

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VI (New) EXAMINATION – WINTER 2019****Subject Code: 2160703****Date: 12/12/2019****Subject Name: Computer Graphics****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Define: 1. Ambient Light 2. Rasterization 3. Aspect Ratio	03
	(b) Compare Raster scan system and Random scan system.	04
	(c) Explain Beam Penetration method and Shadow Mask method with diagram.	07
Q.2	(a) Briefly explain any three methods of Character Generation.	03
	(b) Explain Inside Outside test.	04
	(c) Write Bresenham's line drawing algorithm with all necessary derivations.	07
	OR	
	(c) Write DDA line drawing algorithm with all necessary derivations.	07
Q.3	(a) Explain basic 2D transformation.	03
	(b) Rotate triangle ABC 45° clockwise with coordinates A(10,10), B(15,15), C(20,10) about point B.	04
	(c) Explain Sutherland-Hodgeman polygon clipping with example.	07
	OR	
Q.3	(a) Explain 2D Reflection and Shearing transformation.	03
	(b) Scale quadrilateral ABCD 2 unit in X-direction and 3 unit in Y-direction with coordinates A(5,5), B(5,15), C(10,15), D(10,5) while keeping point A at fix position.	04
	(c) Explain NLN line clipping.	07
Q.4	(a) Explain Interpolation and Approximation splines.	03
	(b) Explain Boundary Fill algorithm.	04
	(c) Write and explain 3D display methods.	07
	OR	
Q.4	(a) Write short note on Polygon Meshes.	03
	(b) Explain general 3D Viewing Pipeline.	04
	(c) What is Bezier Curve? Define properties of Bezier Curve.	07
Q.5	(a) Explain properties of Light.	03
	(b) Explain RGB color model.	04
	(c) Derive transformation matrix for General Parallel-Projection transformation.	07
	OR	
Q.5	(a) Explain Perspective-Projection.	03
	(b) Explain YIQ color model	04
	(c) Explain Depth Buffer method for visible surface detection.	07
