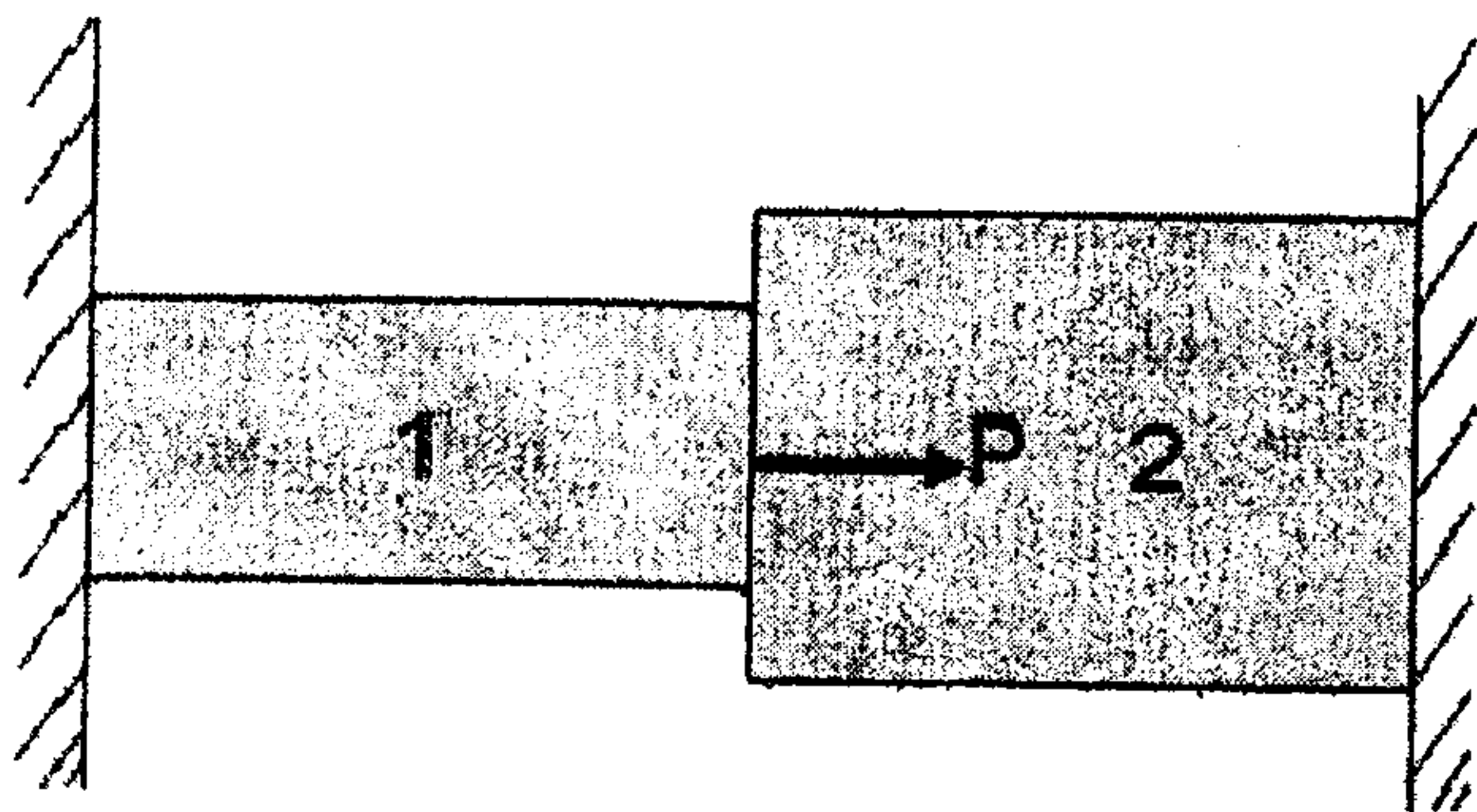
13. Explain Bresenham's algorithm for line generation. 20
14. Translate the square ABCD whose co-ordinates are A(0, 0), B (3, 0), C (3, 3) and D(0, 3) by 2 units in the both the directions and then scale it by 1.5 units in x direction and 0.5 units in y direction. Plot the sketches of each transformation. 20

Module – 3

15. A) Given a clipping window A (20, 20), B(60, 20), C(60, 40) and D (20, 40) using Cohen Sutherland algorithm, find the visible portion of line segment joining the points P (40, 80) and Q (120, 30). 10
- B) Explain orthographic and oblique projections in detail. 10
16. Explain Cohen Sutherland clipping algorithm. 20

Module – 4

17. A) Derive the stiffness matrix for CST element. 15
- B) Derive the stiffness matrix for 1D element. 5
18. Calculate the reaction, Displacements and Stress for the following system.



Take $A_1 = 600 \text{ mm}^2$, $A_2 = 800 \text{ mm}^2$, $E = 2 \times 10^5 \text{ N/mm}^2$, $L_1 = 150 \text{ mm}$, $L_2 = 220 \text{ mm}$ and $P = 30 \text{ kN}$.

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