



Printed Pages : 3

MCA – 406

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1481

Roll No.

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M. C. A.

(SEM. IV) EXAMINATION, 2006-07

COMPUTER GRAPHICS & ANIMATION

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions

1 Answer any four parts : 4×5=20

- (a) What do you mean by scientific visualization? Explain.
- (b) Is there any difference between computer graphics and image processing? Explain.
- (c) Describe the terms persistence and resolution in reference to CRT.
- (d) Explain the architecture of a raster system with a fixed portion of the system memory reserved for the frame buffer.
- (e) Explain various kinds of input devices used for computer animation.
- (f) Define the following:
 - (i) Positioning techniques
 - (ii) Dragging

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2 Answer any **four** parts : **4×5=20**

- (a) Give Bresenham's line drawing algorithm. Explain the same with suitable example.
- (b) Describe boundary fill algorithm for polygon with suitable example.
- (c) Discuss the method for storing colour values in a colour look up table(or video lookup table) where each entry in the table uses 24 bits to specify an RGB colour.
- (d) Define the following:
 - (i) Point clipping
 - (ii) Line clipping.
- (e) What do you mean by display file? What are the functions for segmenting the display file?
- (f) Using midpoint method, and taking symmetry into account, develop an algorithm for the curve over the interval $-10 \leq x \leq 10$.

$$y = \frac{1}{12} \times 3$$

3 Answer any **two** parts **2×10=20**

- (a) Write an algorithm for converting, any specified sphere, ellipsoid, or cylinder to a polygon-mesh representation
- (b) Write an algorithm to display two dimensional, cubic Bezier curves, given a set of four control points in the X-Y plane.
- (c) Define the following with example :
 - (i) Octrees
 - (ii) B-spline curves.

4 Answer any **two** parts : **2×10=20**

- (a) (i) Define translation and scaling with an example.
- (ii) Determine the form of the transformation matrix for a reflection about an arbitrary line with equation $y = mx + b$.
- (b) Define the following with example :
 - (i) 3-D rotation
 - (ii) Parallel projection.
- (c) What do you mean by hidden surface removal? Describe any hidden surface removal algorithm.

5 Answer any **two** parts : **2×10=20**

- (a) Define animation sequences. What are the various steps involved in animation sequence? Describe.
- (b) Define the following with example
 - (i) Morphing
 - (ii) Types of animation system.
- (c) Write short notes on the following:
 - (i) Animation tools
 - (ii) Git animator : List the names and explain any one of them.

