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Printed Pages : 3 **MCA – 406**

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

PAPER ID : 1481 Roll No.

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

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

(a) Give Bresenham's line dressing 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.
