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GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, November – 2021

(Seventh Semester)

BCSPC7010 / BITPC7010 – COMPUTER GRAPHICS

(CSE & IT)

Time: 3 hrs Maximum: 100 Marks

Answer ALL Questions

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) (2 x 10 = 20 Marks)

Q.1. Answer ***ALL*** questions		[CO#]	[PO#]
a.	Color information can be stored in_____ (i) Main memory (iii) Graphics card (ii) Secondary memory (iv) Frame buffer	1	1
b.	If any intensity input value near 0.33 would be stored as the binary value 1 in the frame buffer, then it displays_____. (i) Dark green color (iii) Dark gray color (ii) Light gray color (iv) White or black	1	2
c.	In 2D-translation, a point (x, y) can move to the new position (x', y') by using the equation (i) x'=x+dx and y'=y+dx (iii) x'=x+dx and y'=y+dy (ii) x'=x+dy and y'=y+dx (iv) x'=x-dx and y'=y-dy	2	2
d.	Cohen-Sutherland clipping is an example of _____ (i) polygon clipping (iii) text clipping (ii) line clipping (iv) curve clipping	2	1
e.	If both codes are 0000, (bitwise OR of the codes yields 0000) line lies _____ the window. (i) completely outside (iii) completely inside (ii) half inside half outside (iv) can't say anything	2	2
f.	The object space or the space in which the application model is defined is called _____ (i) World co-ordinate system (iii) Screen co-ordinate system (ii) World window (iv) Interface window	2	1
g.	The scale factor of viewport transformation for x co-ordinate is _____ (i) Sx = (svmax – svmin)/ (swmax – swmin) (iii) Sx = (svmin – svmax)/ (swmax – swmin) (ii) Sx = (svmax – svmin)/ (swmax + swmin) (iv) Sx = (svmax + svmin)/ (swmax – swmin)	2	2
h.	The process of elimination of parts of a scene outside a window or a viewport is called _____ (i) cutting (iii) clipping (ii) plucking (iv) editing	2	1
i.	Which of the following is NOT a type of clipping algorithm used on the raster system? (i) line clipping (iii) area clipping (ii) point clipping (iv) solid clipping	2	1
j.	For a point to be clipped, which of the following conditions must be satisfied by the point? (i) xwmin < x < xwmax (iii) xwmin = x = xwmax (ii) xwmin > x > xwmax (iv) ywmin = y = ywmax	2	2

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

Q.2. Answer ***ALL*** questions		[CO#]	[PO#]
a.	What is computer graphics? Write its applications?	1	1
b.	For an image with 1620 resolution and 5:4 aspect ratio, how many rows are required?	1	2
c.	For an image with 270000 resolutions in gray scale and aspect ratio 9:3, what is the size of image?	1	2
d.	Differentiate between Seed Fill Algorithm and Scan line Algorithm?	3	1
e.	What is Aliasing? Explain its types?	3	1
f.	Define intensity interpolation?	2	1
g.	Explain vector scan algorithm?	2	2
h.	What is fractal geometry?	3	1
i.	Differentiate between interpolation and approx spline curve?	3	2
j.	What is projection vanishing point?	3	1

PART – C: (Long Answer Questions) (15 x 4 = 60 Marks)

Answer ***ALL*** questions		Marks	[CO#]	[PO#]
3. a.	Explain the working principle of CRT with neat diagram?	7	1	1
b.	Explain the DDA line drawing algorithm and draw a line between (2,1) and (9,12).	8	1	2
	(OR)			
c.	Derive the Bresenham's Line drawing algorithm for Slope >1?	7	1	2
d.	Explain Midpoint Circle drawing algorithm with radius 8?	8	1	2
4. a.	Explain projection and its types?	7	2	1
b.	Find the composite transformation matrix to double the area of the given triangle by fixed point (2,2). Triangle ABC (5, 0),(0,0), (0,5).	8	2	2
	(OR)			
c.	Illustrate the concept of polygon clipping?	7	2	1
d.	Explain Cohen Sutherland line Clipping and clip the following line with the clipping window (10,10),(25,20). L1: A (5,5) , B(20,15) L2: C(15,25) , D(26,12)	8	2	2
5. a.	Explain visible surface detection method and illustrate scan line algorithm?	7	4	2
b.	Explain the properties of Bezier Curve with an example?	8	3	2
	(OR)			
c.	Differentiate between A-Buffer and depth Buffer algorithm	7	4	2
d.	Construct the Bezier curve for following control points P0(2,4) ,P1(4,9), P2(8,6) and P3(11,5).	8	3	2
6. a.	Differentiate between Key frame and Procedural animation?	7	4	1
b.	Explain the step of polygon rendering using Gouraud Shading?	8	4	1
	(OR)			
c.	Explain virtual reality and its types?	7	4	1
d.	Explain the step of polygon rendering using Phong Shading?	8	4	1

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