ஸ்ரீ-ல-ஸ்ரீ காசிவாசி சுவாமிநாத சுவாமிகள் கலைக் கல்லூரி

திருப்பனந்தாள் – 612504

S.K.S.S ARTS COLLEGE, THIRUPPANANDAL - 612504

QUESTION BANK

Title of the Paper

COMPUTER GRAPHICS

Course: III BCA

Sub.Code : 16SMBECA1:1

Semester: V

Prepared by

Mr.S.VIGNESH, MCA

Assistant Professor

Department of Computer Science

MAJOR BASED ELECTIVE I (A)

COMPUTER GRAPHICS

Unit I

Overview of Computer Graphics System: Video Display Devices – Raster Scan Systems – Random – Scan Systems - Graphics Monitors and Workstations – Input Devices –Hardcopy Devices – Graphics Software.

Unit II

Output Primitives: Line Drawing Algorithms – Loading the Frame Buffer – Line Function – Circle – Generating Algorithms. Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Grayscale levels – Area fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions.

Unit III

2D Geometric Transformations: Basic Transformation – Matrix Representations – Composite Transformations – Window to View port Co-Ordinate Transformations. Clipping: Point Clipping – Line Clipping – Cohen-Sutherland Line Clipping – Liang Barsky Line Clipping – Polygon Clipping – Sutherland – Hodgman Polygon Clipping – Curve Clipping – Text Clipping.

Unit IV

Graphical User Interfaces and Interactive Input Methods: The User Dialogue – Input of Graphical Data – Input Functions – Interactive Picture Construction Techniques. Three Dimensional Concepts: 3D-Display Methods – #Three Dimensional Graphics Packages

Unit V

3D Geometric and Modeling Transformations: Translation – Scaling – Rotation – Other Transformations. Visible Surface Detection Methods: Classification of Visible Surface Detection Algorithm – Back face Detection – Depth-Buffer Method – A-Buffer Method – Scan-Line Method – Applications of Computer Graphics.

UNIT I

CHOOSE THE CORRECT ANSWER

1. The most commonly used input device is
- **a.** Mouse
- **b.** Keyboard
- **c.** Scanner
- **d.** Printer

2. Which is the device that is constructed with the series of sensors that detects hand and finger motion?
- **a.** Digitizers
- **b.** Data glove
- **c.** Joystick
- **d.** Track ball

3. In graphical system, the array of pixels in the picture are stored in
- **a.** Memory
- **b.** Frame buffer
- **c.** Processor
- **d.** All of the mention

4. Heat supplied to the cathode by directing a current through a coil of wire is called
- **a.** Electron gun
- **b.** Electron beam
- **c.** Filament
- **d.** Anode and cathode

5. Which devices provides positional information to the graphics system ?
- **a.** Input devices
- **b.** Output devices
- **c.** Pointing devices
- **d.** Both a and c

6. Which keys allows user to enter frequently used operations in a single key stroke?
- **a.** Function keys
- **b.** Cursor control keys
- **c.** Trackball
- **d.** Control keys

7. Trackball is
- **a.** Two-dimensional positioning device
- **b.** Three- dimensional positioning device
- **c.** Pointing device
- **d.** None of the mentioned

8. The number of pixels stored in the frame buffer of a graphics system is known as
- **a.** Resolution
- **b.** Depth
- **c.** Resalution
- **d.** Only a

9. What is the disadvantage of the light pen?

a. It's shape
b. They cannot detect positions
c. Accurate reading
d. Cannot detect positions within black areas

10. The quality of a picture obtained from a device depends on
a. Dot size
b. Number of dots per inch
c. Number of lines per inch
d. All of the mentioned

Answers: 1 a , 2 d , 3 a , 4 c , 5 d , 6 a , 7 b , 8 d , 9 d , 10 d

Short Questions (2 Marks)

11. Define Computer Graphics
12. Define resolution.
13. What is Workstation?
14. What is a raster scan system?
15. What is a random scan system?
16. Write down the attributes of characters.
17. What is Graphic software?
18. What do you mean by Pixel?
19. Name any four input devices?
20. What is an Hardcopy devices?

Paragraph Questions (5 Marks)

21. Describe about Graphic software.
22. Write a notes on Image Processing.
23. Write a notes on Raster-Scan Displays.
24. Describe about Graphics Functions.
25. Explain about Data glove.
26. Write a notes on Scanners.
27. Describe about light pen
28. Write a notes on
a. Track ball b. Space ball
29. Explain about Voice systems.
30. Describe about Touch panels

Essay Questions (10 Marks)

31. Explain in detail about Computer Graphics with applications.
32. Discuss about Keyboard and Mouse in detail.
33. Write a long notes on Hard-Copy Devices.
34. Explain in detail about Raster scan system with neat diagram..
35. Write a long notes on Graphics function.
36. Discuss about Random Scan system with neat diagram.
37. Write a long notes on Resolution and pixel with examples.

38. Explain in detail about Digitizers and joysticks
39. Write a long notes on Graphics Software.
40. Discuss about Pattern Fill in detail.

UNIT II

Choose the correct answers

1. The basic attributes of a straight line segment are
- **a.** Type
- **b.** Width
- **c.** Color
- **d.** All of these

2. A dashed line could be displayed by generating_____.
- **a.** Inter dash spacing
- **b.** Very short dashes
- **c.** Botha a and b
- **d.** A or B

3. A dotted line can be displayed by generating
- **a.** Very short dashes with spacing equal to and greater than dash size
- **b.** Very long dashes with spacing equal to or greater than dash size
- **c.** Very short dashes with spacing equal to and greater than dash size
- **d.** Dots

4. Which of the following is not a line-type?
- **a.** Dashed line
- **b.** Dark line
- **c.** Dotted line
- **d.** Only b

5. In an application program, to set line-type attributes the following statement is used.
- **a.** SetLinetype(lt)
- **b.** setLinetype(lt)
- **c.** SETLINETYPE(lt)
- **d.** SETLINE()

6. Which of the following is the basic attribute of a character?
- **a.** Font
- **b.** Size and color
- **c.** Orientation
- **d.** All of the mentioned

7. Attribute can be set for
- **a.** Entire character strings
- **b.** Individual characters defined as marker symbol
- **c.** Neither a nor b
- **d.** Both a and b

8. A particular font and associated styles can be set using the function
- **a.** setTextfont (tf)
- **b.** setfont (tf)
- **c.** setFont (tf)

d. setTextFont()

9. When a character string is to be displayed, the which color is used to set the pixel value in frame buffer?
- **a.** White color
- **b.** Current color
- **c.** Black color
- **d.** Any color

10. The Character size is specified by
- **a.** Printers
- **b.** Compositors
- **c.** Frame buffer
- **d.** Both a and b

Answers 1d , 2a , 3c , 4d , 5b , 6d , 7d , 8a , 9b , 10d

Short Questions (2 Marks)

11. Write down the attributes of characters.
12. What is antialiasing?
13. What do you mean by emissive and non-emissive displays?
14. What do you mean by scan conversion?
15. What is an output primitives
16. What is horizontal and vertical retrace?
17. Why feedback are need?
18. What is pick devices?
19. Define event input mode.
20. Define virtual reality.

Paragraph questions (5 Marks)

21. Explain about Line-Drawing Algorithms.
22. Write a notes on DDA Algorithm
23. Describe about Ellipse-Generating Algorithms
24. Write a notes on
   a. Character Attributes
   b. Text Attributes
25. Explain about
   a. Input Modes
   b. Request Mode
26. Explain about Curve Functions
27. Describe about Grayscale
28. Describe about Painting and Drawing
29. Describe about Area fill Attributes.
30. Describe about Paint and brush options.

Essay Questions (10 Marks)

31. Explain in detail about Points and Lines.
32. Write a long notes on Line Function.
33. Discuss about Bresenham's Line Algorithm.

34. Write a long note on Character, Marker and Text attributes
35. Explain in detail about Curve Attributes.
36. Write a long notes on Graphics Software.
37. Discuss about Pattern Fill in detail.
38. Describe about Color and Grayscale Levels
39. Explain about Bundled Attributes
40. Explain about Antialiasing.

UNIT III

Choose the correct answer

1. A translation is applied to an object by
- **a.** Repositioning it along with straight line path
- **b.** Repositioning it along with circular path
- **c.** Only b
- **d.** All of the mentioned

2. We translate a two-dimensional point by adding
- **a.** Translation distances
- **b.** Translation difference
- **c.** X and Y
- **d.** Only a

3. _____ is a rigid body transformation that moves objects without deformation.
- **a.** Rotation
- **b.** Scaling
- **c.** Translation
- **d.** All of the mentioned

4. To generate a rotation , we must specify
- **a.** Rotation angle Ɵ
- **b.** Distances dx and dy
- **c.** Rotation distance
- **d.** All of the mentioned

5. The rotation axis that is perpendicular to the xy plane and passes through the pivot point is known as
- **a.** Rotation
- **b.** Translation
- **c.** Scaling
- **d.** Shearing

6. The matrix representation for translation in homogeneous coordinates is
- **a.** P'=T+P
- **b.** P'=S*P
- **c.** P'=R*P
- **d.** P'=T*P

7.For 2D transformation the value of third coordinate i.e. w=?
- **a.** 1
- **b.** 0

c. -1
d. Any value

8. Two successive translations are_____
a. Multiplicative
b. Inverse
c. Subtractive
d. Additive

9. A view is selected by specifying a sub-area of the _____ picture area.
a. Half
b. Total
c. Full
d. quarter

10. Liang–Barsky algorithm is a _____ clipping algorithm.
a. Circle
b. Text
c. Line
d. pixel

Answers: 1 a , 2 d , 3 c , 4 a , 5 a , 6 d , 7 a , 8 d , 9 b , 10 c

Short Answers (2 Marks)

11. What is Transformation?
12. What is Scaling?
13. What is reflection?
14. Distinguish between window port & view port.
15. List out the various Text clipping.
16. What is fixed point scaling?
17. Define Affine transformation?
18. Define Concatenation Properties.
19. What is the use of clipping?
20. Define pivot point.

Paragraph Questions (5 Marks)

21. Describe about General Pivot-Point Rotation
22. Write a short notes on Basic Transformations of Translation
23. Describe about Basic Transformations of Rotation and Scaling
24. State about General Fixed-Point Scaling
25. Describe about Transformations Between Coordinate Systems
26. State about Composite Transformations of Rotations and Scalings
27. Explain about General Pivot-Point Rotation
28. Describe about General Composite Transformations
29. Explain about Line Clipping Using Non rectangular
30. Describe about Affine Transformation.

Essay Questions (10 Marks)

31. Explain about Basic Transformations
32. Describe in detail about Matrix Representations and Homogeneous Coordinates
33. Explain about Composite Transformations
34. Describe in detail about Other Transformations
35. Write a detailed notes on Raster Methods for Transformations
36. Explain about Transformations Between Coordinate References Systems
37. Describe in detail about Reflection with algorithm.
38. Write a detailed notes on Shear with algorithm.
39. Explain about Scalings with notations.
40. Write a detailed notes on applications of 2D graphics.

UNIT IV

Choose the correct answer

1. GUI stands for
- **a.** Graphics user interaction
- **b.** Graphical user interface
- **c.** Graphics usual interface
- **d.** None of these

2. The visual language includes _____ for representing visual sentences.
- **a.** Visual language
- **b.** Icons
- **c.** Both a & b
- **d.** None of these

3. First graphical user interface used commercially was introduced in
- **a.** 1970
- **b.** 1975
- **c.** 1978
- **d.** 1980

4. What is/are the main component / components of user interface ?
- **a.** Presentation language
- **b.** Action language
- **c.** Both a and b
- **d.** Only a

5. Which type of user interface provide input by typing a string in the keyboard ?
- **a.** Graphical user interface
- **b.** Command line user interface
- **c.** Natural language interface
- **d.** Menu interface

6. Which one is the basic input device in GUI
- **a.** Mouse
- **b.** Graphics tablet

c. Voice system
d. Touch panel

7. What provide an good interaction visually
a. Graphical user interface
b. Graphical user interaction
c. Graphics uniform interaction
d. None of the above

8. All GUI has the following one component
a. Mouse
b. Button
c. Monitor
d. Frame

9. Plasma panel have_____ resolution.
a. High
b. Good
c. Both a & b
d. Low

10. Plasma device converts
a. Electrical energy into light
b. Light into electrical energy
c. Light into graphical energy
d. None of these

ANSWERS 1d , 2c , 3b , 4a , 5a , 6a , 7a , 8b , 9c , 10a

Short Questions (2 marks)

11. Define Windows and icons.
12. What is Grid?
13. What is Octrees?
14. Define BSP trees.
15. Define virtual reality.
16. What is Homers rule?
17. State Basic structures function
18. How do you set basic structure attribute?
19. Define Superellipse
20. Define labeling a structure.

Paragraph Question (5 Marks)

21. Describe about Depth Cueing.
22. Write about Symbol Hierarchies
23. Give short notes on Surface Rendering
24. Write about Polygon Meshes
25. Explain about
a. Event Modes

b. Sample Modes

26. Describe about Skill Levels and Consistency
27. Give short notes on Uniform, Periodic B-Splines.
28. Describe about Painting and Drawing
29. Describe about Beta-Splines
30. Describe about Virtual-Reality Environments.

Essay Questions (10 Marks)

31. Write notes on lnput Functions
32. Explain about
a.String Input in Request Mode
b.Valuator Input in Request Mode
c.Choice lnput in Request Mode
33. Describe about lnteractive Picture-Construction Techniques
34. Explain about The User Dialogue
35. Explain about Concurrent Use of Input Modes and devices with Initial Values Parameters.
36. Explain about Logical Classification of Input Devices
37. Write detailed notes on Basic Modeling Concepts
38. Writedetailed notes on Structure Hierarchies
39. Explain about Hierarchical Modeling with Structures
40. Writedetailed notes on lnput of Graphical Data

UNIT V

Choose the correct answers

1. Types of models which is commonly used are _____
a. Simple model
b. Composite model
c. Isometric model
d. Solid model

2. The wire frame entities are _____
a. Plane surface
b. Ruled surface
c. Tabulated surface
d. Polygons

3. The basic surface modeling entities are _____
a. Polygons
b. Circle
c. Surface of revolution
d. Chamfers

4. If we multiply any matrix with___matrix then we get the original matrix A___.
a. Scaling matrix
b. Translation matrix
c. Identity matrix
d. Opposite matrix

5. A_____is a transformation that produces a mirror image of an object.
a. Scaling
b. Translation

c. Reflection
a. Both B & C

6. _____ animation is used to animate things that are smaller than life size.
a. Immersive
b. Claymotion
c. Stop motion
d. Augmented

7. Which image files are a lossy format?
a. GIF
b. MPEG
c. JPEG
d. PNG

8. Which one of the following is the characteristic of a multimedia system?
a. high storage
b. high data rates
c. both high storage and high data rates
d. None of the above

9. _____ refers to any type of application or presentation that involves more than one type of media, such as text, graphics, video, animation, and sound.
a. An executable file
b. Desktop publishing
c. Multimedia
d. Hypertext

10. A smaller version of an image is called a
a. Clipart
b. Bitmap
c. Portable Network Graphic
d. Thumbnail

ANSWERS 1a , 2c , 3b , 4b , 5b , 6c , 7c , 8c , 9d , 10c

Short Answer (2 Marks)

11. What is Raster Animations?
12. What is Morphing?
13. What is Tweening?
14. What is Key frames?
15. What is JPEG?
16. What are the ways to perform image annotation?
17. State Polygon mesh?
18. Define B-Spline curve.
19. What is the use of control points?
20. What are the different ways of specifying spline curve?

Paragraph Question (5 Marks)

21. Explain about JPEG compression
22. Give a detailed summary of MIDI
23. Show how scanners are used for image enhancements
24. Explain about Concurrent Use of Input Modes
25. What are the types of compression available in multimedia?
26. Explain about
    a. Parallel Projection
    b. Perspective Projection
27. Distinguish between Superquadrics and Quadrics.
28. Describe the Bezier Curves properties
29. Explain about Dragging
30. Explain about Valuator Input in Request Mode

Essay Questions (10 Marks)

31. Explain about Constraints and Grids.
32. Explain about Composite Transformations
33. Describe about General Three-Dimensional Rotations
34. Write notes on Geometric Construction of Deterministic Self-Similar Fractals
35. Describe about Random Midpoint-Displacement Methods
36. Write long note about Three-Dimensional Display Methods
37. Describe in detail about Three-Dimensional Graphics Packages
38. Explain about Cardinal Splines
39. Explain in detail about Initial Values for Input-Device Parameter
40. Describe in detail about Constructive Solid-Geometry Methods