

MAY 2016

P/ID 16171/PIE12

Time : Three hours

Maximum : 100 marks

PART A — (6 × 5 = 30 marks)

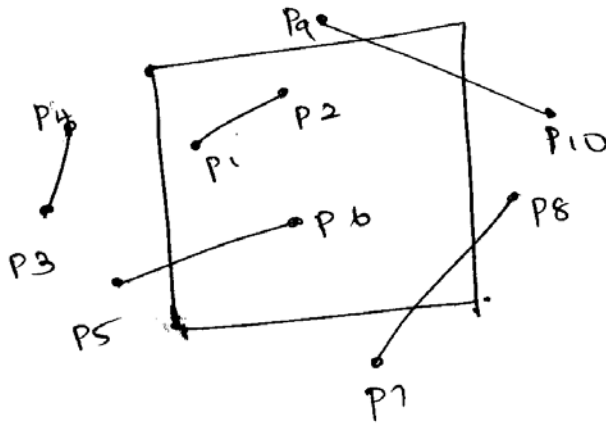
Answer any SIX questions.

1. List the important characteristics of video display devices. Discuss.
2. What is aliasing? Explain different methods of minimizing its effect.
3. Describe the steps for scan line conversion algorithm for polygon filling.
4. Find out final transformation matrix, when point $p(x,y)$ is to be reflected about a line $y = mx + c$.
5. Write a short note on generalized clipping.
6. Discuss about various 3D viewing parameters.
7. Give the equations to represent Hermit surfaces, B-spline surfaces and Bezier surfaces.
8. Write a note on visible surface ray making.

PART B — (7 × 10 = 70 marks)

Answer any SEVEN questions.

9. Explain the steps required to fill the polygon using any one technique.
10. Derive the transformation matrix for rotation about an arbitrary axis and arbitrary plane.
11. Consider the clipping window and the lines shown in fig. Find the region codes for each and point and identify whether the line is completely visible, partially visible or completely invisible.



12. Derive the 3D transformation matrix to transform world co-ordinate to viewing co-ordinates.

13. Explain Koch curve and give its fractal dimensions.
14. Explain the Euler's formula to represent the relationship of vertices, edges and faces of a solid object.
15. Explain the octtree method for hidden surface removal.
16. Explain Gouraud shading algorithm. Discuss the advantages and disadvantages.
17. What is coherence? Discuss various types of coherence that can be used to make visible surface algorithms more efficient.