(i) Printed Pages : 2 Roll No. .....

(ii) Questions : 9 Sub. Code : 2 6 0 4 5

Exam. Code : 0 4 6 1

M.Sc. Information Technology 3rd Semester

(2124)

COMPUTER GRAPHICS

Paper : MS-39

Time Allowed : Three Hours] **[Maximum Marks : 80**

Note :— Attempt **FIVE** questions in all, including Question No. **IX** (Unit-V) which is compulsory and selecting **ONE** question each from Units-I-IV.

UNIT—I

I. Explain the process of character generation in computer graphics. What techniques are used to render text on the screen, and how do they impact performance ? 8,8

II. Describe the interactive graphical techniques. How do techniques like zooming, panning, and elastic lines enhance user experience in graphical applications ? 8,8

UNIT—II

III. Define homogeneous coordinates and explain their significance in 2D geometric transformations. How do they simplify the representation of transformations ? 8,8

IV. What is the window to viewport coordinate transformation ? Discuss its importance in rendering graphics and how it affects the display of graphical objects. 8,8

[Turn over

UNIT—III

V. Explain the concept of animation in graphics programming. What are the key techniques for implementing animations, and how do they affect performance ? 8,8

VI. Discuss the role of OpenGL in graphics programming ? How does it facilitate the creation of 2D and 3D graphics, and what are its key features ? 8,8

UNIT—IV

VII. Explain the differences between parallel projection and perspective projection in 3D graphics. How do these projections affect the perception of depth in rendered images ? 8,8

VIII. Explain the representation of space curves and surfaces using Bezier curves and B-spline curves. Discuss their advantages in modeling complex shapes in computer graphics. 8,8

UNIT—V

IX. (a) What are curves defined by control points called ?

(b) What method eliminates hidden surfaces ?

(c) What is the purpose of viewport transformation ?

(d) What technique allows zooming in graphics ?

(e) What is the role of display subroutines in graphics programming ?

(f) What is the primary function of a display processor in graphics systems ?

(g) What size is frame buffer (in bytes) for raster system with resolutions of 2560 × 2048 to store 24 bits per pixel ?

(h) What is the matrix for shear transformation in 2D ?

8×2=16