

**Unit IV**

No. of Printed Pages : 04

Roll No. ....

7. (a) Write basics of full color image processing. **8**  
(b) Explain HIS color model. **7**
8. Write short notes on the following :  
(a) RGB Color Model **7**  
(b) Intensity Slicing. **8**

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**Ph.D. (Course Work)**

**EXAMINATION, May 2019**

(ECE)

MTEC520C

**ADVANCED DIGITAL IMAGE  
PROCESSING**

*Time : 3 Hours]*

*[Maximum Marks : 75*

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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.

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**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit.

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**30**

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### Unit I

1. (a) Compare spatial and frequency domain processing of images. **5**
- (b) Write formula for obtaining DFT and IDFT for images. **5**
- (c) What is multiresolution analysis ? Why is it used ? **5**
2. (a) For a  $2^J \times 2^J$  image, compute the number of elements in  $J + 1$ -level pyramid and the compression or expansion ratio. **7**
- (b) Obtain the Haar transformation matrix for  $N = 8$ . **8**

### Unit II

3. (a) Write spatial and frequency properties of noise. **6**
- (b) Explain the method used to restore images in presence of noise only. Discuss the operation of three filters for this. **9**

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4. (a) Why estimation of degradation is required ? Explain any *one* method for this. **6**
- (b) Explain the method of image restoration that can be used if image is corrupted by noise and degradation both. **9**

### Unit III

5. (a) What are advantages of image compression ? Compare lossless and lossy compression. **7**
- (b) What is digital image watermarking ? What are its applications ? Explain, why robust invisible watermarks are designed. **8**
6. (a) Explain role of illumination in thresholding. **6**
- (b) How edges can be used to improve global thresholding ? **9**

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