Seat No.:		GUJARAT TECHNOLOGICAL UNIVERSITY M. E SEMESTER – II • EXAMINATION – WINTER • 2014	
Subject code: 1710404 Date: 04-12- Subject Name: Image Processing			
Time: 1 Instruct	0:30 tions Att	am - 01:00 pm Total Marks: 70 cmpt all questions.	
3.		ke suitable assumptions wherever necessary. ures to the right indicate full marks.	
Q.1	(a)	and High contrast Image. Explain Histogram Equalization.	07
	(b)	1	07
Q.2	(a)	Write difference between Image Restoration and Image Enhancement. Draw Image degradation and restoration model. Also write expressions of PDF's of any four Noise models.	07
	(b)	Explain hit and miss transformation, thinning and thickening morphology operations. OR	07
	(b)	Define Image Enhancement and explain any four Point Processing Techniques.	07
Q.3	(a)	Explain any two of the following transforms 1. WHT, 2. Haar transform, 3. DWT, 4. DCT.	07
	(b)	Explain deconvolution, inverse filtering and wieners filtering OR	07
Q.3	(a) (b)	Explain the concept of spatial Convolution. Give an example of the same. Explain the concept of frequency domain filtering and also write expressions of all three LPF and all three HPF.	07 07
Q.4	(a) (b)	Explain procedure for Image sampling and quantization. Explain point-wise process of fingerprint matching through Morphological operations	07 07
Q.4	(a) (b)	OR Explain (1) Mach Band Phenomenon (2) Simultaneous Contrast Write a Short note on Components of Digital Image Processing.	07 07
Q.5	(a) (b)	Explain spatial and grayscale resolution. Explain Bit Plane slicing and Gray Scale slicing.	07 07
Q.5	(a) (b)	Explain Region growing and region splitting. Answer the following Questions 1. Size required on disk for a Gray-scale image of 10 rows and 10 columns with 16 bit gray scale resolution. 2. Size required on disk for a color image of 10 rows and 10 columns with 16 bit gray scale resolution. 3. Give intensity range of a 4 bit grayscale image. 4. Which coding method is used in JPEG.	07 07
		5. List operation performed by homomorphic filtering.6. Which colorspace is used in JPEG.	

7. What is the intensity value of black pixel in terms of Red, Green and Blue plane.
