

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. IST Semester–Remedial Examination – July- 2011

Subject code: 710404N

Subject Name: Image Processing

Date:13/07/2011

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) Write a brief note on Fundamental steps in Digital Image Processing with necessary diagram. **07**
- (b) Explain Sampling and Quantization. Why it is necessary for Image Processing? **07**

- Q.2** (a) Explain all methods of Piecewise – Linear Transformation for Image Enhancement Compare it with basic Gray Level Transformation for Image Enhancement technique. **07**
- (b) Define Histogram processing. Derive necessary equations for Histogram Equalization. **07**

OR

- (b) Explain the procedure for Histogram Matching with necessary equations. **07**

- Q.3** (a) Explain basic Steps of filtering in the frequency domain with block diagram. **07**
- (b) Derive various gradient operators. Explain the process of edge detection using Gradient operators. What is the purpose of Laplacian operator? **07**

OR

- Q.3** (a) Discuss any one filter method for smoothing and sharpening in Frequency Domain. What is the difference between ILPF and Butterworth Low pass filter? **07**
- (b) Discuss Haar Transform and FFT **07**

- Q.4** (a) Discuss Hit–or–Miss Transformation. **07**
- (b) Explain Inverse Filtering for Image Restoration. **07**

OR

- Q.4** (a) Discuss Morphological opening and closing. **07**
- (b) Write a short note on Wiener Filtering **07**

- Q.5** (a) Write a short note on JPEG 2000 **07**
- (b) Define Thresholding. Discuss Basic Global Thresholding and Basic Adaptive Thresholding. **07**

OR

- Q.5** (a) Explain MPEG and also make comparison of different MPEGs. **07**
- (b) Write a short note on Hough Transform **07**
