Code No: K0521 **R07** **Set No. 1**

IV B.Tech. II Semester Regular Examinations, April, 2013

IMAGE PROCESSING

(Computer Science and Engineering)

Time: 3 Hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain 4 connectivity, 8 connectivity, m connectivity with reference to relation between pixels? Where is the concept of connectivity used in Image Processing? [16]

2. Explain the types of gray level transformation used for image enhancement. [16]

3. a) Explain the Basic model for image degradation/restoration process. [8]
   b) Explain the operation of inverse filtering [8]

4. What is a Color Model? Explain the HIS color Model and conversions. [16]

5. What is JPEG? Explain in detail about image compression using JPEG. [16]

6. a) Discuss about opening and closing operations? . [8]
   b) Write a short note on region filling. [8]

7. Illustrate with suitable examples how are gradient operators used for detection of edges in medical images

8. Explain the following:
   a) Optimum Statistical Classifiers [8]
   b) Pattern classes. [8]

Code No: K0521 **R07** **Set No.2**

IV B.Tech. II Semester Regular Examinations, April, 2013

IMAGE PROCESSING

(Computer Science and Engineering)

Time: 3 Hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. a) State the Applications of Image processing [10]
   b) Discuss about Distance measures with reference to relation between pixels [6]

2. How are the Images enhanced using Arithmetic and Logical operations? Explain Image subtraction and averaging operations [16]

3. a) Explain image degradation model /restoration process in detail [8]
   b) Explain image enhancement in the frequency domain [8]

4. Explain the following :
   a) Color Edge detection . [8]
   b) Tone and color corrections. [8]

5. Diffeentiate between lossless and lossy compression and explain transform coding system with a neat diagram. [16]

6. State any 8 Mophological operations on Binary Images [16]

7. show that how hough transforms can be used to link edges [16]

8. Explain about different structural methods for recognition of pattern shape [16]

Code No: K0521 **R07** **Set No. 3**

IV B.Tech. II Semester Regular Examinations, April, 2013
IMAGE PROCESSING
(Computer Science and Engineering)

Time: 3 Hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
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1. a) Define an Image? Discuss about Image formation, Model and representation
   b) Discuss about types of Images. [10+6]

2. What are image sharpening filters? Explain the various types of it. [16]

3. a) Discuss about Constrained Least square restoration for anl image in detail [8]
   b) Explain mean filter in detail [8]

4. Discuss about Color Smoothing and sharpening [16]

5. Explain the lossy predictive coding with delta modulation technique with neat sketch. [16]

6. a) Write a note on dilation and erosion? State applications for both. [8]
   b) Explain about extraction of connected components in the binary image. [8]

7. How is line detected? Explain through the operators. [16]

8. Define pattern and pattern classes. Breif any 3 pattern recognition Methods. [16]

Code No: K0521 **R07** **Set No. 4**

IV B.Tech. II Semester Regular Examinations, April, 2013
IMAGE PROCESSING
(Computer Science and Engineering)

Time: 3 Hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks
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1. a) Define an image. Explain basic operations like image addition, subtraction, Rotation and averaging [8]
   b) Describe the sample Image formation Model [8]

2. What is histogram? Explain histogram equalization and histogram Matching [16]

3. a) What is the use of wiener filter in image restoration? Explain. [8]
   b) Explain the properties of 2D Fourier Transform. [8]

4. Discuss about Pseudo color Image processing [16]

5. What is image compression? Explain any three variable length coding compression schemes. [16]

6. a) Discuss how hit or miss transformation is useful for morphological image processing [8]
   b) Discuss about thickening and thinning operations [8]

7. What are edges of an image? Explain about gradient, second order derivative based methods for the detection of edges in an image. [16]

8. Define Pattern. Explain any 2 decision-theoretic method based recognition. [16]