

Code No: M1225 /R07

**R07**

**Set No. 1**

**IV B.Tech. I Semester Supplementary Examinations, February/March - 2011**

**IMAGE PROCESSING  
(Information Technology)**

**Time: 3 Hours**

**Max Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks**

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1. Write a brief notes on various elements of digital image processing system, explain image acquisition devices in detail? [16]
2. What is meant by histogram equalization? Discuss how it is useful to Image enhancement. [16]
3. a) Explain Weiner filtering? [8+8]  
b) What are degradations? Explain how degradations are modeled?
4. a) How smoothing and sharpening can be done for a color image?  
b) Explain color image compression? [10+8]
5. Explain any two techniques of coding in error free compression? [16]
6. a) Explain Dilation and Erosion operations? [8+8]  
b) Explain Opening and Closing operations?
7. a) Give a brief note about edge linking. [8+8]  
b) Give a brief note about region-based segmentation
8. a) Explain Patterns classes in detail?  
b) Explain string matching? [8+8]

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**Set No. 2**

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**IMAGE PROCESSING**  
**(Information Technology)**

**Time: 3 Hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. Distinguish between spatial domain techniques and frequency domain techniques [16]
2. a) What do you mean by image smoothing and how it is done?  
b) Explain about sharpening spatial filtering? [8+8]
3. a) Explain the properties of 2-D Fourier transform?  
b) Explain mean, adaptive, order-statistics filters? [8+8]
4. a) Explain Pseudo color image processing? [8+8]  
b) Compare RGB color model with HSI Color model?
5. a) Explain source encoder and decoder in detail? [8+8]  
b) Explain channel encoder and decoder in detail?
6. Explain the following morphological algorithms [4+4+4+4]
  - a) Boundary Extraction
  - b) Region Filling
  - c) Convex hull
  - d) Pruning
7. (a) Explain how the second-order derivative of a 2-D function is computed in spatial domain.  
(b) Give a detailed note about Hough transform. [8+8]
8. Explain object recognition based on neural networks and structural Methods? [16]

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**Set No. 3**

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**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 is Image processing and explain the components of it?  
b) What is Spatial and Gray level resolution? [8+8]
2. a) How we can enhance an image using arithmetic/logic operations  
b) Define histogram and explain how image can be enhanced using histogram specification? [8+8]
3. Explain image restoration using algebraic approach and Least Mean Squares? [16]
4. Explain color segmentation in HCI color space and RGB vector space? [16]
5. a) Explain Pseudo color image processing? [8+8]  
b) Compare RGB color model with HSI Color model?
6. (a) Describe about Morphological segmentation.  
(b) How we can use morphology in coding redundancy? [8+8]
7. Explain global processing via the Hough transform and graph Theoretic techniques? [16]
8. Write short notes on [6+5+5]
  - i) Image smoothing
  - ii) decision theoretic methods
  - iii) object recognition

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**Set No. 4**

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**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) Write a brief notes on various components of digital image processing System?  
b) Explain the formation of a simple image? [10+ 6]
2. Explain the following gray level transformation [4+4+4+4]  
a) Image negative                      b) power law transformations  
c) Log transformations                d) piecewise linear transformation functions
3. Explain constrained least squares filtering and geometric filtering? [16]
4. Explain different color models? [16]
5. a) Explain Lossy predictive coding with example?  
b) Explain different video compression standards? [8+8]
6. a) Explain the applications of morphological image processing?  
b) Explain structuring element in morphological processing? [8+8]
7. a) What is thresholding? Explain different types of thresholding?  
b) Write an algorithm for region splitting and growing? Explain it in detail? [8+8]
8. a) Define pattern and pattern class  
b) Explain about recognition based and decision theoretic methods. [8+8]