Roll No. .....

MCA/D09

Computer Graphics and Multimedia

Paper: MCA-501 5436

Time: Three Hours] [Maximum Marks: 50

Note:- Question No.**1** is compulsory. In addition to this attempt **FOUR** questions by selecting **ONE** question from each unit.

UNIT-I

1. **(i)**Describe the components of an Interactive computer graphics system to show how it works.

   (ii) Describe how graphics is used in science and engineering and entertainment.

2. (i) Bring out the anatomy of an LCD display and compare it with CRT display?

   (ii)What are the different coordinate systems that are used in graphics?

3. (i)What is the importance of digitizing tablet, image scanners and plotters in graphics applications?

   (ii) Give one example of a Circle drawing algorithm that is based on Cartesian coordinate system.

UNIT-II

4. What do you mean by concatenation of transformations? Show how concatenation of transformations can be used to scale an object with respect to a fixed point. Use a suitable example to illustrate the concept.

5. Distinguish between a window and a viewpoint. Find the position of a point P(6, 7) defined in circular window of radius 8 units and center (2, 4) transformed onto a view port with radius 4 units and center (0,0).

6. Distinguish between Cohen-Sutherland line clipping and Mid-point subdivision line clipping elaborating the steps followed for clipping in both the algorithms.

7. (i) Describe how an object is transformed in dragging and shearing.

(ii) List out the steps used for filling an object using stack based seed fill algorithm.

UNIT-III

8. Give the geometrical and topological representation of a 3-D object of your choice. What is the significance of specifying plane equations of the faces of an object?

9. How is depth buffer algorithm different from depth sort algorithm for solving hidden surface problem?

10. Give a brief description of any **two** of the following:

    (a) Perspective Projection.

    (b) Gouraud shading

    (c) Multimedia authoring.