B.E. (Information Technology) Fifth Semester (C.B.S.)

Computer Graphics

P. Pages : 2 **AHK/KW/19/2205**

Time : Three Hours * 1466 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Illustrate your answers whenever necessary with the help of neat sketches.
11. Use of non programmable calculator is permitted.

1. a) Explain various types of Display Devices. **6**

b) Differentiate between vector scan Display and Raster Scan display. **7**

OR

2. a) Consider the line from (5, 5) to (13, 9) use the Bresenham's algorithm to rasterize the line. **7**

b) What is aliasing? Explain different methods of minimizing its effect. **6**

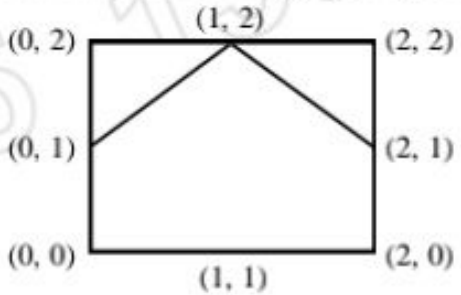
3. a) Find the coordinates of a figure bounded by (0, 0) (1, 5) (6, 3) (-3, -4) when reflected along the line whose equation is $y = 2x + 4$ and sheared by 2 units in x direction and 2 units in y direction. **7**

b) Explain Edge Flag algorithm and fill the polygon defined by vertices. A (2, 2), B (8, 11), C (8, 6), D (5, 3) and E (3, 5) using it. **7**

OR

4. a) Explain 2D transformation in detail. Also explain Reflection and shearing transformation. **8**

b) Write the program fragment to draw the following fig using REL and ABS command. **6**



5.	a)	Write a short note on Sutherland Cohen Outcode algorithm.	**6**
	b)	What is viewing transformation. Derive the transformation matrix for the same.	**7**

OR

6.	a)	Explain the functions for segmenting the display file.	**8**
	b)	A Window is defined by Co-ordinates 0, 30, 0, 30 respectively and line with end points $P_1(-10, 15)$ and $P_2(15, -10)$ clip the line using Sutherland Cohen Midpoint Subdivision Algorithm.	**5**
7.	a)	Find the 3D transformation matrix for translation, scaling, Rotation.	**6**
	b)	Obtain the perspective and Parallel Projection Matrices.	**7**

OR

8.		Explain hidden surface Removal Algorithms.	**13**
9.	a)	What is interpolation? Explain interpolation process.	**7**
	b)	Explain surface Rendering Methods.	**7**

OR

10.	a)	Explain Berier curves with its properties also Derive the Mathematical representation for Berier curve.	**7**
	b)	Explain B-spline curve in detail.	**7**
11.	a)	Explain CIE chromaticity diagram.	**7**
	b)	Explain various Hardware and Software Animation tools in detail.	**6**

OR

12. Write short notes on- **13**

i) Principles of Animation.

ii) Basic color Models.

iii) Animation language.

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