

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

End Semester Exam

January 2023

B. Tech. (Artificial Intelligence and Data Science/ Computer Engg (DSY))

Examination: SY Semester III

Course Code: AIC305/ CEC305

Course Name: Computer Graphics

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.

Q. No.	Question	Max. Marks	CO	BT Level
Q. 1	Solve any six questions	12		
i	Write Advantages and disadvantages DDA algorithm		CO 2	U
ii	What is pixel? How it is formed?		CO 1	U
iii	List antialiasing techniques		CO 2	U
iv	Explain various cases of scaling		CO 3	U
v	Discuss algorithm for line clipping, with suitable examples.		CO 4	U
vi	Discuss applications of Computer Graphics in Education field.		CO 1	U
Vii	Write advantages and disadvantages of Random Scan method.		CO 1	U
viii	List basic 2 dimensional transformation techniques		CO 3	U
Q.2	Solve any four questions	16		
i	Use Bresenham's algorithm to rasterise a line segment from (3,4) to (5,12).		CO 2	A
ii	Derive matrix equation for rotation of polygon about an arbitrary point		CO 2	A
iii	Write algorithm steps for midpoint ellipse Algorithm		CO 2	U
iv	Write Advantages and disadvantages of Cohen Sutherland line clipping algorithm		CO 2	U
v	Summarize properties of homogeneous coordinates		CO 4	U
vi	List polygon filling techniques, Explain any one technique in detail		CO 5	U
Q.3	Solve any Two questions	16		
i	Rotate a triangle defined by A(0,1), B(3,4) & C (6,8) by 90° about the origin in clockwise direction		CO 2	A
ii	Write short note on polygon clipping		CO 4	U
iii	Write the algorithm for Bresenham's line drawing. Algorithm		CO 2	U
Q.4	Solve any two questions	16		
i	Magnify a triangle with vertices A(0,0), B (1,1), C(5,2) to twice its size keeping B fixed		CO 2	U
ii	Derive the matrix equation for scaling transformation w.r.t.p reference point other than the origin.		CO 3	A
ii	Prove that two successive rotations are additive		CO 4	U