

A2-DS

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

Nov – Dec 2023

(B. Tech) Program: AI & DS Scheme I/II/IIIB/III:II

Examination: SY Semester: III

Course Code: AIC305 and Course Name: Computer Graphics

Date of Exam: 09/12/23

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)	What is a raster scan?	2	1	Rem
ii)	Write advantages of the DDA algorithm	2	2	Rem
iii)	Write a homogeneous matrix for 2D rotation in the anticlockwise direction	2	3	Rem
iv)	Write in brief about line clipping algorithms you have studied	2	4	Rem
v)	Explain in brief what are fractals	2	5	U
vi)	Describe in brief different types of Animation.	2	6	U
vii)	Explain in brief the need for the use of a homogeneous matrix in the CG transformations	2	3	U
viii)	List polygon clipping algorithms. Explain each in one or two lines	2	4	U
Q.2	Solve any four questions out of six	16		
i)	Draw a block diagram of a Raster scan system and explain in brief.	4	1	U
ii)	Explain in brief the eight-way symmetry of a circle and how it is utilised in CG	4	2	U
iii)	Summarize properties of Homogeneous Coordinate representation	4	3	U
iv)	Write a short note on polygon clipping	4	4	U
v)	Discuss in brief the types of projections	4	5	U

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vi)	Explain visible surface detection	4	6	U
Q.3	Solve any two questions out of three.	16		
i)	Compare Raster scan V/s Random scan	8	1	Rem
ii)	Use Bresenham's algorithm to rasterize a line segment from (3,6) to (8,10).	8	2	Ap
iii)	Rotate a triangle defined by A (0,0), B (10,2), and C (7,4) by 90° about the origin in the anticlockwise direction	8	3	Ap
Q.4	Solve any two questions out of three.	16		
i)	Write algorithm steps for Liang Barsky clipping Algorithm	8	4	U
ii)	Explain what is meant by the B spline curve? State various properties of the B Spline curve.	8	5	U
iii)	Discuss principles of animation	8	6	U

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