



CBCS SCHEME

18CS62

Sixth Semester B.E. Degree Examination, Jan./Feb. 2023 Computer Graphics and Visualization

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. List and explain any six applications of computer graphics. (08 Marks)
- b. Explain the Refresh Cathod Ray Tubes with the neat diagram. (12 Marks)

OR

- 2 a. Develop the code of the Bresenham's Line Drawing Algorithm. Also illustrate the algorithm the line end points are (20, 10) and (30, 18). (10 Marks)
- b. Write circle drawing algorithm. Given a circle radius $r = 10$, solve the midpoint circle algorithm by determining positions along the circle octant in the first quadrant from $x = 0$ to $x = y$. (10 Marks)

Module-2

- 3 a. Classify the polygon. Explain two methods for inside-outside test of a polygon. (10 Marks)
- b. Develop the concept of Scanfill algorithm for filling algorithm for filling polygon with suitable diagrams. (10 Marks)

OR

- 4 a. Explain translation, rotation and scaling of 2D transformation with suitable diagrams, code and matrix. (10 Marks)
- b. Explain OpenGL raster transformations and OpenGL geometric transformation functions. (10 Marks)

Module-3

- 5 a. Develop the Cohen Sutherland Line Clipping program using OpenGL. (10 Marks)
- b. Explain any two of the 3D geometrical transformation. (10 Marks)

OR

- 6 a. Explain the Sutherland Hodgeman Polygon clipping with example. (10 Marks)
- b. Discuss the RGB color model and CMY color model. (10 Marks)

Module-4

- 7 a. Define orthogonal projections. Explain clipping window and orthogonal projection view volume in 3D. (10 Marks)
- b. Explain the three dimensional view pipeline. (10 Marks)

OR

- 8 a. Construct perspective-projection transformation coordinates and perspective projection equations special cases. (10 Marks)
- b. Explain the Depth-Buffer method and develop its algorithm. (10 Marks)

Module-5

- 9 a. Explain any three programming event driven input with suitable examples. (10 Marks)
- b. Explain the various input modes with neat diagram. (10 Marks)

OR

- 10 a. Explain Animating Interactive Program. (10 Marks)
- b. Discuss Logical Device and Hierarchical Menus. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. $42+8=50$, will be treated as malpractice.