Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER– V EXAMINATION – WINTER 2019

Subject Code: 4659309   **Date: 16/11/2019**
Subject Name: Image Processing
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)**	Define Image Processing and explain the components of an Image Processing System.	**07**
	(b)	Explain fundamental steps involved in digital image processing.	**07**
Q.2	**(a)**	Explain Smoothing Spatial Filters in detail.	**07**
	(b)	Explain Basic Gray Level Transformations.	**07**
		OR	
	(b)	Explain FT and frequency domain.	**07**
Q.3	**(a)**	What is Morphology? Explain Erosion and Dilation in detail.	**07**
	(b)	Explain Local Segmentation in detail.	**07**
		OR	
Q.3	**(a)**	Explain Convex Hull in detail.	**07**
	(b)	Explain Watershed Segmentation and Region Based Segmentation in detail.	**07**
Q.4	**(a)**	What is image segmentation? Explain Point, Line and Edge detection.	**07**
	(b)	Explain Neural Networks.	**07**
		OR	
Q.4	**(a)**	Object recognition based on structural methods.	**07**
	(b)	Explain the concept of Image Enhancement using arithmetic/logic operations	**07**
Q.5	**(a)**	Object recognition based on decision Theoretic method of statistical classifier.	**07**
	(b)	1. Hit-or-Miss Transformation 2. Boundary extraction	**07**
		OR	
Q.5	**(a)**	Explain mathematical tools used for image processing	**07**
	(b)	Explain Noise Model and Inverse filter in detail.	**07**

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