QPC: RJ21BCA021 AR 20 Reg. No | | | | | | | | | | |

GIET UNIVERSITY, GUNUPUR – 765022

B. C. A (Third Semester) Examinations, January' 2023

BCA20303 - Computer Graphics and Multimedia

Time: 3 hrs Maximum: 70 Marks

The figure in the right hand margin indicate marks

PART – A: (Multiple Choice Questions) (1 x 10 = 10 Marks)

Q. 1 Answer ***ALL*** questions

			CO #	PO #
a.	Which of the following allows us to select the screen positions with the touch of a finger?		1	1
	(i) Touch Panel	(ii) Mouse		
	(iii) Keyboard	(iv) Trackball		
b.	Clipping in computer graphics is primarily used for		2	1
	(i) Zooming	(ii) Surface rendering		
	(iii) Removing objects and lines	(iv) None of the above		
c.	RGB color model is used for		1	1
	(i) Printing	(ii) Computer Display		
	(iii) Painting	(iv) Sketching		
d.	Which of the following plane is used for 2D transformations?		2	1
	(i) Three-dimensional plane	(ii) One-dimensional plane		
	(iii) Two-dimensional plane	(iv) Four-dimensional Plane		
e.	Which of the following is an output device		1	1
	(i) Keyboard	(ii) CRT Monitor		
	(iii) Joystick	(iv) Mouse		
f.	Which of the following is defined as the process of elimination of parts of a scene outside a window or a viewport?		2	1
	(i) Editing	(ii) Cutting		
	(iii) Clipping	(iv) All the above		
g.	Which of the following operations can be used to zoom in or out around any axis on a three-dimensional object from its original position?		2	1
	(i) Shearing	(ii) Rotation		
	(iii) Scaling	(iv) Translation		
h.	Which of the following algorithm is a faster method for calculating pixel positions?		2	1
	(i) Parallel line algorithm	(ii) Mid-point algorithm		
	(iii) DDA line algorithm	(iv) Bresenham's line algorithm		
i.	Cohen-Sutherland algorithm divides the two dimensional space in how many regions.		3	1
	(i) 4	(ii) 9		
	(iii) 6	(iv) 7		
j.	Which of the following algorithm can be used to clip a polygon in 3D space?		2	1
	(i) Vatti Clipping Algorithm	(ii) Weiler Atherton Algorithm		
	(iii) Greiner Hormann Clipping Algorithm	(iv) None of the above		

PART – B: (Short Answer Questions) **(2 x 10 = 20 Marks)**

Q.2. Answer ***ALL*** questions		CO #	PO #
a.	Write a note on Trackball.	1	1
b.	Mention any five graphics output devices.	1	1
c.	Write a note on Plasma Panel Displays.	1	1
d.	Illustrate rotation about an arbitrary point.	2	1
e.	Rotate a triangle ABC by an angle 30^0 where the triangle has coordinates A(0,0), B(10,2), C(7,4).	2	2
f.	Define Zooming and Panning.	2	1
g.	Define Depth Cuing.	2	1
h.	What are the five two dimensional transformations.	1	1
i.	Briefly explain parallel projection.	3	2
j.	Briefly explain back face detection method	3	1

PART – C: (Long Answer Questions) **(10 x 4 = 40 Marks)**

Answer ***ALL*** questions		Marks	CO #	PO #
3.*a.*	Write Midpoint circle drawing algorithm	5	2	2
b.	Write Bresenham's line drawing algorithm	5	2	2
	(OR)			
c.	Explain in detail applications of computer graphics	10	2	2
4.*a.*	Write a note on Line Attributes and Color and Grayscale levels.	5	2	2
b.	Explain Window to viewport transformation.	5	2	2
	(OR)			
c.	Explain all three dimensional transformation in detail.	10	3	3
5.*a.*	Write Sutherland-Hedgeman Polygon Clipping Algorithm	5	2	2
b.	Write Flood Fill Algorithm.	5	2	2
	(OR)			
c.	Write Weiler-Atherton Polygon Clipping Algorithm	5	2	1
d.	Write a note on plane equations and polygon meshes.	5	1	1
6.*a*	Write DDA Line drawing algorithm.	5	2	1
b.	Write Bresenham's circle drawing algorithm	5	2	1
	(OR)			
c.	Discuss perspective projection briefly.	5	3	2
d.	Write Scan Line Polygon Filling Algorithm	5	2	1

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