**UNIT-I**

1. Write a short note on the interactive computer graphics.

2. Discuss the relative advantage of interactive and passive graphics.

3. What are the applications of computer graphics?

4. Nominate an application of computers that can be accommodated by either textual or graphical computer output. Explain when and why graphics output would be more appropriate in this application.

5. Explain briefly the classification of computer graphics.

1. Write a short note on hard copy devices.

2. How the colours are focused in coloured CRT? Discuss

3. Is the refreshing is necessary? Explain.

4. Discuss the detailed of DVST.

5 Explain about the display technologies?

6 Explain various display devices?

7 What are the different hardware and software of graphics?

8 List five graphic soft copy devices for each one briefly explain?

A. How it works.

B. Its advantages and limitations.

C. The circumstances when it would be more useful.

9. List five graphic hard copy devices for each one briefly explain?

a) How it works.

b) Its advantages and limitations.

c) The circumstances when it would be more useful.

1. What is raster graphics? differentiate b/w raster and vector graphics?

1. Discuss some hardware interaction devices with their advantages and disadvantages.

2. Define in precise the various interactive techniques?

3. Discuss how pointing techniques are different are different form positioning techniques.

4. Discuss the functional characteristics of light pen and mouse.

5. Write a short note on Interactive computer Graphic device?

**UNIT-II**

Explain how Bresenham’s algorithm takes advantage of the connectivity of pixels in drawing straight lines on a raster output device.

3. Explain midpoint line algorithm? Write alogorithm in your own words

4. What steps are required to plot a line whose slope is between 45 and 90º using Bresenham’s method?

5. What steps are required to plot a dashed line using Bresenham’s method?

6. Show graphically that an ellipse has four-way symmetry by plotting four

points on the ellipse: x = a \* cos(0) + h y = b \* sin(0) + k

where a = 2 b = 1 h = 0 k = 0 θ = π/ 4,3π/ 4,5π/ 4,7π/ 4

7. How must Prob. 3.9 be modified if an ellipse is to be rotated (a) π/ 4 , (b) π/ 9 , and (c) π/ 2 radians?

8. What steps are required to scan-convert a sector using the trigonometric method?

**UNIT-3**

1. Prove that the multiplication of the 3X3 matrices in 2-D geometry in each of the following operations is commutative, that is, independent of the order of execution:

(a) Two successive rotations

(b) Two successive translations

(c ) Two successive scaling

2. Briefly explain the concept of 2D graphics.

3. What is inverse geometric transformations?

4. Show that the order in which transformations are performed is important by the transformation of triangle A(1,0),B(0,1),C(1,1) , by (a) rotating 45° about the origin and then translating in the direction of vector I, and (b) translating and then rotating.

5. An object point P(x,y) is translated in the direction v = aI + bJ and simultaneously an observer moves in the direction v. Show that there is no apparent motion(from the point of view of the observer) of the object point.

6. Show that reflection about the line y = x is attained by reversing coordinates. That is,

M (x,y) (y ,x)

1. Explain The Cohen-Sutherland Line-Clipping Algorithm.

2. Explain some uses of clipping.

3. What is clipping?

4. Explain clipping in a raster world?

5. What do you mean by viewing transformation?

6. Find the workstation transformation that maps the normalized device screen onto a

physical device whose x extent is 0 to 199 and y extent is 0 to 639 where origin is located

at the lower left corner.

6. Discuss the following in details

a) Rubber Band methods

b) Inking and painting

c) Dragging

d) Constrained painting

**UNIT-4**

1. What happens when two polygons have the same z value and the Z-buffer algorithm is used?

2. Show that the alignment transformation satisfies the relation Av-1 = AvT.

3. How many view planes (at the origin) produce isometric projections of an object?

4. Find the equations of the planes forming the view volume for the general parallel projection.

5. How is the depth of a polygon determined by the painter’s algorithm?

6. How does the subdivision algorithm exploit are coherence?

7. How can hidden-surface algorithms be used to eliminate hidden lines as applied to

polygonal mesh models?

8. Find a normalization transformation from the window whose lower left corner is

at(0,0) and upper right corner is at (4,3) onto the normalized device screen so that

aspect ratios are preserved.

**8.14 Self Assessment Questions**

1. Define the concept of multimedia?

2. Define Hypermedia and how it is different from Hypertext?

3. What are the various elements of multimedia? Define.

4. What is the mechanism of digitized sound? How does the computer reconstruct

sound wave from a sample data?

5. Explain the concept of video on multimedia..

6. What common programming language is GKS based on?

7. What do the elements in the POLYLINE X and Y arrays represent?

8. What do the elements in the X and Y arrays represent in the POLYMARKER

command?

9. Assuming that X= (10, 20, 20, 10) and Y=(10, 10, 20, 20), the commands

SET FILL AREA INDEX (0)

FILL AREA (4, X, Y)

10. Will generate a square with only four instead of five elements in the X and y

ARRAYS. WHY?

11. What are some of the types of attributes that can be changed for (a) FILL AREA,

(b) POLYMAKER, and (c) POLYLINE?

12. What are some of the types of attributes that can be changed for TEXT?

13. What would a display look like after the following commands?

SET CHARACTER UP VECTOR (1, -1)

TEXT (10, 30, “HELLO”)

14. How would the display appear after the following commands were executed?

SET TEXT PATH (DOWN)

TEXT (8, 8, “HELLO”)