

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VII • EXAMINATION – WINTER 2012****Subject code: 170307****Date: 28/12/2012****Subject Name: Image Processing (Department Elective-I)****Time: 10.30 am - 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Draw Block diagram and Discuss components of an Image Processing system. **07**
- (b)** Explain Basic Gray Level (Intensity) transformation. **07**
- Q.2 (a)** What is Histogram? Draw histogram patterns of Dark, Bright, Low and High contrast Image. Also discuss significance of histogram processing. **07**
- (b)** Explain Piece-wise Linear (Contrast stretching, Gray level slicing, Bit plane slicing) Transformation. **07**
- OR**
- (b)** Explain Zooming and Shrinking Digital Images. **07**
- Q.3 (a)** Explain Histogram Equalization. **07**
- (b)** Explain Image Averaging and its significance. **07**
- OR**
- Q.3 (a)** Explain Homomorphic Filtering. **07**
- (b)** Explain Sharpening Frequency Domain Filters. **07**
- Q.4 (a)** Explain second Derivatives for Enhancement (The Laplacian) **07**
- (b)** Compare Spatial smoothing (Low pass) and Frequency domain Low pass filters. **07**
- OR**
- Q.4 (a)** Write difference between Image Restoration and Image Enhancement. Draw Image degradation and restoration model. Also write expressions of any four Noise models. **07**
- Q.4 (b)** Write a short note on : RGB color model **07**
- Q.5 (a)** Explain JPEG Image Compression Standard. **07**
- (b)** Explain Huffman coding. **07**
- OR**
- Q.5 (a)** Explain Dilation and Erosion. **07**
- (b)** Explain Region Based Segmentation. **07**
