CBCS SCHEME

USN

18CS62

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. Explain Refresh Cathode ray tube with neat diagram. **(10 Marks)**

b. What is Computer Graphics? Explain the application of Computer Graphics. **(10 Marks)**

OR

2 a. With a neat diagram, explain the architecture of a raster display system with integrated display processor. **(10 Marks)**

b. Explain Bresenham's Line drawing algorithm, with an example. **(10 Marks)**

Module-2

3 a. What is the need of Homogeneous Coordinate System? Explain Translation , Rotation and Scaling in 2D Homogeneous Coordinate System, with matrix representation. **(10 Marks)**

b. Explain with example any two algorithms used to identify interior and exterior area of a polygon. **(05 Marks)**

c. Explain two dimensional viewing transformation pipe line. **(05 Marks)**

OR

4 a. Explain Scan Line polygon fill algorithm. **(10 Marks)**

b. Explain different OpenGL routines used for manipulating display window. **(05 Marks)**

c. Explain OpenGL 2D – viewing function. **(05 Marks)**

Module-3

5 a. What is Clipping? Explain Cohen – Sutherland Line Clipping algorithm, with suitable example. **(10 Marks)**

b. Explain Basic Illumination Model and explain Phong's Lighting model. **(10 Marks)**

OR

6 a. Explain Sutherland – Hodgman Polygon Clipping algorithm .Find the final clipping polygon for the following Fig. Q6(a). **(10 Marks)**

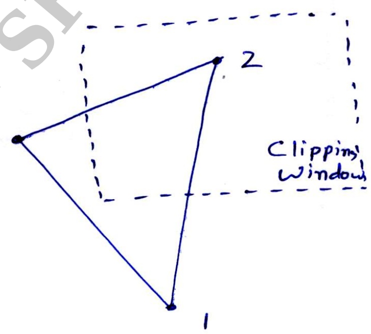

Fig. Q6(a)

b. Write an OpenGL program to rotate a cube in all directions. **(10 Marks)**

Module-4

7 a. Explain with example, Depth buffer algorithm used for visible surface detection. Discuss the advantages and disadvantages. **(10 Marks)**

b. Explain 3D viewing pipeline with neat diagram and transformation from World to viewing coordinates. **(10 Marks)**

OR

8 a. Explain Orthogonal Projection in details. **(10 Marks)**

b. Explain Perspective Projection with reference point and vanishing point with neat diagram. **(05 Marks)**

c. Explain Symmetric Perspective – Projection Frustum. **(05 Marks)**

Module-5

9 a. What are the different Logical input devices and explain with an example. **(10 Marks)**

b. Discuss the various input modes with diagram. **(05 Marks)**

c. Explain the creation of display list with an example. **(05 Marks)**

OR

10 a. List the properties of Bezier curve and also explain Beizer techniques of generating curves. **(10 Marks)**

b. Describe the various features that a good interactive program should incorporate. **(05 Marks)**

c. Explain how menus in OpenGL are created. **(05 Marks)**

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