Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI(OLD) – EXAMINATION – SUMMER 2019

Subject Code:160703 Date:10/05/2019

Subject Name: Computer Graphics

Time:10:30 AM TO 01:00 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)**	Discuss various applications of computer graphics.	**07**
	(b)	Write a detail note on CRT	**07**
Q.2	**(a)**	Differentiate: Raster Scan vs. Random Scan	**07**
	(b)	1). If transfer rate of system is 10^4 bits / second then what amount of time is require to load frame buffer of size 400×300 which supports 256 colors? 2). If a true color display system has 300 scan lines and aspect ratio of 3:4, how many bits per second are required to show 60 frames per second?	**07**
		OR	
	(b)	Explain DDA line drawing algorithm with its limitations	**07**
Q.3	**(a)**	Calculate the pixel position along circle path with radius r =10 centered on the origin using midpoint circle algorithm up to x = y	**07**
	(b)	Write an algorithm for midpoint ellipse.	**07**
		OR	
Q.3	**(a)**	Explain various methods of inside-outside tests.	**07**
	(b)	Derive the 2D rotation matrix for rotation about origin and rotation with respect to reference point.	**07**
Q.4	**(a)**	Explain Cohen-Sutherland line clipping algorithm.	**07**
	(b)	Discuss properties of Bezier curve.	**07**
		OR	
Q.4	**(a)**	Differentiate: Parallel vs. Perspective Projection	**07**
	(b)	Explain cavalier and cabinet projection with suitable diagram	**07**
Q.5	**(a)**	The pyramid with co-ordinates A (0, 0, 0), B (1, 0, 0), C (0, 1, 0) and D (0, 0, 1) is to be rotated by 90^0 about line L that has direction vector v = j + k and passing through point (0, 1, 0). Find the co-ordinates of transformed pyramid.	**07**
	(b)	Explain XYZ and RGB color model.	**07**
		OR	
Q.5	**(a)**	Write a short note on back face detection	**07**
	(b)	Write a short note on Gouraud shading	**07**

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