

USN

--	--	--	--	--	--	--	--	--	--	--

10CS65

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020

Computer Graphics and Visualization

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. With a neat block diagram, explain the graphics pipeline architecture. (10 Marks)
b. Explain the concept of pinhole camera. Derive the expression for angle of view and also indicate the advantages and disadvantages. (10 Marks)
- 2 a. Write an OpenGL recursive program for 2D Sierpinski Gasket using Midpoint Method. (10 Marks)
b. Explain the major groups of graphics function with at least two OpenGL functions for each. (10 Marks)
- 3 a. Explain the various classes of logical input devices that are supported by OpenGL. Explain the functionality of each. (10 Marks)
b. What is meant by measure and trigger of a device? Explain with neat diagram the various models. (10 Marks)
- 4 a. Explain the OpenGL frames. (06 Marks)
b. Explain rotation and translation transformation with respect to 2-dimensions. (08 Marks)
c. Explain the complete procedure of converting world object frame into camera frame using model-view matrix. (06 Marks)

PART – B

- 5 a. Write an OpenGL program that allow you to rotate CUBE along x, y, z axis using button. (10 Marks)
b. Explain the basic transformations in 3D and represent them in matrix form. (10 Marks)
- 6 a. Bring out the deference between perspective and parallel projections. (08 Marks)
b. Define projection. Explain the functions used for the purpose in OpenGL:
i) Orthographic projections
ii) Perspective projections (12 Marks)
- 7 a. Describe the Phong lighting model and also indicate the advantages and disadvantages. (10 Marks)
b. Explain the different methods of shading a polygon. Discuss any two. (10 Marks)
- 8 a. Write Cohen-Sutherland line clipping algorithm. (10 Marks)
b. Write Bresenham's line drawing algorithm. (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.