(Pages : 2) **2329**

Reg. No. : .....

Name : .....

Sixth Semester B.Tech. Degree Examination, May 2011
(2008 Scheme)
08.603 : COMPUTER AIDED DESIGN (MPU)

Time : 3 Hours Max. Marks : 100

PART – A

Answer **all** questions. **Each** carries **4** marks.

1. Discuss the applications of computer in design.
2. Describe a raster scan display.
3. What are the functions of a design workstation ?
4. Give an account of graphic input devices.
5. What is meant by windowing and clipping ?
6. Discuss the various three dimensional transformations.
7. Describe an algorithm for the removal of hidden lines.
8. Discuss the various considerations for discretisation in FEA.
9. Explain the different types of shape functions.
10. Explain the procedure for assembly of global stiffness matrix. **(10×4=40 Marks)**

PART – B

Answer **one full** question from **each** Module. **Each** question carries **20** marks.

Module – I

11. a) Describe the steps involved in the design process.

    b) Explain how images are created in liquid crystal displays.

OR

P.T.O.

12. a) What are the components of a Design Database ?

    b) Write notes on :

    i) Graphic standards

    ii) Virtual reality.

Module – II

13. a) Describe Bresenham's algorithm for generating circle.

    b) What is geometric modeling ? Explain geometric models, bringing out their limitations and applications.

OR

14. a) What are the considerations to be made in designing a graphic software ?

    b) A triangle ABC defined by its end points A(4, 1), B(5, 2), C(4, 3) is rotated 90° in anticlockwise direction about a point (2, 1). Obtain the result of transformation.

Module – III

15. a) Explain the principle of minimum potential energy. How is it related to FEM ?

    b) What are the different types of elements used in FEM ? What is nodal connectivity ?

OR

16. a) Derive the element stiffness matrix for a truss element.

    b) Consider a bar of 200 mm length, 750 mm^2 cross sectional area and Young's modulus 2×10^5 N/mm^2, as shown in the Fig. 1.

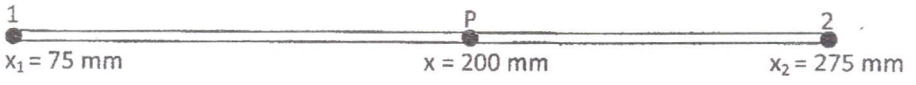

Fig. 1.

If displacement at node 1, $q_1 = 0.5$ mm and displacement at node 2, $q_2 = 0.625$ mm, calculate the following :

i) Displacement at point P

ii) Stress

iii) Strain

iv) Element stiffness matrix and

v) Strain energy. **(3×20=60 Marks)**