VALLIAMMAI ENGNIEERING COLLEGE
SRM Nagar, Kattankulathur – 603203.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Year & Semester	:	III Year, V Semester
Section	:	CSE - 1 & 2
Subject Code	:	CS6504
Subject Name	:	COMPUTER GRAPHICS
Degree & Branch	:	B.E – C.S.E.
Staff in charge(s)	:	SHANTHI.S &A.LALITHA

UNIT I INTRODUCTION
PART-A

1. Define Computer graphics.
2. What are the video display devices
3. Define refresh buffer/frame buffer.
4. What is meant by scan code?
5. List out the merits and demerits of Penetration techniques?
6. List out the merits and demerits of DVST
7. What do you mean by emissive and non-emissive displays
8. List out the merits and demerits of Plasma panel display
9. What is raster scan and Random scan systems
10. What is pixel?
11. What are the Input devices and Hard copy devices?
12. Define aspect ratio.
13. What is Output Primitive? What is point and lines in the computer graphics system?
14. What is DDA? What are the disadvantages of DDA algorithm?
15. Digitize a line from (10,12) to (15,15) on a raster screen using Bresenhams straight line Algorithm what are the various line drawing algorithms
16. What is loading a frame buffer?

17. What is meant by antialiasing?

18. What is a filled area primitive?

19. What are the various for the Filled area Primitives

20. What is pixel addressing and object addressing

PART-B

1. Explain the following Video Displays Devices (a) refresh cathode ray tube(b)raster Scan Displays (c) Random Scan Displays (d)Color SRT Monitors

2. Explain Direct View Storage Tubes(b) Flat Panel Displays (c)Liquid Crystal Displays

3. Explain Raster scan systems and Raster Scan Systems

4. Explain the Various Input Devices

5. Explain (a) Hard Copy devices(b)Graphics Software

6. Explain in detail about the Line drawing DDA scan conversion algorithm?

7. Write down and explain the midpoint circle drawing algorithm. Assume 10 cm as the radius and co-ordinate as the centre of the circle.

8. Calculate the pixel location approximating the first octant of a circle having centre at (4,5) and radius 4 units using Bresenham's algorithm

9. Explain Ellipse generating Algorithm?

10. Explain Boundary Fill Algorithm?

UNIT II Two Dimensional Graphics

PART-A

1. What is Transformation?
2. Write short notes on active and passive transformations?
3. Define Translation.
4. Define Rotation.
5. Define Scaling and what are the types of scaling
6. Write the matrix representation and Homogeneous coocrdinates
7. What is Composite transformation
8. Define Reflection.
9. Define Shear.
10. Define Window.
11. Define view port.
12. What id Window to view port coordinate transformation
13. Define Clipping.
14. What are the types of Clipping?
15. What is Polygon clipping
16. What are the Various types of Polygon clipping
17. What is the purpose of presentation graphics?
18. What is frame buffer?
19. Define Affine transformation
20. What is covering (exterior clipping)

PART-B

1. Explain the following basic two dimensional geometric transformations(i)Traslation(ii)Rotation
2. Explain the following composite transformations(i)Traslation(ii)Rotation
3. Explain in detail the Sutherland-Hodgeman clipping algorithm with an example.
4. Write about Cohen-Sutherland line clipping algorithm with an example.
5. Write short notes on clipping operations..
6. Explain in detail about two dimensional viewing

7. Write about Liang-Barsky Line clipping algorithm with an example
8. Write about NIcholl-Lee –Nicholl Line clipping algorithm
9. Expalin the following(i)Basic two dimensional scaling(ii)Composite transformation scalings
10. Explain (i) General Pivot point rotation(ii)general Fixef Point Scaling(iii)General Pivot Point Rotation

UNIT III THREE DIMENSIONAL GRAPHICS
PART-A

1. What is the various representation schemes used in three dimensional object ?
2. What is polygon surfaces ,polygon tables and polygon equations
3. Differentiate parallel projection from perspective projection.
4. What is shear transformation
5. What are spline curves and B-Spline curve
6. Define quadric surfaces.
7. What is cubic spline
8. Categorize the 3D object representations?
9. What is a B-rep?
10. What is space-partitioning representation?
11. What is Transformation? What are the steps involved in 3D transformation
12. What are the types of transformations?
13. What is projection? What are the types of projection?
14. Write the matrix for 3D z-axis rotation.
15. Write the matrix for 3D translation.
16. What is reflection?
17. What is a Blobby object
18. What is Polygon mesh?
19. What do you mean by view plane? What is view distance?
20. What are the various visible face detection methods or hidden surface elimination method

PART-B

1. With suitable examples explain all 3D transformations.
2. Differentiate parallel and perspective projections and derive their projection matrices.
3. Explain about 3D object representation.
4. Write short notes on polygon surfaces and quadric surfaces.
5. Write short notes on Bezier curve and spline.
6. Write short notes on the following visible surface detection methods.(i)Back face detection(ii)Depth –Buffer method(iii)A-Buffer method
7. Write short notes on Polygons ,curved Lines, Quadratic surfaces
8. Explain three dimensional viewing
9. Write short notes on the following hidden surface elimination methods(i)Scan line Method (ii) Painter's algorithm (iii) BSP-tree method (iv) Area subdivision method
10. Explain the three dimensional display methods

UNIT IV ILLUMINATION AND COLOT MODELS
PART-A

1. How will you convert from YIQ to RGB color model?
2. What are subtractive colors?
3. What is RGB color model? How RGB model represented?
4. How RGB is converted to CMY?
5. How CMY is converted to RGB?
6. What is HSV color model? Draw HSV hexcone.
7. What is HLS color model?
8. What is color look up table?
9. What is illumination
10. Write the Lamberts cosine law
11. What is Polygon shading
12. What are the vaious types of polygon shading
13. What is halftone pattern

14. What is dithering
15. Write the Properties of Light
16. What are the 3 components of illumination
17. What is chromaticity
18. Draw the CIE Chromaticity diagram
19. What is Trasparency
20. What are the various color models

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PART-B

1. Explain about various color models?
2. Explain in detail the CMY color model.
3. Compare and contrast between RGB and CMY color models.
4. Write notes o RGB and HSV color models.
5. What is illumination ?What are the various types of illumination
6. Write notes on halftone patterns and dithering techniques
7. Write notes on Phong illumination model
8. Explain in detail Gouraud shading
9. Write program for conversion of HSV and RGB
10. Explain in detail about the properties of light and draw chromaticity diagram

UNIT V ANIMATION AND REALISM

PART-A

1. Define computer graphics animation?
2. What is tweening
3. Define frame?
4. What is key frame
5. What is pseudo animation
6. What is the normal speed of a visual animation?
7. What are the different tricks used in computer graphics animation?
8. What is Sprite?
9. What is the UDC technique?
10. What is the use of hidden line removing algorithm?

11. What is computer graphics realism
12. How realistic pictures are created in computer graphics?
13. Define Fractals. Give examples.
14. List out some properties of fractal.
15. What are three types of self-similarity found in fractals?
16. What is Koch Curve?
17. Give the general procedure to construct Koch curve.
18. What is Ray Tracing?
19. What is the state of a turtle?
20. What is turtle graphics program?

PART-B

1. What is Animation? What are the various animation techniques?
2. What is Morphing ?Explain in detail about morphing with an example
3. What is tweening ?Explain in detail about motion tween with an example
4. Explain in detail about tiling the plain
5. What is Koch curves .Explain in detail
6. What is C-curves Explain in detail
7. What is Self squaring fractal .Explain in detail **Mandelbrot Set and Julia setin detail**
8. **What is Fractal ?Explain in detail the various fractal**
9. **What is ray tracing.Explain the setting up the geometry of Ray Tracing**
10. Write in detail about Peano curves