Code No: RR410507 | **RR** | | **Set No. 2**

IV B.Tech I Semester Examinations,NOVEMBER 2010
DIGITAL SPEECH AND IMAGE PROCESSING
Common to Information Technology, Electronics And Computer
Engineering, Computer Science And Engineering

Time: 3 hours **Max Marks: 80**

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

1. (a) What is the expression for performing convolution of images. Explain the terms involved in it.

   (b) If the template T is defined as

   $$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

   and the image I is defined as

   $$\begin{bmatrix} 1 & 1 & 3 & 3 \\ 1 & 1 & 4 & 4 \\ 2 & 1 & 3 & 3 \\ 1 & 1 & 1 & 4 \end{bmatrix}$$

   find the resulting convolved image T * I. [6+10]

2. (a) What do you mean by relative address coding?

   (b) Differentiate one dimentional and two dimentional Run length coding.

   (c) What are the advantages of white block skipping? [6+6+4]

3. (a) List the principle applications of morphology.

   (b) Define Dilation and Erosion operations. Give examples

   (c) Let A and B are two sets of Z^2 and Φ is the empty set, show that
   $A \oplus B = x/(\hat{B})_x \cap A \neq \Phi \{ c \subset Z^2/c = a + b$ for some $a \in A$ and $b \in B\}$ [4+6+6]

4. Explain how a RGB colour image is converted into different colour models using different conversion formula. [16]

5. Discuss about the following edge detection techniques

   (a) Laplacean of Gaussian (LOG)

   (b) Thresholded LOG

   (c) Zero crossing. [6+5+5]

6. The mean and standard deviation of the background pixels in the image shown are 110 and 150 respectively. The object pixels have mean and standard deviation values of 200 and 40 respectively. Give a thresholding solution for segmenting the objects of the image. [16]

1

7. (a) What is meant by gamma correction. What is its significance.

   (b) How gray-level slicing is performed.   [10+6]

8. What are the types of compression used in image application. Mention the requirements of compression. Briefly explain.   [16]

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Code No: RR410507 | **RR** | **Set No. 4**

IV B.Tech I Semester Examinations,NOVEMBER 2010
DIGITAL SPEECH AND IMAGE PROCESSING
Common to Information Technology, Electronics And Computer
Engineering, Computer Science And Engineering
Time: 3 hours   Max Marks: 80
Answer any FIVE Questions
All Questions carry equal marks
⋆ ⋆ ⋆ ⋆ ⋆

1. Explain how a RGB colour image is converted into different colour models using different conversion formula. [16]

2. (a) What do you mean by relative address coding?

   (b) Differentiate one dimentional and two dimentional Run length coding.

   (c) What are the advantages of white block skipping? [6+6+4]

3. (a) List the principle applications of morphology.

   (b) Define Dilation and Erosion operations. Give examples

   (c) Let A and B are two sets of Z^2 and Φ is the empty set, show that
   $A \oplus B = x/(\hat{B})_x \cap A \neq \Phi \{ c \subset Z^2/c = a + b$ for some $a \in A$ and $b \in B\}$ [4+6+6]

4. What are the types of compression used in image application. Mention the requirements of compression. Briefly explain. [16]

5. (a) What is meant by gamma correction. What is its significance.

   (b) How gray-level slicing is performed. [10+6]

6. Discuss about the following edge detection techniques

   (a) Laplacean of Gaussian (LOG)

   (b) Thresholded LOG

   (c) Zero crossing. [6+5+5]

7. The mean and standard deviation of the background pixels in the image shown are 110 and 150 respectively. The object pixels have mean and standard deviation values of 200 and 40 respectively. Give a thresholding solution for segmenting the objects of the image. [16]

8. (a) What is the expression for performing convolution of images. Explain the terms involved in it.

   (b) If the template T is defined as

$$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

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and the image I is defined as

$$\begin{bmatrix} 1 & 1 & 3 & 3 \\ 1 & 1 & 4 & 4 \\ 2 & 1 & 3 & 3 \\ 1 & 1 & 1 & 4 \end{bmatrix}$$

find the resulting convolved image T * I.   [6+10]

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FIRSTRANKER

Code No: RR410507 $\boxed{\textbf{RR}}$ $\boxed{\textbf{Set No. 1}}$

IV B.Tech I Semester Examinations,NOVEMBER 2010
DIGITAL SPEECH AND IMAGE PROCESSING
Common to Information Technology, Electronics And Computer
Engineering, Computer Science And Engineering

Time: 3 hours **Max Marks: 80**

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

1. (a) What do you mean by relative address coding?
   (b) Differentiate one dimentional and two dimentional Run length coding.
   (c) What are the advantages of white block skipping? [6+6+4]

2. Discuss about the following edge detection techniques
   (a) Laplacean of Gaussian (LOG)
   (b) Thresholded LOG
   (c) Zero crossing. [6+5+5]

3. What are the types of compression used in image application. Mention the requirements of compression. Briefly explain. [16]

4. Explain how a RGB colour image is converted into different colour models using different conversion formula. [16]

5. (a) List the principle applications of morphology.
   (b) Define Dilation and Erosion operations. Give examples
   (c) Let A and B are two sets of Z^2 and Φ is the empty set, show that
   $A \oplus B = x/ (\hat{B})_x \cap A \neq \Phi \{ c \subset Z^2/c = a + b \text{ for some } a \in A \text{ and } b \in B\}$ [4+6+6]

6. (a) What is meant by gamma correction. What is its significance.
   (b) How gray-level slicing is performed. [10+6]

7. The mean and standard deviation of the background pixels in the image shown are 110 and 150 respectively. The object pixels have mean and standard deviation values of 200 and 40 respectively. Give a thresholding solution for segmenting the objects of the image. [16]

8. (a) What is the expression for performing convolution of images. Explain the terms involved in it.
   (b) If the template T is defined as

$$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

and the image I is defined as

$$\begin{bmatrix} 1 & 1 & 3 & 3 \\ 1 & 1 & 4 & 4 \\ 2 & 1 & 3 & 3 \\ 1 & 1 & 1 & 4 \end{bmatrix}$$

find the resulting convolved image T * I.   [6+10]

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FIRSTRANKER

6

Code No: RR410507 | RR | Set No. 3

IV B.Tech I Semester Examinations,NOVEMBER 2010
DIGITAL SPEECH AND IMAGE PROCESSING
Common to Information Technology, Electronics And Computer
Engineering, Computer Science And Engineering

Time: 3 hours   Max Marks: 80

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

1. The mean and standard deviation of the background pixels in the image shown are 110 and 150 respectively. The object pixels have mean and standard deviation values of 200 and 40 respectively. Give a thresholding solution for segmenting the objects of the image.   [16]

2. (a) What is meant by gamma correction. What is its significance.

    (b) How gray-level slicing is performed.   [10+6]

3. (a) What do you mean by relative address coding?

    (b) Differentiate one dimentional and two dimentional Run length coding.

    (c) What are the advantages of white block skipping?   [6+6+4]

4. Explain how a RGB colour image is converted into different colour models using different conversion formula.   [16]

5. Discuss about the following edge detection techniques

    (a) Laplacean of Gaussian (LOG)
    (b) Thresholded LOG
    (c) Zero crossing.   [6+5+5]

6. (a) What is the expression for performing convolution of images. Explain the terms involved in it.

    (b) If the template T is defined as

$$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

    and the image I is defined as

$$\begin{bmatrix} 1 & 1 & 3 & 3 \\ 1 & 1 & 4 & 4 \\ 2 & 1 & 3 & 3 \\ 1 & 1 & 1 & 4 \end{bmatrix}$$

    find the resulting convolved image T * I.   [6+10]

7. What are the types of compression used in image application. Mention the requirements of compression. Briefly explain.   [16]

8. (a) List the principle applications of morphology.

   (b) Define Dilation and Erosion operations. Give examples

   (c) Let A and B are two sets of Z^2 and Φ is the empty set, show that
   $A \oplus B = x/(\hat{B})_x \cap A \neq \Phi \{ c \subset Z^2/c = a + b$ for some $a \in A$ and $b \in B\}$ [4+6+6]

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