ST.ANN'S COLLEGE OF ENGINEERING & TECHNOLOGY::CHIRALA

SUBJECT: CG   YEAR & SEM: II B.TECH- I SEM

ACADEMIC YEAR: 2018-2019

ASSIGNMENT QUESTIONS

UNIT-1

1. a) Explain the working of the Sutherland - Hodgeman algorithm for polygonal clipping with the help of suitable example
b) Apply the Bresenham's algorithm to turn up pixels along the line segment determined by points (5,7) and (12,11)

2. Explain the following terms with reference to 2-D displays:
a) Viewing transformation   b) Window and viewport

3. a) Explain the Cohen-Sutherland algorithm for finding the category of a line segment. Show clearly how each category is handled by the algorithm.
b) Some of the line-generation algorithms will not draw 45o lines properly. Why? Can you suggest modifications that will correct this flow?

4. a) What are the 2D transformations? Explain them with necessary illustrations.
b) Plot the line (-4 -4) to (8, 4) using DDA.

UNIT-2

1. a) What are the advantages of 3 D graphics? Describe briefly about painter's algorithm for hidden surface removal.
b) Explain the process of generating curves and surfaces using Hermite method.

2. a) Explain basic 3D transformations?
b) Explain an algorithm for the generation of B-spline.

3. a) Explain about parallel projection and perspective projection.
b) Explain the process of generating curves and surfaces using Bezier method.

4. a) Explain the hidden surfaces and line removal methods with their relative merits.
b) Give an algorithm for the generation of Bezier curves?

UNIT-3

1. a) Discuss about basic OPENGL operations.
   b) Write notes on RGB color models.
2. a) Discuss the characteristics of key-frame animation.
   b) Write notes on HSV color models
3. a) Compare and contrast RGB and CMY color models.
   b) Explain how 3D scenes are drawn.
4. a) Explain in detail about the methods of controlling animation.
   b) Explain in detail YIQ color model.

UNIT-4

1. a) Explain the graphical languages followed to achieve animation.
b) What is the mechanism followed for tracking live action in animated scenes? Explain.

2. a) How do you create shaded objects and draw shadows? Explain.
   b) Differentiate Flat and Smooth shading.
3. Write down and explain the details to build a camera in a program.

4. Explain the following:
   a) Adding texture to faces. b) Adding shadows of objects

UNIT-5

1. Write about random fractals in detail.

2. a) Describe the Creation of images by iterated functions.
   b) Describe Mandelbrot sets.

3. Write notes on Peano curves.

4. a) Describe the Creation of images by iterated functions.
   b) Write about random fractals in detail.

UNIT-6

1. Write notes on the following:
   a) Reflections and Transparency   b) Ray Tracing

2. a) Explain the method for adding surface texture.
   b) Write short notes on applying Boolean operations on modelled objects to create new objects.

3. a) Explain in detail ray tracing method.
   b) Explain how refraction of light in a transparent object changes the view of the 3D object.

4. Write short notes on
   a) Ray tracing   b) Boolean operations on Objects