

**ISLAMIAH COLLEGE [AUTONOMOUS], VANIYAMBADI
END SEMESTER EXAMINATIONS, NOVEMBER 2016**

Time : 3 Hrs

Max Marks : 75

Subject: Computer Graphics

Sub. Code: U3CSE602 / U3BCE602

**PART – A (10 X 2 = 20)
Answer ALL the Questions**

1. What are the input devices?
2. Explain Bresenham's line drawing algorithm?
3. What is translation?
4. What is reflection?
5. Explain viewing transformation?
6. What are the Input models?
7. Explain viewing pipeline?
8. What is projection window?
9. What is object space method?
10. What is depth buffer method?

**PART – B (5 X 5 = 25)
Answer ALL the Questions**

11. (a) Explain about random scan system?

(OR)

- (b) Explain about line drawing algorithms?

12. (a) Explain Inquiry functions?

(OR)

- (b) Explain about line attributes?

13. (a) Explain about text clipping?

(OR)

- (b) Explain about classification of input devices?

14. (a) Explain scaling?

(OR)

- (b) Explain clipping?

15. (a) Explain about buffer method?

(OR)

- (b) Explain about octree method?

**PART – C (3 X 10 = 30)
Answer any THREE Questions**

16. Explain about Video display service?
 17. Explain Color & Gray scale level?
 18. Explain about Clipping operations?
 19. Explain about projections?
 20. Explain ray casting and BSP tree method?
-

**ISLAMIAH COLLEGE [AUTONOMOUS], VANIYAMBADI
END SEMESTER EXAMINATIONS, NOVEMBER 2016**

Time : 3 Hrs

Max Marks : 75

Subject: Computer Graphics

Sub. Code: U3CSE602 / U3BCE602

PART – A (10 X 2 = 20)
Answer ALL the Questions

1. What are the input devices?
2. Explain Bresenham's line drawing algorithm?
3. What is translation?
4. What is reflection?
5. Explain viewing transformation?
6. What are the Input models?
7. Explain viewing pipeline?
8. What is projection window?
9. What is object space method?
10. What is depth buffer method?

PART – B (5 X 5 = 25)
Answer ALL the Questions

11. (a) Explain about random scan system?

(OR)

- (b) Explain about line drawing algorithms?

12. (a) Explain Inquiry functions?

(OR)

- (b) Explain about line attributes?

13. (a) Explain about text clipping?

(OR)

- (b) Explain about classification of input devices?

14. (a) Explain scaling?

(OR)

- (b) Explain clipping?

15. (a) Explain about buffer method?

(OR)

- (b) Explain about octree method?

PART – C (3 X 10 = 30)
Answer any THREE Questions

16. Explain about Video display service?
17. Explain Color & Gray scale level?
18. Explain about Clipping operations?
19. Explain about projections?
20. Explain ray casting and BSP tree method?

ISLAMIAH COLLEGE [AUTONOMOUS], VANIYAMBADI	
END SEMESTER EXAMINATIONS – APRIL / MAY 2017	
Time : 3 Hrs	Max. Marks: 75
Subject: Computer Graphics	Sub. Code: U3CSE602 / U3BCE602

PART - A (10 X 2 = 20)
Answer ALL Questions

1. Write short notes on video controller?
2. What is vertical retrace of the electron beam?
3. Write down the attributes of characters?
4. Write a note on gray scale?
5. What are the various polygon clipping algorithms?
6. Define window to viewport coordinate transformation.
7. List out interactive picture construction techniques.
8. Write on curve clipping?
9. Differentiate image and object space methods of hidden surface removal.
10. What are the disadvantages of 2-Buffer method?

PART - B (5 X 5 = 25)
Answer ALL Questions

18. Explain Liang Barsky line clipping techniques.
19. Derive transformation matrix for parallel and perspective projections.
20. Compare the technique of back-face and depth buffer technique of hidden line removal.

11. (a) Explain the incremental method of line drawing with suitable examples.

(OR)

- (b) Explain the structure of the CRT with suitable illustrations..

12. (a) What do you mean by inquiry functions? Explain..

(OR)

- (b) Write a C++ program to implement reflection in a triangle about different axis.

13. (a) Describe the functioning of the Sutherland Hodgeman technique of polygon clipping.

(OR)

- (b) Write a C++ procedure to implement the Cohen Sutherland technique of clipping lines.

14. (a) Explain about 3D object representations.

(OR)

- (b) Write notes on 3D viewing parameters.

15. (a) Write notes on Ray tracing.

(OR)

- (b) What is Octree? Explain in detail.

PART - C (3 X 10 = 30)

Answer any THREE Questions

16. Write an algorithm to implement the DDA line algorithm with suitable explanation and trace the algorithm to draw a line from (10,10) to (30,20).
17. Show that the application of successive translation, scaling and rotation operations on an object is addition, multiplication and addition respectively.

ISLAMIAH COLLEGE [AUTONOMOUS] - VANIYAMBADI
ARREAR EXAMINATIONS – OCTOBER - 2018

Time: 3 Hrs

Max. 75 Marks

Subject: Computer Graphics and Multimedia

Subject Code: U5CS6001

PART-A (10 X 2 = 20)
Answer ALL Questions

1. What are the different forms of line equation?
2. List out the interactive picture construction methods used
3. List the steps for general pivot point rotation.
4. What is viewing transformation? What is difference between window and viewport?
5. Write translation and scaling 3D transformation matrices.
6. What is viewplane and view distance?
7. What is the drawback of depth z-buffer method?
8. List the data which is contained in linked list of A-buffer?
9. What is Sound- Explain the characteristics of Sound.
10. What is trimming in digital audio?

PART-B (5 X 5 = 25)
Answer ALL Questions

11. a. What is computer graphics? Indicate five practical applications of computer graphics.

OR

- b. Digitize a line between (20, 10) and (35, 18) using Bresenham line generation algorithm

12. a. Derive a transformation matrix for scaling about general pivot point.

OR

- b. Define the condition in Liang Barsky line clipping algorithm for a line to be completely outside left, right, bottom, top window boundary.

13. a. Elaborate three dimensional geometric transformations.

OR

- b. Explain the terms: Projection plane, View plane, Coordinates and View volume with reference to 3D graphics. State and explain the anomalies of perspective projection.

14. a. Explain area subdivision method of visible surface identification.

OR

- b. Explain Depth sorting method.

15. a. Discuss the general principles of sound and how it can be used in a multimedia project?

OR

- b. Discuss in detail about MIDI music file recording and editing.

PART-C (3 X 10 = 30)
Answer any THREE Questions

16. Discuss in brief different interactive picture construction techniques.
17. Show that transformation matrix for a reflection about the line $y = x$, is equivalent to a reflection relative to the x axis followed by a counterclockwise rotation of 90 degree.
18. Prove that the multiplication of three dimensional transformation matrices for each of the following sequence of operations is commutative:
 - (a) Any two successive translations.
 - (b) Any two successive scaling operations.
 - (c) Any two successive rotations about any one of the coordinate axes.
19. Explain how would you test a given plane surface against a rectangular area to decide whether it is a surrounding, overlapping, inside, or outside surface.
20. Discuss the audio file formats used in multimedia projects and how

ISLAMIAH COLLEGE [AUTONOMOUS] - VANIYAMBADI
ARREAR EXAMINATIONS – OCTOBER - 2018

Time: 3 Hrs

Max. 75 Marks

Subject: Computer Graphics and Multimedia

Subject Code: U5CC6001 / U5BC6001

PART-A (10 X 2 = 20)

Answer ALL Questions

1. What is random scan system, raster scan system?
2. Define pixel and frame buffer?
3. Define clipping? What are its types?
4. List the steps for general pivot point scaling.
5. Write on reflection transformation in 3D.
6. What is the physical significance of the vanishing point?
7. Give the difference between object and image space methods.
8. What is Binary Space Partition tree method?
9. Differentiate between 2D and 3D graphics.
10. What is masking in digital image?

PART-B (5 X 5 = 25)

Answer ALL Questions

11. a. Discuss how world to screen coordinate mapping happens? **OR**
b. Explain DDA line algorithm. How DDA differs from Bresenham's line algorithm?
12. a. Explain how curves and text are clipped against window boundary. **OR**
b. Define the condition in Cohen Sutherland line clipping algorithm for a line to be completely outside and completely inside window

boundary.

13. a. Write the 3D transformation matrices for translation, scaling, rotation, x-axis rotation, y-Axis rotation. **OR**
b. Define: (i) modeling coordinates (ii) world coordinates (iii) view port (iv) normalized device coordinates
14. a. Explain BSP tree method of visible surface identification **OR**
b. Discuss about two functions of depth sorting method?
15. a. List at least three factors that affect the legibility of text? **OR**
b. What is the difference between system dependent formats and system independent formats?

PART-C (3 X 10 = 30)

Answer any THREE Questions

16. It is desired that the circle with centre at the origin and radius 8 in the first quadrant is to be drawn. Using Bresenham circle generation algorithm determine the pixels which would approximate the desired portion of the circle.
17. In 2D graphics the following transformation matrix would reflect a point about the diagonal line passing through the origin and (10,10)
18. Derive the necessary transformation matrix in 3D using homogeneous coordinate system to scale by a factor s w.r.t. the origin along a line making equal angles with all three axes.
19. Implement a back-face detection algorithm using an orthographic parallel projection to view visible faces of a convex polyhedron. Assume that all parts of the object are in front of the view plane, and provide a mapping onto a screen viewport for display.

20. Write short notes on MP3 audio technology.

ISLAMIAH COLLEGE [AUTONOMOUS], VANIYAMBADI
END SEMESTER EXAMINATIONS – MARCH - 2018

Time: 3 Hrs

Max. 75 Marks

Subject: Computer Graphics Sub. Code: U3CSE602 / U3BCE602

PART-A (10 X 2 = 20)
Answer ALL Questions

1. Write any two graphics softwares.
2. What is a frame buffer?
3. List out the limitations of DDA line algorithm.
4. What is a geometric transformation?
5. What is mean by clipping?
6. Mention the conditions for point clipping.
7. Define exterior clipping
8. How does parallel projection differ from Perspective Projection?
9. Define Backface detection method.
10. How does an image space method for hidden surface removal differ from object space method

PART-B (5 X 5 = 25)
Answer ALL Questions

11. (a) Explain with a neat diagram the working of Random Scan system.
(Or)
(b) Brief explain the DDA algorithm for line generation
12. (a) Write notes to the following: i) Translation ii) Shear
(Or)

(b) Derive the transformation matrix for rotation about an arbitrary point in 2D

13. (a) Describe an expression for window to viewport coordinate transformation
(Or)
(b) Briefly explain Sutherland Hodgeman Polygon clipping algorithm.
14. (a) Explain 3D viewing pipeline
(Or)
(b) Derive the geometric transformation matrices for 3D
15. (a) Write on Backface detection method for hidden surface removal
(Or)
(b) Describe octree methods in details.

PART-C (3 X 10 = 30)
Answer any THREE Questions

16. Explain in detail Bresenham line generation technique to draw a circle and hence draw a circle of radius 10 about origin
17. Enumerate the following: i) Line attributes ii) Area fill attributes
18. Explain Cohen Sutherland line clipping algorithm
19. Describe in detail about Translation, Rotation, Scaling in 3D Transformation.
20. Discuss the Z-buffer algorithm for hidden surface identification

ISLAMIAH COLLEGE [AUTONOMOUS], VANIYAMBADI
ARREAR EXAMINATIONS, OCTOBER - 2018

Time: 3 Hrs

Max Marks: 75

Subject: Computer Graphics Sub. Code: U3CSE602 / U3BCE602

PART – A (10 X 2 = 20)

Answer ALL Questions

1. Write short notes on video controller?
2. What is vertical retrace of the electron beam?
3. Write down the attributes of characters?
4. Write a note on gray scale?
5. What are the various polygon clipping algorithms?
6. Define window to viewport coordinate transformation.
7. Explain viewing pipeline?
8. What is projection window?
9. What is object space method?
10. What is depth buffer method?

PART – B (5 X 5 = 25)

Answer ALL Questions

11. (a) Explain the structure of the CRT with suitable illustrations.

(Or)

- (b) Explain about line drawing algorithms?

12. (a) Explain Inquiry functions?

(Or)

- (b) Explain about line attributes?

13. (a) Explain about text clipping?

(Or)

- (b) Explain about classification of input devices?

14. (a) Explain scaling?

(Or)

- (b) Explain about 3D object representations.

15. (a) Explain about buffer method?

(Or)

- (b) Explain about octree method?

PART – C (3 X 10 = 30)

Answer any THREE Questions

16. Explain about Video display service?

17. Explain Color & Gray scale level?

18. Explain Liang Barsky line clipping techniques.

19. Derive transformation matrix for parallel and perspective projections.

ISLAMIAH COLLEGE [AUTONOMOUS] - VANIYAMBADI
END SEMESTER EXAMINATIONS, APRIL-2019

U5CC6001: Computer Graphics and Multimedia

TIME: 3 Hrs

MAX. 75 MARKS

Class: III B.Sc (CS) & III B.C.A

Semester VI

PART-A (10 X 2 = 20 MARKS)

Answer ALL Questions

1. Describe operating characteristics of raster system & vector system.
2. How is color depth and resolution of an image related to the video memory requirement?
3. Define window and viewport.
4. Draw a window with all its four bit binary coding as in Cohen Sutherland line clipping algorithm.
5. Write translation and scaling 3D transformation matrices.
6. What is oblique projection? Give some examples of oblique projection.
7. What are the classifications of hidden surface removal algorithms? List few of its applications.
8. What is depth buffer method?
9. State the importance of animation in multimedia.
10. Discuss any two pros and cons of morph animations.

PART-B (5 X 5 = 25 MARKS)

Answer ALL Questions

11. (a). Compare the advantages and disadvantages of the Bresenham's line drawing algorithm with those of the DDA algorithm.
(Or)
(b). Discuss how world to screen coordinate mapping happens.

12. (a) Show that a pair of parallel straight lines remain parallel even after transformation by the general 2×2 transformation matrix.
(Or)
(b) Discuss all reflection transformation and hence find reflection of point (3, 4) about x-axis, y-axis, origin, $x=y$ line, $y = -x$ line.
13. (a) Define: (i) modeling coordinates (ii) world coordinates (iii) viewport (iv) normalised device coordinates
(Or)
(b) Briefly explain all the viewing parameters while displaying a 3D object on a 2D screen.
14. (a) Explain scan line method of visible surface identification.
(Or)
(b). Discuss about edge table and polygon table used in scan line method?
15. (a) Explain the digital to analog conversion process in detail.
(Or)
(b) How to create 3D titles? Explain the technology that enabled in multimedia.

PART-C (3 X 10 = 30 MARKS)

Answer any THREE Questions

16. When 8-way symmetry is used to obtain a full circle from pixel coordinates generated for the 0° to 45° octant some pixels are set or plotted twice. This phenomenon is sometimes referred to as overstrike. Identify where overstrike occurs.
17. Give the explicit form of the 3×3 matrix representing the transformation: Scaling by a factor of 2 in the X direction and then rotation about (2, 1).

18. A cube with sides of length 2 is placed so that a corner lies on the origin and three mutually perpendicular edges from this corner lie on the three positive coordinate axes. Now do the following:
(i). Translate the cube along the XY plane so that the cube face is centred on the origin.
(ii). Perform three-point perspective projection on the translated cube on the $z=0$ plane with centres of projections $x=-10$, $y=-10$ and $z=10$ on the respective coordinate axes. Draw the projected cube.
19. Describe the Back-Face Detection Method. This method is very useful in the visible-surface detection process, why? What else should be handled after Back-Face Detection, in order to conclude the set of all visible-surfaces?
20. Explain MIDI versus Digital audio and also write the advantages and

**ISLAMIAH COLLEGE [AUTONOMOUS], VANIYAMBADI
END SEMESTER EXAMINATIONS, MAY -2019**

Time: 3 Hrs

Max Marks: 75

Subject: Computer Graphics Sub Code: U3CSE602/U3BCE602

**PART-A (10 X 2 = 20)
Answer ALL Questions**

1. Define VDD.
2. What is a frame buffer?
3. List out the limitations of DDA line algorithm.
4. What is a Geometric Transformation?
5. What is mean by Clipping?
6. Mention the Conditions for Text Clipping?
7. Define Exterior Clipping.
8. Distinguish Image space method with surface Removal.
9. Define Buffer method.
10. Write the use of scan line method.

**PART-B (5 X 5 = 25)
Answer ALL Questions**

11. (a) Explain with a neat diagram the working of Random Scan System.
(OR)
(b) Write short notes on The DDA algorithm for line generation
12. (a) Write short notes to the following (i) Translation (ii) Shear
(OR)
(b) Derive the transformation matrix for rotation about an arbitrary point in 2D.

13. (a) Describe an expression for window to viewport coordinate transformation.

(OR)

- (b) Briefly explain Sutherland Hodgeman polygon Clipping algorithm.

14. (a) Write short notes on 3D Viewing pipeline.

(OR)

- (b) Briefly explain the Geometric transformation matrices for 3D.

15. (a) Write short notes on Back face detection method for Hidden surface removal.

(OR)

- (b) Describe Octree methods in detail.

**PART-C (3 X 10 = 30)
Answer any THREE Questions**

16. Discusses in detail Bresenham line generation technique to draw a circle and hence draw a circle of radius 10 about origin.
17. Enumerate the following: (i) Line attributes (ii) Area fill attributes.
18. Explain Cohen Sutherland line clipping algorithm.
19. Discusses in detail Translation, Rotation, Scaling in 3D transformation
20. Explain the Z-buffer algorithm for hidden surface identification.

**ISLAMIAH COLLEGE [AUTONOMOUS], VANIYAMBADI
END SEMESTER EXAMINATIONS, DECEMBER - 2020**

Time: 3 Hrs

Max Marks: 75

Subject: Computer Graphics

Sub. Code: U3BCE602

PART-A (10 X 2 = 20)

Answer ALL Questions

1. Define VDD.
2. What is interlaced refresh?
3. List out the limitations of DDA line algorithm.
4. Write a note on gray scale?
5. What is mean by Clipping?
6. Mention the Conditions for Text Clipping?
7. Define Exterior Clipping.
8. What are spline curves?
9. Define Buffer method.
10. Write the use of scan line method.

PART-B (5 X 5 = 25)

Answer ALL Questions

11. (a) Explain with a neat diagram the working of Random Scan System.
(OR)
(b) Write short notes on The DDA algorithm for line generation
12. (a) Write short notes to the following (i) Translation (ii) Shear
(OR)
(b) What do you mean by inquiry functions? Explain.

13. (a) Explain Two-dimensional Pivot-Point Rotation.

(OR)

- (b) Explain Sutherland Hodgeman polygon Clipping algorithm.

14. (a) Write short notes on 3D Viewing pipeline.

(OR)

- (b) Explain 3D object representations.

15. (a) Explain BSP Tree method in detail.

(OR)

- (b) Describe Octree methods in detail.

PART-C (3 X 10 = 30)

Answer any THREE Questions

16. Demonstrate Midpoint Circle generating Algorithm with example.
17. Enumerate the following: (i) Line attributes (ii) Area fill attributes.
18. Explain Liang Basky line clipping techniques.
19. Explain all 3D transformations with suitable examples.
20. Explain the Z-buffer algorithm for hidden surface identification.

ISLAMIAH COLLEGE (AUTONOMOUS), VANIYAMBADI
END SEMESTER EXAMINATIONS, DECEMBER – 2020
Time: 3 Hrs. Max. Marks: 75
Subject: Computer Graphics Sub. Code: U0CSE502

PART - A [10 x 2 = 20]
Answer ALL the Questions

1. What is meant by frame buffer?
2. Mention the purpose of graphics controller.
3. List out basic geometric transformation.
4. Define Window & View port.
5. What is Point clipping?
6. Define Exterior clipping.
7. What are the types of Projections?
8. What is meant by frame buffer?
9. What are types of Projections?
10. What is depth buffer method?

PART – B (5 X 5 =25)
Answer ALL the Questions

11. a) What are output primitives? Describe any one of them.
(Or)
b) Write short notes on Direct View Storage Tubes.
12. a) Write a note on Geometric Transformation.
(Or)
b) State the logical classification of input devices.
13. a) Write short notes on Polygon clipping.
(Or)
b) Explain Text Clipping.

14. a) Discuss 3 – Dimensional translation.
(Or)
b) Write about 3 – Dimensional shear transformation.
15. a) Give a brief account on Back – Face detection.
(Or)
b) Explain BSP – tree method.

PART – C (3 X10 = 30)
Answer any THREE Questions

16. Explain Bresenham's line drawing algorithm.
 17. State interactive picture construction techniques.
 18. Discuss Cohen – Sutherland line clipping algorithm.
 19. Describe any one basic projection methods in 3D.
 20. Explain in detail depth buffer method.
-

ISLAMIAH COLLEGE [AUTONOMOUS], VANIYAMBADI
END SEMESTER EXAMINATIONS – MAY - 2020

Time: 3 Hrs

Max. Marks: 75

Subject: Computer Graphics & Multimedia

Subject Code: U5CS6001 / U5BC6001 / U5CC6001

PART - A (10 X 2 = 20)

Answer ALL the Questions

1. What are the properties of Circle?
2. Define Random Scan system.
3. Define Clipping operation.
4. What is fixed point scaling?
5. Define Parallel projection and Perspective projection.
6. Define 3D scaling.
7. Define Octree Method.
8. What are the classification of Visible Surface Detection Algorithm?
9. Define Multimedia.
10. What are the file formats that used to read images?

PART - B (5 X 5 = 25)

Answer ALL the Questions

11. (a) Give note on Video Display devices.
(Or)
(b) Explain logical classification of Input.
12. (a) Write about General Pivot point rotation.
(Or)
(b) Write note on Clipping Operation.
13. (a) Explain Viewing Pipeline.
(Or)
(b) Explain 3D scaling.

14. (a) Give short note on Back-face detection.
(Or)
(b) Write in detail about Area-subdivision method.
15. (a) Explain MIDI Concept in detail.
(Or)
(b) Explain 2D animation with a diagram.

PART - C (3 X 10 = 30)

Answer any THREE Questions

16. Explain Bresenham Circle generating Algorithm.
17. Give detail note on Window to Viewport Coordinate Transformation.
18. Explain Coordinate-axes Rotations.
19. Explain in detail about BSP-Tree Method.
20. Explain Digital Video fundamentals.

Due to COVID-19 Pandemic
Sanitize Your Hands
Wear Face Mask
Follow Social Distancing Norms

ISLAMIAH COLLEGE [AUTONOMOUS], VANIYAMBADI
END SEMESTER EXAMINATIONS, JUNE - 2022

Time: 3 Hrs

Max. Marks: 75

Subject: Computer Graphics and Multimedia

Subject Code: U8CC6001

PART - A (10 X 2 = 20)
Answer ALL the Questions

1. What are the disadvantages of DDA line drawing algorithm?
2. What are the advantages of Bresenham line drawing algorithm?
3. Outline viewing pipeline
4. What do you mean by clipping?
5. Show the 3D viewing pipeline
6. What is parallel projection?
7. List the classifications of visible surface detection algorithm.
8. What are the various hidden surface elimination method
9. What is animation?
10. List any four data elements of Multi Media.

PART - B (5 X 5 = 25)
Answer ALL the Questions

11. (a) Demonstrate Raster Scan Displays.
(Or)
(b) Give idea of a Random Scan Systems.
12. (a) Explain Cohen-Sutherland line clipping with example. .
(Or)
(b) Give composite transformation for translation and rotation.
13. (a) Interpret on projections on 3D Viewing.
(Or)
(b) Differentiate: Parallel and perspective projections.

14. (a) Explain the back face detection method.

(Or)

- (b) Explain the area subdivision method.

15. (a) Analyze the various types of image processing software available in business.

(Or)

- (b) Explain multimedia file formats.

PART - C (3 X 10 = 30)
Answer any THREE Questions

16. How DDA algorithm works well in computer graphics with suitable example.
17. Analyze the window to viewport coordinate transformation.
18. Derive transformation matrix for 3D rotations about arbitrary axis.
19. Explain the following:
a. Depth buffer method b. ABuffer method.
20. Describe what is MIDI, what are its benefits and how it is best used in a multimedia project?

**VISLAMIAH COLLEGE [AUTONOMOUS], VANIYAMBADI
END SEMESTER EXAMINATIONS, FEBRUARY - 2022**

Time: 3 Hrs

Max Marks: 75

Subject: Computer Graphics

Sub. Code: U3BCE602

**PART - A (10 X 2 = 20)
Answer ALL the Questions**

1. Write short notes on video controller?
2. What is vertical retrace of the electron beam?
3. Write down the attributes of characters?
4. What is reflection?
5. Explain viewing transformation?
6. What are the Input models?
7. Explain viewing pipeline?
8. What is projection window?
9. What is object space method?
10. What is depth buffer method?

**PART - B (5 X 5 = 25)
Answer ALL the Questions**

11. (a) Explain the structure of the CRT with suitable illustrations.
(Or)
(b) Explain about line drawing algorithms.
12. (a) Explain Inquiry functions.
(Or)
(b) Explain about line attributes.

13. (a) Write about text clipping.
(Or)
(b) Discuss about classification of input devices.
14. (a) Explain scaling.
(Or)
(b) Describe about the 3D object representations.
15. (a) Explain about buffer method.
(Or)
(b) Briefly explain about octree method.

**PART - C (3 X 10 = 30)
Answer any THREE Questions**

16. Describe about Video display service?
17. Explain Color & Gray scale level?
18. Explain Liang Barsky line clipping techniques.
19. Derive transformation matrix for parallel and perspective projections.
20. Explain ray casting and BSP tree method?