

No. of Printed Pages : 03

Roll No.

831

B. Tech. EXAMINATION, May 2017

(Eighth Semester)

(Old Scheme) (Re-appear Only)

(ECE)

ECE-412

IMAGE PROCESSING

Time : 3 Hours]

[Maximum Marks : 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions. All questions carry equal marks.

1. (a) Give simple image formation model of image processing. **5**

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- (b) What is distance measure ? Explain different types of distances used in relation to pixels. **5**
- (c) Name all basic gray-level transformations and explain log-transformation and power-law transformation functions. **10**
- 2. (a) Name and explain the properties of 2-dimensional DFT and its inverse. **10**
- (b) Give details about sharpening frequency domain filters. **10**
- 3. (a) Explain various components of image processing system. **10**
- (b) Explain briefly all three ways of estimating degradation function in image restoration system. **10**
- 4. (a) What is histogram of an image ? Give details about histogram equalization. **10**
- (b) What are the uses of Smoothing Spatial Filters ? Explain Smoothing linear filters in detail. **10**

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- 5. (a) Name and explain all types of redundancy in image compression techniques. **10**
- (b) Write a detailed note on lossy predictive coding. **10**
- 6. (a) Explain all noise probability density functions (PDF) found in image processing applications. **10**
- (b) Explain Mean Filters as a technique for noise-reduction and image restoration. **10**
- 7. (a) What is edge linking ? How it is used in edge and boundary detection ? **10**
- (b) What is thresholding ? What is the role of noise in image thresholding ? Also what is the role of illumination and reflectance in image thresholding. **10**
- 8. Write short notes on any *two* of the following :
 - (a) Homomorphic filtering **10**
 - (b) Run-length coding **10**
 - (c) Region Splitting and merging in segmentation process. **10**

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