Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER 2013

Subject Code: 170307 **Date: 03-12-2013**

Subject Name: Image Processing

Time: 10.30 am - 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)**	Explain the structure of Human eye and formation of image in eye.	**07**
	(b)	List the various image formats. Discuss the various types of image sampling.	**07**
Q.2	**(a)**	List various point processing techniques and explain any two in detail.	**07**
	(b)	What is histogram equalization? Demonstrate with example.	**07**
		OR	
	(b)	Explain mean and median filtering with example.	**07**
Q.3	**(a)**	What is edge? Explain the types of discontinuities in image.	**07**
	(b)	Explain the circle detection method using Hough transform.	**07**
		OR	
Q.3	**(a)**	List the various methods of region based segmentation and explain any one in detail.	**07**
	(b)	Explain Haar transform and its application in image processing.	**07**
Q.4	**(a)**	Differentiate Hadamard and Walsh transform.	**07**
	(b)	What is Hit-or-Miss transform? Illustrate with example.	**07**
		OR	
Q.4	**(a)**	Explain the terms; Dilation, erosion, opening and closing.	**07**
	(b)	What are the methods of Boundary extraction? Explain chain coding.	**07**
Q.5	**(a)**	Explain the various redundancies in the image.	**07**
	(b)	With suitable example, explain Huffman's image compression method.	**07**
		OR	
Q.5	**(a)**	Explain region filling and skeletonization.	**07**
	(b)	What are moments in the image? What are its applications?	**07**

****