

CBCS SCHEME

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Learning Resource Centre
Acharya Institutes

17CS62

Sixth Semester B.E. Degree Examination, July/August 2022 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. What is Computer Graphics? Describe various application of computer graphics with an example. (10 Marks)
- b. Explain the basic operations of CRT with its primary components with neat diagram. (10 Marks)

OR

- 2 a. With a neat diagram, explain the architecture of Raster display system with integrated display processor. (10 Marks)
- b. What is DDA? With the help of a suitable example demonstrate the working principle of Bresenham's line drawing algorithm for different slopes of a line. (10 Marks)

Module-2

- 3 a. Explain General scan line polygon fill algorithm with detail. (10 Marks)
- b. Explain the translation scaling, rotation in 2D homogeneous coordinate system with matrix representation. (10 Marks)

OR

- 4 a. Explain with example any two algorithm used for to identify interior area of a polygon. (06 Marks)
- b. What are the coordinates required to perform a rotation? Show that 2 successive rotation are additive. (06 Marks)
- c. Explain OpenGL function for i) Transformation ii) Rotation with parameter. (08 Marks)

Module-3

- 5 a. Define Clipping. Explain the Sutherland line algorithm with programme. (10 Marks)
- b. Explain RGB and CMY color models with examples. Explain the transformations between CMY and RGB color faces. (10 Marks)

OR

- 6 a. With the help of suitable diagram, explain basic 3D geometric transformation technique and give the transformation matrix. Explain the meaning of affine transformation. (10 Marks)
- b. Explain a window to view part transformation. (10 Marks)

Module-4

- 7 a. Explain the perspective projection with reference point and vanishing point with neat diagram. (12 Marks)
- b. Discuss depth-buffer method with algorithm. (08 Marks)

OR

- 8 a. What is 3D viewing with the help of block diagram explain 3D viewing pipe line architecture? (10 Marks)
- b. Explain backface detection method with example. (10 Marks)

Module-5

- 9 a. Explain the major characteristics that describe the logical behaviour of the input device? Explain how OpenGL provides the functionality of each of the classes of logical input devices. (10 Marks)
- b. What is display list? Write OpenGL code segment that generate a blue color square using display list. (10 Marks)

OR

- 10 a. List the properties of Bezier curves and also explain Bezier techniques of generating curves. (10 Marks)
- b. Explain the logical classification input devices with examples explain how an event driven input can be performed for a keyboard and mouse devices. (10 Marks)

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