K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Supplementary Exam Feb/Mar 2024
Program: B.Tech Scheme: II
Examination: SY Semester: III Course Code: CEC305 Course Name: Computer Graphics
Date of Exam: 06-03-24 Duration: 2.5 Hours Max. Marks: 60

Instructions:

(1)All questions are compulsory.

(2)Draw neat diagrams wherever applicable.

(3)Assume suitable data, if necessary.

		Max. Marks	CO	BT level
Q 1	**Solve any six questions out of eight:**	**12**		
i)	List the various applications of computer graphics.	2	1	U
ii)	What is aliasing and anti-aliasing?	2	2	U
iii)	Explain 2D Shearing and Reflection.	2	3	U
iv)	Define the following terms: i. window ii. viewport	2	4	R
v)	What is meant by Bezier curve?	2	5	U
vi)	How key framing plays important role in animation?	2	6	U
vii)	What are advantages and disadvantages of DDA algorithm?	2	2	U
viii)	Explain in brief the types of parallel projection.	2	5	U
Q.2	**Solve any four questions out of six.**	**16**		
i)	Compare Random scan display and Raster scan display.	4	1	U
ii)	Explain DDA line drawing algorithm.	4	2	U
iii)	Scale a triangle A(4,4), B(12,4) and C(8,10) with scaling factor Sx=2 and Sy=1	4	3	Ap

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iv)	Describe 2D viewing pipeline in detail.	4	4	U
v)	Explain how the Koch curve is constructed and describe dimensions of Koch curve.	4	5	U
vi)	Explain the principles of animation.	4	6	U
Q.3	**Solve any two questions out of three.**	**16**		
i)	Derive midpoint circle drawing algorithm.	8	2	Ap
ii)	Let ABCD be the rectangular window with A(20,20), B(90,20), C(90,70) and D(20,70). Find the region codes for endpoints and use the Cohen- Sutherland algorithm to clip the line segments. Point A= (30,10), B=(100,50)	8	4	Ap
iii)	A rectangular parallelepiped has its length as 3unit, 2unit and 1 unit on x, y and z axis respectively. Perform 3D rotation by 90° clockwise about X and Y axis.	8	5	Ap
Q.4	**Solve any two questions out of three.**	**16**		
i)	Apply Bresenham's line drawing algorithm to calculate pixel position along a line A(20, 10) and B(30, 18) and represent the output diagram.	8	2	Ap
ii)	Consider a 2D triangle A(2,3), B(5,5), C(4,3). Rotate it anticlockwise about fixed point (1,1) by an angle 45° with homogeneous coordinate representation.	8	3	Ap
iii)	Explain z buffer method for hidden surface removal with suitable example.	8	6	U

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