# SRINIX COLLEGE OF ENGINEERING, BALASORE



## DEPARTMENT OF
## COMPUTER SCIENCE & ENGINEERING

## ASSIGNMENT ON
## COMPUTER GRAPHICS

| | | |
|---|---|---|
| 1. | Explain Various Applications of Computer Graphics | 12M |
| 2. | Explain the Raster Scan Systems | 12M |
| 3. | Explain the following concepts | |
| | (a) Random Scan | 04M |
| | (b) Boundary Fill | 04M |
| | (c) Flood Fill | 04M |
| 4. | Explain Pixel Addressing. | 06M |
| 5. | Explain Ellipse Generating Algorithm. | 12M |
| 6. | (a) What are DDA and Explain DDA Line Drawing Algorithm? | 06M |
| | (b) Explain Bresenhams Line Drawing Algorithm. | 06M |
| 7. | (a) What Flat-Panel Displays? | 06M |
| | (b) Explain Graphics Monitors and Workstations. | 06M |
| 8. | Explain | |
| | (a) DVST | 04M |
| | (b) Data Glove | 04M |
| | (c) Image Scanners | 04M |
| | (d) Graphics Functions | 04M |
| 9. | (a) Explain Midpoint Circle Generating Algorithm. | 06M |
| | (b) Explain Midpoint Ellipse Generating Algorithm. | 06M |
| 10. | (a) Describe Output primitives briefly. | 06M |
| | (b) Explain Scan-Line Polygon Fill Algorithm | 06M |

## ASSIGNMENT-II

1. (a) What is Geometric Transformation?  02M

   (b) Explain Matrix Representations and Homogeneous Coordinates.  10M

2. (a) Explain Reflection and Shear?  06M

   (b) Describe General Pivot-Point Rotation?  06M

3. Explain Basic Transformations  12M

4. (a) What is Composite Transformations?  06M

   (b) Describe General Fixed-Point Scaling?  06M

5. (a) What is Affine Transformation? Explain.  06M

   (b) Describe General Composite Transformations and Computational Efficiency.  06M

6. (a) Explain the Transformations between Coordinate Systems  06M

   (b) Write 3D Coordinate-Axes Rotations.  06M

7. (a) Describe 3D Transformation Functions.  06M

   (b) Explain Modeling and Coordinate Transformation  .  06M

8. (a) Explain 3D Translation and Scaling  06M

   (b) Describe Rotations with Quaternions.  06M

9. Explain Raster Methods for Transformations  12M

10. Write Concatenation Properties and General Scaling Directions?  12M

## **ASSIGNMENT-III**

1. Explain Viewing Pipeline.                                          06M
2. Explain Viewing Coordinate Reference Frame                .        06M
3. (a) What is Window-to-Viewport Coordinate Transformation          05M

   (b) Explain Clipping Operations.                                  07M
4. Explain Cohen-Sutherland Line Clipping detail.                    12M
5. (a)  Explain Liang-Barsky Line Clipping.                          06M

   (b) Explain Sutherland-Hodgeman Polygon Clipping.                 06M
6. (a) Describe Two-Dimensional Viewing Functions.                   04M

   (b) Explain Projections.                                          08M
7. Explain Three Dimensional Viewing Functions.                      06M
8. (a) Describe General Parallel-Projection Transformations?         06M

   (b) Describe Spline Representation.                               06M
9. Describe B-Spline Curves and Surfaces and its Properties.         12M
10. (a) Explain Hermite Interpolation and Kochanek-Bartels Splines.  06M

    (b) Explain Bezier Curves and Surfaces.                          06M
11. Explain Cubic Spline Interpolation
12. Explain                                                          12M

   (a) Ellipsoid

   (b) Blobby Objects

   (c) Nonuniform B-Splines
13. Explain                                                          12M

   (a) Sweep Representation

   (b) Octree

   (c) Constructive Solid-Geometry Methods

## ASSIGNMENT-IV

1. (a) What is Back-Face Detection?                                                06M

   (b) Explain the benefits of Wireframe Method?                                   06M

2. (a) Explain Classification of Visible –Surface Detection Algorithms            06M

   (b) Describe Depth-Buffer Method                                               06M

3. Explain A-Buffer Method.                                                       06M

4. Explain the following

   (a) Scan-Line Method                                                           04M

   (b) Curved Surfaces                                                            04M

   (c) Surface Contour Plots                                                      04M

5. Explain the Visibility-Detection Functions                                     12M

6. (a) What is BSP-Tree Method                                                    06M

   (b) Describe Area-Subdivision Method.                                          06M

7. (a) What is Ray-Casting and explain it?                                        05M

   (b) Explain Curved Surfaces.                                                   07M

8. Explain the importance of Depth-Buffer Method                                  06M

9. (a) Explain the Difference between Depth-Buffer and A-Buffer.                  06M

   (b) Explain the importance of Surface Contour Plots.                           06M

10. Explain the Depth-Sorting Method in detail.                                   06M

## **ASSIGNMENT-V**

1.  (a)  What is Morphing? Explain briefly.                                    06M

    (b)  Explain the Simulating Acceleration.                              06M

2.  (a)  Explain the Motion Specification.                                     06M

    (b)  Describe Goal-Directed Systems.                                   06M

3.  Explain the importance of Motion Specification                            12M

4.  (a) Explain the Design of Animation Sequences.                            06M

    (b) Explain general Computer-Animation Functions.                     06M

5.  Describe Raster Animations.                                               06M

6.  Explain Key-Frame Systems.                                                06M

7.  (a) Describe Kinematics and Dynamics.                                     06M

    (b) Explain the Direct Motion Specification.                          06M