Seat No.:_____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019

Subject Code: 2171712 **Date: 30/11/2019**

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.**

			MARKS
Q.1	**(a)**	What is aliasing and moire pattern in digital image processing?	**03**
	(b)	Draw and Explain structure of human eye.	**04**
	(c)	With proper block diagram explain key stages in digital image processing	**07**
Q.2	**(a)**	What is redundancy in image? List different types of redundancies.	**03**
	(b)	Explain the power-law transformations.	**04**
	(c)	Explain the concept of sampling and quantization in image processing.	**07**
		OR	
	(c)	Briefly explain applications of image processing.	**07**
Q.3	**(a)**	What is unsharp masking and high boost filtering for sharpening in frequency domain.	**03**
	(b)	Discuss image soothing vs image sharpening.	**04**
	(c)	Explain RGB and CMY color models, and their relationship.	**07**
		OR	
Q.3	**(a)**	List out arithmetic operations between images and explain any one with example.	**03**
	(b)	How can one decide the quality of image using histogram?	**04**
	(c)	Explain LZW coding technique for error free image compression.	**07**
Q.4	**(a)**	Explain dilation morphological operations.	**03**
	(b)	Discuss the effect of gaussian low pass filter on image in frequency domain.	**04**
	(c)	Explain Hough transform and its applications.	**07**
		OR	
Q.4	**(a)**	Explain erosion morphological operations.	**03**
	(b)	Discuss the effect of butterworth low pass filter on image in frequency domain.	**04**
	(c)	Discuss detection of points and lines in image. Include mask used for detection.	**07**
Q.5	**(a)**	Compare performance of gradiant operator and laplacian operator for edge detection.	**03**
	(b)	Explain image segmentation using region splitting and merging.	**04**
	(c)	Explain Pseudo-color image processing. What is the application of pseudo-color image processing?	**07**
		OR	
Q.5	**(a)**	Explain the concept of object recognition in image processing.	**03**
	(b)	Explain Lossy compression and Lossless compression.	**04**
	(c)	Explain HIT-or-MISS Transformation.	**07**

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