

Code: R7411211

**R07**

B.Tech IV Year I Semester (R07) Supplementary Examinations, May 2013

**IMAGE PROCESSING**

(Information Technology)

Time: 3 hours

Max. Marks: 80

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) What are the elements of digital image processing? Discuss them in detail.  
(b) Briefly explain image model.  
(c) What are the basic relationships exist between pixels?
- 2 (a) What are the differences between image enhancement and image restoration techniques?  
(b) How can the image sharpening are achieved in frequency domain by a high pass filtering process?  
(c) Explain how neighborhood averaging technique is used to reduce the image blurring.
- 3 (a) Describe about image degradation model in detail.  
(b) What are the effects of diagonalization on the degradation model?  
(c) Explain about inverse filtering.
- 4 (a) How are color images smoothed and sharpened? Explain one technique of each.  
(b) Define thresholding. Present the color image thresholding.
- 5 (a) What is meant by error free compensation and explain a method for it?  
(b) Explain about image compression standards.
- 6 (a) Explain with examples dilation and erosion operations.  
(b) Explain about:
  - (i) Hit or miss transformation.
  - (ii) Morphologic algorithms.
- 7 (a) What is meant by image segmentation? Discuss various edge detection techniques.  
(b) Explain about region splitting and region merging.
- 8 (a) Explain how the chain code board's representation is done. Give an example.  
(b) Explain about:
  - (i) Fourier transform relations.
  - (ii) Euler's number for shape descriptors.

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