Roll No. .....

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Printed Pages : 3

BT–6 / M–15

COMPUTER GRAPHICS

Paper–IT–356

Time allowed : 3 hours] *[Maximum marks : 100*

Note : Attempt five questions in all, selecting at least one question from each unit. All questions carry equal marks.

Unit–I

1. (a) What is computer graphics ? Discuss its major applications. 10

   (b) List and explain the operating characteristics for the following display technologies :

   (i) Plasma Panel

   (ii) Vector refresh system. 10

2. Write and explain the Bresenham's line-drawing and circle-drawing algorithm with the help of suitable example. 20

Unit–II

3. (a) How a window-to-viewport transformation is performed ? Explain. 10

   (b) Explain the Cohen-Sutherland algorithm for line-clipping with appropriate example. 10

4. Write and explain the Sutherland-Hodgeman algorithm for polygon clipping. 20

Unit–III

5. (a) Explain following two-dimensional geometric transformations with the help of suitable examples :

   (i) Transformation

   (ii) Rotation

   (iii) Scaling. 15

   (b) Write a short note on viewing pipeline w.r.t. Three-dimensional viewing. 5

6. (a) Explain the concept of parallel projections in three-dimensional viewing. Also find the transformation matrix for providing any parallel projection onto the x, y plane. 10

   (b) Explain the procedure of solid area scan conversion with the help of suitable example. 10

Unit–IV

7. (a) What is Spline representation ? Explain parametric and geometric counting conditions w.r.t. Spline representations. 10

   (b) Write and explain the procedure for creating a Beizer Curve. Also explain properties of Beizer curve. 10

8. (a) Write and explain the depth-buffer algorithm for detecting visible surface. 10

   (b) What is GKS ? Write and explain its various components in detail. 10