

- (b) How one can stretch contrast of given image ? Write required transformation. **6**
8. (a) What are steps for frequency domain filtering ? **7**
- (b) How image smoothing is achieved in frequency domain ? Explain the process using any filter for this. **8**

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Roll No.

H-48

B. Tech. EXAMINATION, Dec. 2017

(Eighth Semester)

(B. Scheme) (Re-appear Only)

(EEE)

ECE-416-B

DIGITAL IMAGE PROCESSING

Time : 3 Hours]

[Maximum Marks : 75

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 *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What are the different components of an image processing system ? 8
(b) What are different levels of image processing ? 7
2. Draw and explain each part of structure of the human eye. 15

Unit II

3. (a) What is the role of light and the Electromagnetic spectrum in image processing ? 8
(b) Explain image formation using a simple image formation model. 7
4. What is the difference between analog and digital images ? Explain process of converting an analog image into digital image. 15

Unit III

5. (a) How will you differentiate between array and matrix operations ? Give at least one example of each type. In image processing which type of operation is performed ? 6
(b) How probabilistic methods are used in image processing ? Which statistical parameters of image are closely related to appearance of image ? 9
6. (a) How convolution and correlation are related ? Define each operation with computation formula for image processing. 7
(b) Prove the Fourier Transform is a linear transform. 8

Unit IV

7. (a) Define Grey level slicing. When we use it ? Give the transformation which will map intensities from a to b to intensity c in image, if a, b, c are within intensity range of digital image. 9