

Code No: 155BT

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, February - 2022

IMAGE PROCESSING

(Common to CSE, IT)

Time: 3 hours

Max. Marks: 75

Answer any five questions  
All questions carry equal marks

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- 1.a) Explain the basic relationship between pixels.  
b) Explain in detail about the properties of 2D-DCT. [8+7]
- 2.a) Explain different Scanning mechanisms in Digital Image processing.  
b) Explain imaging geometry used in Digital image processing. [7+8]
3. Write about the following:  
a) Image Smoothing  
b) Image Sharpening. [7+8]
- 4.a) Compute the median value of marked pixels shown using the  $3 \times 3$  pixels.

18	22	33	25	32	24
34	128	24	172	26	23
22	19	32	31	28	26

- b) Give an overview of image enhancement in spatial domain. [5+10]
5. What is constrained least squares restoration? Explain. [15]
6. What is meant by interactive restoration? Explain. [15]
- 7.a) What is laplacian of an image? Derive an appropriate mask for the Laplacian operator. Explain how Laplacian can be used for detecting edges in an image.  
b) Explain any one clustering algorithm for image segmentation. [7+8]
- 8.a) How can data be compressed using dictionary-based compression?  
b) Explain about JPEG compression scheme in detail. [7+8]

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