K. J. Somaiya Institute of ~~Engineering and Information~~ Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)
End Semester Exam Supplementary Exam
May -June 2023 August 2023
B.Tech. (Artificial Intelligence and Data Science)

Course Code: 1UAIC305   Course Name: Computer Graphics

Duration: 2 Hours Max. Marks: 60
2.30

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	Discuss the uses of Computer graphics in education	2	CO 1	U
ii	List steps of DDA.	2	CO 2	AP
iii	Show that the composition of two rotations is additive.	2	CO 3	AP
iv	What is Normalization Transformation?	2	CO 4	U
v	Write short Note on Pixel	2	CO 1	R
vi	State merits and demerits of boundry fill algorithm	2	CO 3	E
vii	List decision parameter expressions for Bresenham's line drawing algorithm	2	CO 2	R
viii	What is projection? Why projection is necessary?	2	CO 5	R
Q.2	**Solve any FOUR questions**	16		
i	Mention the steps for Bresenham's Line drawing Algorithm	4	CO 2	E
ii	Discuss polygon filling algorithms	4	CO 3	AP
iii	Write short note on perspective projection	4	CO 5	AP
iv	Explain Eight way symmetry of circle	4	CO 2	AN
v	Compare Raster scan with Random scan	4	CO1	E
vi	List limitations of Bezier curves	4	CO5	R
Q.3	**Solve any TWO questions**	16		
i	What is Fractals? What different types of Fractals.	8	CO 5	U
ii	Explain Cohen-Sutherland line clipping algorithm.	8	CO 4	R
iii	Using midpoint circle drawing algorithm, plot the circle whose radius is 10.	8	CO 2	AP
Q.4	**Solve any TWO questions**	16		
i	Translate the square ABCD whose coordinates are A (0, 0), B (4,0), C (4,4), D (0,4) by 3 units both direction and then scale it 2 units in x direction and 1.5 unit in y direction.	8	CO 3	AP
ii	Write a line clipping algorithm which uses parametric form of equation. Test it for line $P_1 P_2$ where $P_1 = (8, 8)$ and $P_2 = (25, 15)$ against the window with (Xwmin, Ywmin) = (10, 10) and (Xwmax, Ywmax) = (15, 15).	8	CO4	AP
iii	What is meant by parallel and perspective projections? Derive matrix for perspective projections.	8	CO 5	AP