Seat No.:	Enrolment No
GUJARAT	FECHNOLOGICAL UNIVERSITY
M.E. SEMESTER I (old	course)–EXAMINATION (Remedial) – WINTER 2015
Subject code: 710404N	Date: 14/12/2015

Subject Name: Image Processing 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) Write a Brief note on digital acquisition process and discuss Image Sampling 07 and Quantization.
 - (b) What is the advantage of using sobel operator? Explain the gradient operators 07 used for edge detection. Write prewitt and sobel masks for detecting diagonal edges.
- Q.2 (a) How the histogram is used for Image enhancement? Also Explain the 07 Histogram Equalization Transformation.
 - (b) Discuss basic intensity transformation functions used in the Image Processing.
 07
 OR
 - (b) What is the Image Sharpening ? Discuss the second derivative operators used 07 for image sharpening with suitable example.
- Q.3 (a) Discuss the different color models used for color image processing. 07
 - (b) Compare the spatial domain and frequency domain image enhancement 07 methods.

OR

Q.3 (a) Obtain the Gradient Image by applying prewitt operator on the following 07 image.

	20	10	30	40
A =	10	15	18	20
	22	30	35	40
	20	20	30	30

- (b) What is image restoration? Explain wiener filter used for image restoration 07 technique with its advantages.
- Q.4 (a) Write a note on opening and closing morphological operators with Top-hat and 07 bottom-hat transformation.
 - (b) Discuss Laplacian of Gaussian and Difference of Gaussian.

OR

- Q.4 (a) Write a Brief note on JPEG 2000 standard with block transform coding system. 07
 - (b) Discuss different Edge models and also Explain the Canny Edge detection 07 technique.
- Q.5 (a)Write a note on MPEG-4 Standard.07(b)Explain Principal Component Analysis. How it is used in Image Processing?07

OR

Q.5 (a) Write a note on 2-D DCT. For the following image find 2-D DCT. 07

I –	3	1
1 -	1	3

(b) Give a brief note on chain code with suitable example. 07

07