Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2151603 Date:30/04/2018

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.**

Q.1	**(a)**	Define: 1) Persistence 2) Resolution 3) Frame buffer.	**03**
	(b)	List the applications of computer graphics and discuss any one.	**04**
	(c)	Explain CRT with neat diagram.	**07**
Q.2	**(a)**	Consider raster systems with the resolutions of 640x480, 1280x1024, and 2560 x 2048. What size frame buffer (in bytes) is needed for each of these systems to store 12 bits/pixel? How much storage is required for each system if 24 bits per pixel are to be stored?	**03**
	(b)	Write the differences between Random Scan display and Raster scan Display.	**04**
	(c)	Explain the midpoint circle drawing algorithm.	**07**
		OR	
	(c)	Give advantages of Bresenham line drawing algorithm. Demonstrate line from (20, 10) to (30, 18) with all necessary calculation.	**07**
Q.3	**(a)**	List and explain text attributes with example.	**03**
	(b)	Explain odd-even rules with example.	**04**
	(c)	Explain 4 and 8-connected boundary filled algorithm with example.	**07**
		OR	
Q.3	**(a)**	In translate a triangle with vertices at original coordinates (10, 20), (10, 10), (20, 10) by tx=5, ty=10, compute the resultant coordinate of the triangle.	**03**
	(b)	Explain reflection and shear with example.	**04**
	(c)	Explain Cohen-Sutherland line clipping with example.	**07**
Q.4	**(a)**	Give different between parallel and perspective projection	**03**
	(b)	What is Bezier curve? List all it important properties.	**04**
	(c)	Explain Sutherland-Hodgeman Polygon Clipping with example.	**07**
		OR	
Q.4	**(a)**	Justify that two successive rotation is additive.	**03**
	(b)	Explain Hermite curve with necessary equations.	**04**
	(c)	Derive 3D Rotation matrix.	**07**
Q.5	**(a)**	Define cavalier and cabinet projection with example.	**03**
	(b)	Explain HSV color model.	**04**
	(c)	Give the classification of the visible surface detection algorithm. Explain any one with example.	**07**
		OR	
Q.5	**(a)**	Discuss Specular refection and Phong Model.	**03**
	(b)	Explain RGB and CMY color model.	**04**
	(c)	Discuss z-buffer method in detail.	**07**

****