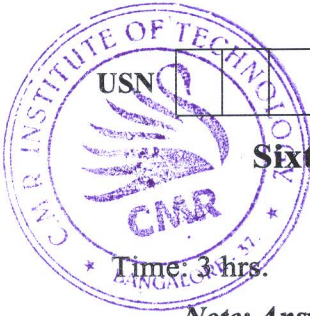


CBCS SCHEME



15CS62

Sixth Semester B.E. Degree Examination, June/July 2023 Computer Graphics and Visualization

Max. Marks: 80

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

Module-1

- 1 a. With a neat block diagram, explain the architecture of a graphics raster system. (08 Marks)
- b. Explain the applications of computer graphics. (04 Marks)
- c. Explain OpenGL line functions. (04 Marks)

OR

- 2 a. What are the types of polygons? Explain Inside-Outside test for polygon. (08 Marks)
- b. Discuss Bresenham's line drawing algorithm. (08 Marks)

Module-2

- 3 a. Explain OpenGL fill area attribute functions with examples. (08 Marks)
- b. Discuss scan line polygon fill algorithm. (08 Marks)

OR

- 4 a. Explain the effect of reflection and shear transformations in OpenGL. (08 Marks)
- b. Write basic OpenGL geometric transformations. (04 Marks)
- c. Explain OpenGL clipping and viewport window functions. (04 Marks)

Module-3

- 5 a. Explain Sutherland-Hodgman polygon clipping algorithm. (08 Marks)
- b. Explain Cohen Sutherland line clipping algorithm. (08 Marks)

OR

- 6 a. What are the light sources? Explain Phong lighting model in detail. (08 Marks)
- b. Explain three dimensional scaling. (04 Marks)
- c. Write OpenGL geometric transformation functions. (04 Marks)

Module-4

- 7 a. Explain how orthogonal projection matrix can be obtained from normalization view. (08 Marks)
- b. With a neat block diagram, explain 3D viewing pipeline. (04 Marks)
- c. Discuss viewport transformation and 3D screen coordinates. (04 Marks)

OR

- 8 a. Explain Depth-Buffer algorithm. (08 Marks)
- b. Write OpenGL Visibility-Detection functions. (08 Marks)

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Module-5

- 9 a. Define trigger and measure. Write three input modes. (04 Marks)
- b. What is display list? Explain how display lists are created and compiled. (04 Marks)
- c. Discuss the logical input operation of picking in selection mode. (08 Marks)

OR

- 10 a. Discuss the properties of Bezier Spline curves. (08 Marks)
- b. Discuss the different design techniques used by Bezier curves. (08 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.