



USN

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

10CS65

**Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019**  
**Computer Graphics and Visualizations**

Time: 3 hrs.

Max. Marks:100

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

**PART - A**

- 1 a. Briefly explain the applications of computer graphics. (08 Marks)  
b. With a neat diagram, explain the working of CRT. (06 Marks)  
c. Describe the graphics geometric pipeline Architecture with a figure. (06 Marks)
- 2 a. List and explain different polygon types in OpenGL. (06 Marks)  
b. Explain stroke text and Raster text with suitable figures and mention how size of the text can be changed in each form of texts. (06 Marks)  
c. Explain Indexed color Model with suitable figure. (08 Marks)
- 3 a. Explain all three input modes with relevant figures. (09 Marks)  
b. Describe the importance of display lists. Explain the OpenGL functions used to define and execute a display list with a suitable example. (07 Marks)  
c. Discuss the functionality of Display Callback (glutDisplayFunc( )) and Idle Callback (glutPostRedisplay( )). (04 Marks)
- 4 a. List and explain different Frames in OpenGL. (06 Marks)  
b. Explain how to define Vertex Arrays and color Arrays to store vertex and color values. (07 Marks)  
c. Explain Affine transformations. (07 Marks)

**PART - B**

- 5 a. Describe Translation and scaling operations in homogeneous coordinate system with relevant Translation and scaling transformation matrices. (08 Marks)  
b. Write the OpenGL program modules to define a color cube and spin it around arbitrary axes using mouse buttons. (10 Marks)  
c. What are the advantages and Quaternion's? (02 Marks)
- 6 a. What is the use of set\_view\_reference\_point ( ), set\_view\_plane\_normal ( ) and glLookAt ( ) functions in setting the camera view? (06 Marks)  
b. Describe two types of simple projection methods. (12 Marks)  
c. Explain glOrtho ( ) function with syntax. (02 Marks)
- 7 a. Explain 3 types of light-material interactions with figures. (06 Marks)  
b. Describe point sources and spotlight sources with figures. (06 Marks)  
c. Describe Phong Lighting Model. (08 Marks)
- 8 a. Explain Cohen - Sutherland's line clipping algorithm. (08 Marks)  
b. Describe Bresenham's line drawing algorithm. (08 Marks)  
c. What is Hidden surface Removal? Describe scanline algorithm. (04 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.