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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belagavi)
Sixth Semester, B.E. - Computer Science and Engineering
Semester End Examination; May/June - 2018
Computer Graphics and Visualization

Time: 3 hrs   *Max. Marks: 100*

*Note: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1 a.	Explain the four major application areas of computer graphics.	6
b.	Explain the concept of pinhole camera. Derive the expression for an angle of view. Also list the advantages and disadvantages for the same.	7
c.	With a neat block diagram, describe the two main graphics architecture.	7
2 a.	Explain the two major color models with color related API's.	8
b.	Write an OpenGL measuring program for 3D Sierpinski gasket and explain : i) glutDisplayFunc( ) control function ii) glutMainLoop( ) control function	12

UNIT - II

3 a.	List and explain various frames in OpenGL.	10
b.	Explain how rotation about an arbitrary axis is achieved?	10
4 a.	Explain the bilinear interpolation method for assigning colors to the points inside a polygon.	10
b.	Explain basic geometric transformation with example.	10

UNIT - III

5 a.	Explain Hidden surface removal algorithm.	10
b.	List and explain logical input devices.	10
6 a.	List and explain the types of modes and which an application program can obtain the measure of a device.	10
b.	Explain Liang Barsky line clipping algorithm.	10

UNIT - IV

7 a.	Explain classical viewing and perspective viewing with example.	10
b.	Derive the simple perspective projection matrix.	10
8 a.	Explain the function gluLooKAT( ) with example.	10
b.	Describe perspective projections.	10

UNIT - V

9 a.	List and explain the types of light material interactions.	10
b.	Explain the basic types of light sources in computer graphics.	10
10 a.	Explain phong lighting model.	10
b.	List and explain the different polygon shading methods.	10

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