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Total No. of Questions : 09

B.Tech (CSE) (Sem.–5)
COMPUTER GRAPHICS
Subject Code : CS-309
Paper ID : [A0468]

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY.**
2. **Attempt any FOUR questions from SECTION-B.**
3. **Attempt any TWO questions from SECTION-C.**

SECTION-A (10 × 2 = 20 Marks)

1. (a) What are the problems with interpolated shading?

(b) Distinguish between Phong and Gourand shading.

(c) What is the reason for plotting the Bezier curves piecewise?

(d) What is fractal line? What is its expression?

(e) What is ray tracing?

(f) What are bitmaps?

(g) What is line clipping? Explain.

(h) Explain the working of the raster scan monitors.

(i) For large polygons the flood fill algorithm may fail, why? What could be the method to avoid this?

(j) Define :
(a) view reference point
(b) view plane normal .

SECTION-B (4 × 5 = 20 Marks)

2. Explain the procedure for flood fill algorithm.

3. Derive the transformation matrices for the following transformations :

   (a) Reflection about X-axis

   (b) Reflection about Y-axis.

   (c) Reflection about origin

   (d) Reflection about line Y = X

   (e) Reflection about line Y = -X

4. Explain various shearing transformations.

5. Distinguish between parallel and perspective projections.

6. What are the reasons that shading models are calculation intensive?

SECTION-C **(2 × 10 = 20 Marks)**

7. Explain the Cohen-Sutherland out code algorithm in detail.

8. A mirror is placed vertically such that it passes through the points (10,0) and (0,10). Find the reflected view of a triangle ABC with coordinates A(5,50), B(20,40), C(10,70).

9. Explain the development of Bezier curve. Also explain its characteristics.