

Government Science College, Valod
Third Year B.Sc. (Computer Science) Semester-5
Subject: Computer Graphics(503)

Assignment

	Unit-1
	Short Questions: [2 Marks]
1.	Explain difference between graphics and animation.
2.	What is the use of drawing and painting devices ?
3.	What is the use of frame buffer ?
4.	What is aspect ratio ?
5.	What do you mean by image processing ?
6.	Explain working of video buffer.
7.	Define frame buffer.
8.	What do you mean by resolution?
9.	Define computer graphics.
10.	Explain the properties of an ellipse.
11.	Mention the raster functions that are used in graphical packages.
12.	Explain about touch panel and light pen.
13.	What are the various applications of computer graphics?
14.	List the important characteristics of hardcopy devices.
15.	What is Graphics Standard ? Name any two graphics standard.
16.	What are the different types of Light sources ? How do they affect the visibility of any object ?
17.	Explain use of Simulation in computer graphics.
18.	What is image processing ?
19.	What do you mean by digital image ?
20.	What is virtual reality and visualization ?
21.	Explain use of simulation in computer graphics.
	Long Questions: [4, 5, 7 Marks]

1.	How Raster scan display devices are different from Random scan display devices ? Can we use frame buffers to control picture color and intensity, justify your answer with suitable arguments.	
2.	Explain the working principle of plasma panel displays. Also give its advantages and disadvantages.	
3.	Explain applications of computer graphics in different fields.	
4.	Explain raster and random scan display.	
5.	Differentiate between Bitmap graphics and vector graphics.	
6.	Explain Random scan and Raster scan display.	7
7.	Explain any two popular software used in computer graphics.	
8.	Explain light sources and illumination in computer graphics.	
	Unit-2	
	Short Questions: [2 Marks]	
1.	What is Marker Character ?	
2.	Explain butt cap and round cap.	
3.	How can we generate different types of lines ?	
	Long Questions: [4, 5, 7 Marks]	
1.	Explain limitations of DDA algorithm.	
2.	Write DDA line drawing algorithm and use the same to produce a line segment from (1,1) to (9,7).	
3.	How Bresenham line generation algorithm overcomes the limitations of DDA algorithm ? Use Bresenham line generation algorithm to draw a line segment from (15, 5) to (20, 9).	
4.	Explain the term anti-aliasing. How does the technique of anti aliasing work to get rid of the problem of aliasing ?	

5.	Compute coordinates points of circle drawn with centre (0,0) and radius 5 using midpoint circle algorithm.	
6.	Describe the process of implementing curves in graphics. Explain DDA approach for drawing the circular curve.	
7.	Explain different attributes of line and text.	
8.	Explain mid point circle generation algorithm.	
9.	Explain DDA line drawing algorithm. Also discuss limitation of this algorithm.	
10.	Consider the line from 0,0 to 6,6. Use the simple DDA algo to rasterize the line.	4
11.	Describe DDA line algorithm with example	
12.	Explain different line style and text and character attributes.	
13.	Aliasing and discuss different techniques to remove it.	
14.	Explain Bresenham's algorithm for Line generating.	7
15.	Explain the problem of Aliasing.	7
16.	Explain different types of Line Caps in detail.	7
17.	Explain parametric circle drawing algorithm.	7
18.	What do you understand by aliasing effect ?	
19.	Explain Bresenham's line drawing algorithm. Also discuss its limitations.	
	Unit-3	
	Short Questions: [2 Marks]	
1.	Explain Convex and Concave polygon.	
	Long Questions: [4, 5, 7 Marks]	
1.	Explain scan line method for visible surface detection.	
2.	Explain flood fill and scan fill methods.	
3.	Explain winding number rule method.	
4.	Explain Winding Number method.	
5.	Explain Inside-outside test and Non-zero number rule.	7
6.	Explain the Boundary fill algorithm.	7
7.	How to fill a polygon with a particular Pattern ?	7
8.	Explain flood fill method by taking suitable example.	

9.	Explain any one method of polygon representation with the help of an example.	
10.	Explain winding number method in detail.	
Unit-4		
Short Questions: [2 Marks]		
1.	Explain basic transformation.	
2.	Explain shearing and reflection transformation	
3.	How trigonometry can be helpful in computer graphics ?	
Long Questions: [4, 5, 7 Marks]		
1.	Find the transformation matrix for the reflection about the line $y = 4x$.	
2.	Explain inverse transformation.	
3.	A square ABCD is given with A (0, 0), B (2, 0), C (2, 2), D (0, 2). Illustrate effects of X shear, Y shear and XY shear on the given square when $a=3$ and $b=4$. Where A is shearing X direction and B is shearing in Y direction.	
4.	Find final coordinates of the triangle ABC, A (-3, 0); B (-1, 1); C (-1, -1) when it is subjected to clock wise rotation of 45° about an axis passing through an arbitrary point P (-1, 1). Draw suitable figure to demonstrate your solution.	
5.	Explain rotation of an object.	
6.	Derive a matrix with an example to increase width twice of the original image, rotate it in clockwise direction with an angle 30° about the origin.	
7.	Explain Rotation relative to an arbitrary point in two dimension.	7
8.	Explain Shearing transformation.	7
9.	Consider a triangle having vertices $p_1(4,7)$, $p_2(6,9)$, $p_3(8,9)$, scale the object at 200% of original size and perform rotation of 90° in anticlockwise direction about origin.	7

10.	Explain Homogeneous Coordinates with advantages.	7
11.	Explain inverse transformation.	
12.	Perform a 45° rotation of a triangle A (1,1), B (5,1), C(3,5) about an arbitrary points (3,3).	
13.	Write a function to rotate a rectangle with reference to any arbitrary point.	
	Unit-5	
	Short Questions: [2 Marks]	
1.	Explain use of window -- view port transformation.	
2.	What do you mean by interior and exterior clipping?	
3.	What is window to view point coordinate transformation	
4.	What is Point Clipping ?	
	Long Questions: [4, 5, 7 Marks]	
1.	Explain any one clipping algorithm in detail.	
2.	Explain Cohen Sutherland line clipping algorithm.	
3.	Cohen Sutherland Polygon clipping algorithm by taking an example.	
4.	Explain Cohen-Sutherland clipping algorithm with example.	
5.	Write short note on text clipping.	
6.	What is clipping ? Explain different types of clippings.	
7.	Explain the terms window and viewport in the context of clipping. Derive a general transformation matrix for window to viewport mapping	
	Unit -6	
	Long Questions: [4, 5, 7 Marks]	
1.	Define the term intensity interpolation ? Explain Gouraud shading.	
2.	Explain any one colour model.	
3.	Explain RGB colour model.	7
4.	What is shading ? Explain different types of shading.	7
5.	Explain RGB colour model.	7
6.	Explain HSB color model.	

7.	Explain constant shading and ground shading.