

**R16**

Code No: 136BD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, November/December - 2020

**DIGITAL IMAGE PROCESSING**  
(Electronics and Communication Engineering)

Time: 2 hours

Max. Marks: 75

Answer any five questions  
All questions carry equal marks

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- 1.a) Let  $V=\{0,1\}$ . Compute D4, D8 distance between the pixels p and q for the figure given below.

(q)  $\begin{matrix} 1 & 1 & 2 & 3 \\ 0 & 2 & 2 & 1 \\ 1 & 1 & 0 & 2 \\ 2 & 1 & 2 & 1 \end{matrix}$  (p)

- b) Derive  $8 \times 8$  slant transform and write its order of sequence. [6+9]

- 2.a) How an image is analyzed using Discrete Cosine Transform? Explain.

- b) How Hotelling transform differ from other transforms? Explain. [8+7]

3. Explain various spatial domain techniques for image enhancement. [15]

4. Explain the histogram equalization method of image enhancement with an example and compare it with histogram specification. [15]

- 5.a) What is meant by inverse filtering? Explain and compare it with least square methods.

- b) Why the restoration is called as unconstrained restoration? [12+3]

- 6.a) Discuss about Constrained Least square restoration for a digital image in detail.

- b) Give the difference between Enhancement and Restoration. [11+4]

7. Explain the split and merge segmentation technique and what are the advantages of it compared to threshold techniques. [15]

- 8.a) Construct the Huffman code for the word "BABY". Also compute the efficiency of Huffman Code.

- b) Draw the basic image compression model and explain it. [9+6]

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