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BCA/M-22 1886

COMPUTER GRAPHICS

BCA-363

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) State the major difference between interactive and passive graphics.

(b) State the various types of coordinate representations.

(c) What is scan conversion ?

(d) What are the various disadvantages of flood fill algorithm ?

(e) Enlist the various geometric transformations.

(f) Enlist the various pointing devices used in computer graphics.

(g) Differentiate between window and viewport.

(h) What is composite transformation ? **8×2=16**

Unit I

2. (a) What is Computer Graphics ? Discuss its major applications. **8**

   (b) Explain the working along with pros and cons of any *two* display devices use in computer graphics. **8**

3. (a) Compare and contrast the random scan and raster scan mechanisms. **8**

   (b) What is a display processor ? How does it work ? Explain. **8**

Unit II

4. Write down the algorithm for drawing a line using Bresenham's line drawing algorithm for slopes less than 45° and also explain which raster locations will be chosen by Bresenham's algorithm when scan converting a line from screen coordinates (2, 2) to screen coordinates (8, 5). **16**

5. (a) Write down the steps to scan-convert an ellipse using trigonometric method. **8**

   (b) Write down the steps to generate a circle using the polynomial method. **8**

Unit III

6. (a) What are the new coordinates of the point P(4, – 4) after the rotation by 30° about the origin ? 8

   (b) What is Shearing ? How is it performed ? Explain using suitable examples. 8

7. Explain the various positioning techniques used in computer graphics in detail. 16

Unit IV

8. What is meant by line clipping ? Write and explain any *two* algorithms for line clipping. 16

9. How can you perform (i) Scaling (ii) Translation (iii) Rotation (iv) Reflection, in three-dimensional transformation ? 16