Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII(NEW) • EXAMINATION – WINTER 2016

Subject Code:2170712 Date:25/11/2016

Subject Name:Image Processing(Departmental Elective - II)

Time:10.30 AM to 1.00 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)**	What is digital image processing? Explain the same. Also explain various applications of image processing.	**07**
	(b)	Discuss the following gray level transformations: - Image negatives - Power-Law transformations - Gray level slicing	**07**
Q.2	**(a)**	(1) Discuss the difference(s) among gray scaled image, binary image and colored image.	**03**
		(2) Briefly explain any four components of image processing system.	**04**
	(b)	What do you mean by histogram of an image? Discuss histogram matching in detail.	**07**
		OR	
	(b)	Elaborate smoothing linear filters in spatial domain.	**07**
Q.3	**(a)**	Discuss adjacency, connectivity and regions in terms of relationships between pixels.	**07**
	(b)	Explain model of the image degradation/restoration process. Support your answer with neat diagrams.	**07**
		OR	
Q.3	**(a)**	Explain sharpening spatial filters.	**07**
	(b)	Enlist and explain various noise models.	**07**
Q.4	**(a)**	(1) Briefly explain band-pass filters in frequency domain.	**03**
		(2) Explain contrast stretching in brief.	**04**
	(b)	Discuss inverse filtering in detail.	**07**
		OR	
Q.4	**(a)**	(1) State the difference(s) between image enhancement and image restoration.	**03**
		(2) Explain the basic steps for filtering in the frequency domain.	**04**
	(b)	Explain multi-resolution expansion.	**07**
Q.5	**(a)**	Discuss thresholding method for image segmentation.	**07**
	(b)	Explain any one method for lossy compression.	**07**
		OR	
Q.5	**(a)**	Enlist various edge linking methods and explain any one in detail.	**07**
	(b)	Write a short note on: - RGB color model - HSI color model	**07**

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