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B.Tech. Degree V Semester Regular/Supplementary Examination January 2023

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)

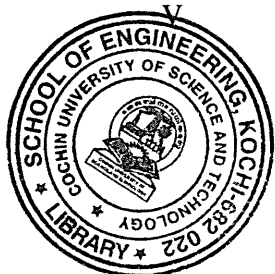
	(8 × 3 = 24)	Marks	BL	CO	PO
I. (a) Compare raster scan and random scan systems.	3	3	L2	1	1,2,3
(b) What is a boundary fill algorithm?	3	3	L2	2	1,2,3
(c) Explain Bezier Curves.	3	3	L2	5	1,2,3
(d) Explain x shear and y shear transformations.	3	3	L3	3	1,2,3
(e) Discuss scan line visible surface detection algorithm.	3	3	L2	6	1,2,3
(f) Explain back face detection algorithm.	3	3	L1	6	1,2,3
(g) Explain ray tracing.	3	3	L2	6	1,2,3
(h) Explain classification of fractals.	3	3	L2	7	1,2,3

PART B

(4 × 12 = 48)

II.	Describe 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
OR					
III.	Explain Bresenhams line drawing algorithm. Generate the intermediate points for the line whose end points are (20,10) and (30,18).	12	L3	2	1,2,3
OR					
IV.	Discuss Cohen Sutherland line clipping with suitable examples.	12	L3	4	1,2,3
OR					
V.	Explain two dimensional viewing pipe line.	12	L2	3	1,2,3

(P.T.O.)



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VI.	Explain painter's algorithm. Mention how we can eliminate cyclic overlapping in painters algorithm.	12	L2	3	1,2,3
OR					
VII.	Explain z buffer algorithm. Mention any two limitations of z buffer algorithm. Also explain how we can rectify it.	12	L2	6	1,2,3
VIII.	Explain RGB, CMY and HSV colour systems.	12	L2	6	1,2,3
OR					
IX.	Explain a shading model.	12	L2	8	1,2,3

Bloom's Taxonomy Levels

L1 = 6.25%, L2 = 68.75%, L3 = 25%.
