

CG Important Questions

Chapter 1 : Basics of Computer Graphics

- II → Explain beam Penetration and Shadow Mask techniques
- Explain the architecture and working of Raster Scan displays.
- ~~Explain~~ Define Aspect ratio (ii) Persistence
- Random Scan Vs Raster Scan. III
- Merits and demerits of DUST II
- Explain working Principle of Plasma Panel Display.
- How coordinate values of Selected Screen position is determined in touch Screen.
- Explain in detail working of Raster Scan display with diagram.
- II → Short note on applications of Computer Graphics.
- Define (i) Persistence (ii) Resolution (iii) Frame Buffer
- Explain CRT with Diagram.

Chapter 2 :- Graphics Primitives

(Hearn & Baker chapters 3 & 4)

||

- Write a C Program for Boundary fill algorithm (8-Connected regions). ||
- Explain the steps in midpoint circle algorithm with diagram. |||
- Explain Scan line Polygon fill algorithm. ||||
- Bresenham Numerical. ||||
- What is aliasing? Explain how it is compensated?
- Explain Non-zero Winding Number rule. |||
- Explain flood fill for 8-Connected region.
- Explain Starburst character Generation Method. ||
- Explain DDA line drawing algorithm.
- Merits and Demerits of Boundary fill
- Short note on Boundary fill for 4-Connected. ||
- Explain odd-even method for Inside-Outside test. ||

Chapter 3:- 2D Transformations

- Derive transformation Matrix for 2-D Rotation. ||
- Perform X-Shear & Y-Shear on a triangle having $A(2,2)$, ~~$B(4,3)$~~ $B(4,3)$ $C(2,3)$. Constant Value $b=c=2$.
- What is Shearing? Explain with example
- Transformation Numericals ||||
- What is Scaling transformation? Prove $S_1 S_2 = S_2 S_1$
- Explain 2×2 Transformations for (i) Rotation (ii) Scaling.
- Reflection Numerical
- What is Scaling. Scaling Numericals |||
- Shearing Numerical ||
- ~~Explain~~ Reflection.
- Derive matrix for 2D Rotation
- Justify two successive rotations are additive. ||
- Is Simultaneous Shearing same as Shearing in one direction followed by shearing in another direction? Justify.
- Translation Numerical
- Explain reflection and Shearing with example

Chapter 4 2D Viewing

- How Wren reduces the computation of unnecessary intersection point. 6 |||
- Liang Barsky Algorithm Numerical.
- Explain Cohen-Sutherland Clipping. |||
- What is window and view port? Retrieve equation for Scaling factor to map the window to view-port in 2D viewing system.
- Cyrus-Bek line Clipping Numerical.
- ~~List of data~~
- List demerits of Cohen-Sutherland.
- Explain Sutherland-Hodgeman Polygon Clipping.

Chapter 5 3D Concepts

→ This Chapter Only Contains Overview of Some Concepts.

Chapter 6 3D object representation

- What is Bezier Curve? List out its properties. **III**
- Briefly explain Parametric Cubic Curve and its applications.
- Derive equations of geometric continuities of Bezier Curve.
- Explain Hermite Curve with necessary equations. **II**
- **8**

Chapter 7 3D Geometric Modelling & transformations

- Derive 3D rotation Matrix ||
- Explain Reflection with respect to any Plane in 3D transformations
- Find the Composite Transformation Matrix for Mirror reflection of a 3D object with respect to the Plane passing through the origin and having a Normal vector whose direction is $N = I + J + K$.
- Short note on 3D translation

Chapter 8 3-D Viewing

- Parallel vs Perspective Projections. III
- What is Parallel Projection? Explain all its types.
- Briefly explain 3D Viewing Process.
- Explain Cavalier and Cabinet Projection with Example

Chapter 9 Visible Surface Detection

- Discuss two approaches used to determine hidden Surface detection? Explain any one
- Classify Visible Surface detection algorithm !!
- Explain Z buffer algorithm ~~THH~~ (6 times)
- Define Visible line and Surface detection.

Chapter 10 Illumination Models

- Define Dominant frequency, Saturation & luminance.
- Explain various light sources.
- Explain CIE diagram and its usefulness.
- Explain ambient, diffuse and specular reflection.
- Explain various light sources.
- Define ambient light and diffuse illumination.
- Discuss specular reflection and Phong model.

Chapter 11 Color models

- Explain RGB to CMY conversion and its usage
- Explain YIQ Color Model II
- Explain RGB Color Model ~~III~~
- Explain ~~YIQ~~ XYZ Color model II
- Explain CMY Color model III
- Explain HSV Color model