CBCS SCHEME

18CS62 USN

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

Time: 3 hrs.

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

Module-1

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

- Develop the code of the Bresenhams Line Drawing Algorithm. Also illustrate the algorithm (10 Marks) the line end points are (20, 10) and (30, 18).
 - 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 (10 Marks) x = y.

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 (10 Marks) suitable diagrams.

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

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

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

Module-4

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

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

Module-5

Explain any three programming event driven input with suitable examples. (10 Marks) (10 Marks)

Explain the various input modes with neat diagram.

OR

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

(10 Marks)

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