BTS-V(15)-11.17-1548 Reg. No. | | | | | | | | |

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B.Tech. Degree V Semester Examination November 2017

CS 15-1506 COMPUTER GRAPHICS
(2015 Scheme)

Time : 3 Hours Maximum Marks : 60

PART A
(Answer *ALL* questions)

(10 × 2 = 20)

I. (a) Write any two methods for antialiasing.
(b) Discuss the contents of sorted edge table (SET) in scanline fill algorithm.
(c) Write homogeneous matrices for rotating a point about a reference point in 2D.
(d) List four properties of Bezier curve. Compare Bezier splines and B-splines.
(e) Give the steps involved in reflection about x = y line in terms of reflection about x-axis.
(f) How is visible surface detection performed in backface detection method?
(g) What are the factors on which the final projected point depend in perspective projection?
(h) What is specular reflection? Write one illumination model for specular reflection.
(i) Discuss different types of fractals. Give one example for each type.
(j) Discuss important animation techniques.

PART B

(4 × 10 = 40)

II. (a) Explain DDA line drawing algorithm. (6)
(b) Find the points in the line A(10, 5) B(14, 15) using DDA. (4)

OR

III. (a) Describe midpoint circle drawing algorithm. (6)
(b) Find the points in a circle with center (10, 8) and radius = 4. (4)

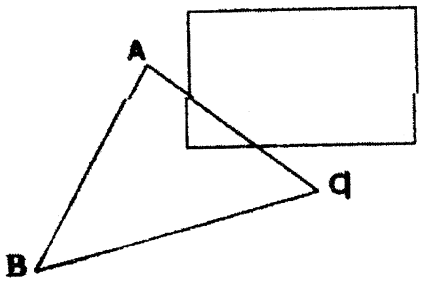
IV. (a) Discuss the different methods for text clipping with example. (3)
(b) Give the final clipped line end points using Cohen Sutherland algorithm for the line A (5, 3) B(12, 8) against the window with boundaries (0,0) and (10, 20). (7)

OR

(P.T.O.)

V. (a) Explain window to viewport transformation. Transform the point (20, 40) in the window with boundaries (10,10) and (50, 50) to the viewport (100, 100) and (200, 300). (4)

(b) Describe the steps in clipping the polygon shown below using Sutherland Hodgeman Polygon algorithm. (6)



VI. (a) Write the vertex table, edge table and surface table for a cube with side 3 units and placed with one vertex at the origin. (5)

(b) Discuss A-buffer method for hidden surface elimination. What is the advantage of A-buffer over Z-buffer? (5)

OR

VII. (a) Explain octree tree hidden surface elimination method. (6)

(b) How can we determine whether a polygon is: (4)

(i) inside completely? (ii) outside completely? (iii) overlapping? (iv) surrounding a rectangular boundary, in area subdivision algorithm?

VIII. (a) Explain ray tracing. (6)

(b) Explain texture mapping. (4)

OR

IX. (a) Explain surface rendering. (6)

(b) Discuss any two colour models. (4)

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