



**SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR**  
Siddharth Nagar, Narayanavanam Road – 517583

**QUESTION BANK (DESCRIPTIVE)**

**Subject with Code :** Computer Graphics (16MC821)

**Course & Branch:** MCA

**Year & Sem:** II-MCA & II-Sem

**Regulation:** R16

**UNIT –I**

**Introduction**

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|-----|--|-----|
| 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 |

**UNIT –II****2-D Geometrical transforms and 3-D Geometric transformations**

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

**UNITI-III****2-D Viewing, 3-D Viewing and 3-D Object Representation**

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|-----|---|-----|
| 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                         |     |

**UNIT-IV****Visible Surface Detection Methods**

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|-----|---|-----|
| 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 |

**UNIT-V****Computer Animation**

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|----|---|-----|
| 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 |

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