

End-Term Examination
Second Semester [MCA] – MAY 2003
COMPUTER SYSTEM ARCHITECTURE

Paper Code: MCA-106

Time: 3 Hours

Marks: 60

Q. 1 (a) Explain in detail the Bresenham's circle algorithm. 5

(b) Consider the line from (0, 0) to (-8, -4) in the third quadrant. Evaluate the steps in the DDA algorithm. 5

Q. 2 (a) Derive the window to viewpoint transformation. 5

(b) Derive the transformation for parallel projection. 5

Q. 3 Determine the blending function for uniform, periodic B-spline curves for $d=3$, $n=3$. 10

Q. 4 A point (10, 10) is to be reflected about a line, $y= 2x$ in 2-D. Find out the coordinate of the reflected point. 10

Q. 5 (a) Find out a composite matrix for scaling in 2D about an arbitrary point (X0, Y0). The scaling parameters are S_x & S_y 5

(b) What is modeling? What are the approaches to achieve a model? 5

Q. 6 (a) Write Sutherland-Hodgman Polygon clipping algorithm. 7

(b) Explain the term transparency used in computer graphics. 3

Q. 7 Derive a composite matrix for reflection about the line $y = x$ in 2-D. 10

Q. 8 Describe the working principle of LCD displays? What are their advantages over CRT displays? What are their applications? 10

Q. 9 What do you understand by Projection? What are the various prospective projection anomalies? 10

Q. 10 Explain the following terms :- 10

(a) GKS

- (b) Structure of display file
- (c) Raster scan
- (d) Transformation
- (e) Function set design.

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