Roll No. ..... Total Pages : 3

BCA/M-21 **1901**

COMPUTER GRAPHICS

Paper–BCA-363

Time Allowed : 3 Hours] [Maximum Marks : 80

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

Compulsory Question

1. Write in short on the following : 8×2=16

   (a) What is a Graphic transformation ?

   (b) Compare a Window with a Viewpoint.

   (c) Differentiate between Raster scan and Random scan display.

   (d) Write a short note on Lookup table.

   (e) List the features of DVST.

   (f) What are the basic requirements to draw a Line ?

   (g) Define the term Shearing in two-dimensional graphics.

(h) What is the difference between Pointing and Positioning techniques ?

UNIT–I

2. (a) Explain the structure of monochrome and color CRTs. 8

(b) Name the parameters used to measure the performance of a Display device. Define each of them. 8

3. (a) Explain the various application areas of Computer graphics. 8

(b) Discuss the various functions provided by a general purpose Graphics package for creation and manipulation of the Pictures. 8

UNIT–II

4. Explain scan-line fill and flood fill technique of polygon filling. Also discuss the situations in which the flood fill algorithms do not work properly. 12,4

5. Explain the concept of Bresenham's circle drawing algorithm in detail. List out the merits and limitations of the Bresenham's circle drawing algorithm compared to circle drawing using polar co-ordinates. 8,8

UNIT–III

6. What is Reflection transformation ? Explain with suitable examples. Derive various Reflection transformation matrices. Is it possible to get reflection about y = x line using scaling and rotation only ? If yes, what are the assumptions needed ? 4,8,4

7. (a) What are the basic Transformations ? Define each one of them with at lead one suitable example. 2,5

   (b) Derive the scaling Transformation matrix. Also give scale factors to double the width with reduction in its height by half of an object. 5,4

UNIT–IV

8. Explain basic line Clipping concept. Explain the Cohen-Sutherland line clipping algorithm using proper examples. Among various lines clipping algorithms, in your view, which algorithm is more efficient ? 4,8,4

9. How can a 3-dimensional object be created in Computer Graphics ? Explain various methods. 16