Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
M.E –Ist SEMESTER–EXAMINATION – JULY- 2012

Subject code: 713103N **Date: 09/07/2012**
Subject Name: Biomedical Image Processing
Time: 2:30 pm – 05:00 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 unconstrained restoration and discuss about Wiener filter.	**07**
	(b)	Explain restoration by singular value decomposition.	**07**
Q.2	**(a)**	Explain various representation techniques of digital image.	**07**
	(b)	Explain Short Time Fourier Transform (STFT) in context for image with its any four properties.	**07**

<center>OR</center>

	(b)	Explain Gabor transform of image in detail with suitable application and its any four properties.	**07**
Q.3	**(a)**	Discuss histogram matching with suitable example.	**07**
	(b)	Explain perspective projection and energy transformation.	**07**

<center>OR</center>

Q.3	**(a)**	Explain order statistic filter and its suitable example of application.	**07**
	(b)	What do you understand by smoothing of image? Explain edge preserving filter.	**07**
Q.4	**(a)**	Explain basic line detection in image with proper mathematics.	**07**
	(b)	Explain various threshold selection methods.	**07**

<center>OR</center>

Q.4	**(a)**	Explain low contrast stretching and non-linear stretching.	**07**
	(b)	Explain geometric and harmonic mean filters with suitable applications.	**07**
Q.5	**(a)**	Explain homomorphic filtering for restoration in detail for image.	**07**
	(b)	Explain the abilities of canny edge detector.	**07**

<center>OR</center>

Q.5	**(a)**	Explain homomorphic filtering for sharpening image in detail.	**07**
	(b)	Describe in detail derivation in context with edge detection.	**07**

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