

Roll No.....

Total Pages: 3
10247

OMCA/D-17
COMPUTER GRAPHICS
Paper: MCA-501

Time: Three Hours

Maximum Marks: 80

Note: Attempt five questions in all. Question No. 1 is compulsory. In addition to compulsory question, attempt four more questions selecting one question from each unit. All questions carry equal marks.

Compulsory Question

1. Answer the following questions in brief :
 - (a) What is raster scan system?
 - (b) Why is refreshing required in CRT displays?
 - (c) Write the parametric form of equations for representing cubic curves.
 - (d) Write the equation that identifies the address of a pixel in frame buffer when the frame buffer is loaded.
 - (e) Write the matrix for reflection of a point w.r.t. the x-axis.
 - (f) For what purpose is rubber band technique used?
 - (g) Write the 3-D transformation matrix for translation.
 - (h) How is energy at a point P represented for diffuse illumination in modeling light intensities.

UNIT-I

2. What is the role of the following in the creation of pictures :
 - (a) Frame buffer.
 - (b) Pixels.
 - (c) LCD display.
3. Describe the construction and working of any four input devices which are commonly used in graphics applications.

UNIT-II

4. Describe the following :
 - (a) Circle drawing using polar coordinates.
 - (b) Drawing Bezier curves.
5. Describe the procedure for filling a polygon using scan line fill algorithm.

UNIT-III

6. Describe the purpose of the following transformations along with their matrix representations :
 - (a) Scaling.
 - (b) Shearing.
 - (c) 2-d viewing.
7. Describe one line clipping algorithm that is based on slope-intercept form of line equation.

UNIT-IV

8. (a) How are coordinates of a pixel obtained in screen coordinate system when perspective projection is applied?
 - (b) How are depth comparisons made in Z-buffer algorithm for solving hidden surface problem?
9. Describe how interpolation is used in the following techniques :
 - (a) Gouraud shading.
 - (b) Tweening.