Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012

Subject code: 170307 **Date: 28/12/2012**

Subject Name: Image Processing (Department Elective-I)

Time: 10.30 am - 01.00 pm **Total Marks: 70**

Instructions:

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

Q.1	**(a)**	Draw Block diagram and Discuss components of an Image Processing system.	**07**
	(b)	Explain Basic Gray Level (Intensity) transformation.	**07**
Q.2	**(a)**	What is Histogram? Draw histogram patterns of Dark, Bright, Low and High contrast Image. Also discuss significance of histogram processing.	**07**
	(b)	Explain Piece-wise Linear (Contrast stretching, Gray level slicing, Bit plane slicing) Transformation.	**07**
		OR	
	(b)	Explain Zooming and Shrinking Digital Images.	**07**
Q.3	**(a)**	Explain Histogram Equalization.	**07**
	(b)	Explain Image Averaging and its significance.	**07**
		OR	
Q.3	**(a)**	Explain Homomorphic Filtering.	**07**
	(b)	Explain Sharpening Frequency Domain Filters.	**07**
Q.4	**(a)**	Explain second Derivatives for Enhancement (The Laplacian)	**07**
	(b)	Compare Spatial smoothing (Low pass) and Frequency domain Low pass filters.	**07**
		OR	
Q.4	**(a)**	Write difference between Image Restoration and Image Enhancement. Draw Image degradation and restoration model. Also write expressions of any four Noise models.	**07**
Q.4	**(b)**	Write a short note on : RGB color model	**07**
Q.5	**(a)**	Explain JPEG Image Compression Standard.	**07**
	(b)	Explain Huffman coding.	**07**
		OR	
Q.5	**(a)**	Explain Dilation and Erosion.	**07**
	(b)	Explain Region Based Segmentation.	**07**

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