B.Tech. Degree V Semester Special Supplementary Examination September 2022

CS 19-202-0504 COMPUTER GRAPHICS
(2019 *Scheme*)

Time: 3 Hours   Maximum Marks: 60

Course Outcomes
On successful completion of the course, the students will be able to:

CO1:   Explain the organization of an interactive computer graphics system.
CO2:   Generate 2D and 3D geometrical objects.
CO3:   Explain the important transformations on graphical objects.
CO4:   Fill a region given boundary and clip lines and polygons against a rectangular boundary.
CO5:   Describe the different types of curves and generate curves.
CO6:   Apply the operations like projections and rendering for 3D picture generation.
CO7:   Design graphical objects.
CO8:   Design interactive graphics systems and animation systems.
Bloom's Taxonomy Levels (BL): L1 – Remember, L2 – Understand, L3 – Apply, L4 –Analyze,
L5 – Evaluate, L6 – Create
PO – Programme Outcome
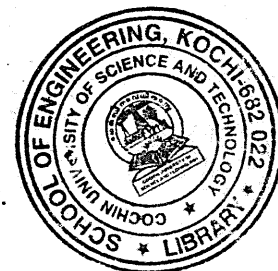
PART A
(Answer *ALL* questions)

			(8 × 3 = 24) Marks	BL	CO	PO
I.	(a)	Explain the working of shadow mask crt.	3	L2	1	1,2,3
	(b)	Explain dda line drawing algorithm. Generate the intermediate points for the line whose end points are at (10,10) and (20,30).	3	L3	2	1,2,3
	(c)	Explain B spline Curves.	3	L2	5	1,2,3
	(d)	Prove that successive scaling is multiplicative.	3	L3	3	1,2,3
	(e)	Explain octree method in hidden surface elimination.	3	L2	6	1,2,3
	(f)	Explain painters algorithm.	3	L1	6	1,2,3
	(g)	Explain constant intensity shading.	3	L2	6	1,2,3
	(h)	Explain RGB colour system.	3	L2	7	1,2,3

PART B
(4 × 12 = 48)

II.	Explain Bresenhams circle drawing algorithm. Generate the intermediate points for the circle whose Centre is at (0,3) and radius 3.	12	L3	2	1,2,3
	OR				
III.	Explain midpoint circle drawing algorithm. Generate the intermediate points for the circle whose centre is at (0,3) and radius 3.	12	L3	2	1,2,3
IV.	Explain Cohen Sutherland line clipping and also apply the algorithm for a suitable example.	12	L3	4	1,2,3
	OR				
V.	Explain reflection of an object about the line $y = x$ and $y = -x$.	12	L2	3	1,2,3

(P.T.O.)

		(8 × 3 = 24)	Marks	BL	CO	PO
VI.	Explain three-dimensional rotation of an object about arbitrary axis in three-dimensional space.		12	L2	3	1,2,3
	OR					
VII.	Explain z buffer algorithm. What are the limitations of z buffer algorithm? Mention any two methods by which the limitations can be rectified.		12	L3	6	1,2,3
VIII.	Explain Gouraud shading and Phong Shading.		12	L2	6	1,2,3
	OR					
IX.	Explain the steps involved in designing an animation sequence. Explain how the motions of objects can be specified in an animation system.		12	L2	8	1,2,3

Bloom's Taxonomy Levels
L1 = 6.25%, L2 = 56.25%, L3 = 37.5%.

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