BE – 178

V Semester B.E. (CSE/ISE) Examination, December 2018/January 2019
(2K11 Scheme)
CI – 55 : COMPUTER GRAPHICS

Max. Marks : 100

Time : 3 Hours

Instruction : *Answer **any five full** questions selecting atleast **two** from **each** Part.*

PART – A

1. a) How does image formation takes place in pinhole camera ? Explain this with a simple geometric model. **8**

   b) Describe the synthesis camera model for 3D API with necessary openGL functions. **6**

   c) Explain the 2D sierpinski gasket, picking an initial point at random inside the triangle. **6**

2. a) With the help of diagram explain the openGL interface. **6**

   b) Write the different openGL primitives, with examples for each primitive. **10**

   c) Differentiate additive color model from subtractive color model. **4**

3. a) Categorize the major characteristics that describe the logical behavior of an input device. Explain how openGL provides the functionality of each of the classes of each of the logical input device. **8**

   b) Differentiate event mode with request mode. **4**

   c) List out the characteristics of a good interactive program, with example for each. **8**

4. a) Discuss different frame coordinates in openGL with suitable example. **10**

   b) Write an openGL program to rotate a cube about x, y and z axes. Use mouse buttons to select axis of rotation. Use geRotatef() function. **10**

PART – B

5. a) Explain translation, rotation and scaling with respect to 3-dimensions. **8**

   b) What are the entities required to perform a rotation ? Show that two rotations about the same axis commute. **10**

   c) What are the advantages of quaternions ? **2**

P.T.O.

6. a) What is the relationship between angle of view, view volume and frustrum ? Discuss openGL functions for perspective and parallel views. 8

b) Briefly discuss the following, along with the neat diagram. 8

i) Orthographic projection

ii) Oblique projection.

c) Explain the gluLOOKAt() function. 4

7. a) Explain the following in brief. 10

i) Ambient light

ii) Point sources.

b) Briefly explain phong lighting model with suitable illumination and coefficients arrays. 10

8. a) Briefly discuss cohen sutherland line clipping algorithm with possible cases. 10

b) Write a short note on the following. 10

i) Rasterization

ii) Fragment processing.
