

Code No: 137SE

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, March - 2021

DIGITAL IMAGE PROCESSING

(Electronics and Communication Engineering)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions

All Questions Carry Equal Marks

- 1.a) Explain about the basic relationships and distance measures between pixels in a digital image.
- b) Explain Discrete Cosine Transform and specify its properties. [8+7]
- 2.a) Is fast algorithm applicable for computation of Hadamard transform, if so what are the problems encountered in implementation.
- b) With a neat block diagram, explain the fundamental steps in digital image processing. [8+7]
- 3.a) What is a histogram of an image? Sketch histograms of basic image types.
- b) Discuss how histogram is useful for image enhancement give one example. [8+7]
- 4.a) Explain any two methods used for digital image zooming and shrinking.
- b) Discuss about the basics of filtering in the frequency domain. [8+7]
- 5.a) Describe constrained least square filtering technique for image restoration and derive its transfer function.
- b) Write a short note on interactive restoration of an image. [10+5]
- 6.a) Discuss about Edge Linking and Boundary Detection.
- b) Explain about detection of discontinuities. [8+7]
- 7.a) Explain the Morphological Erosion and Dilation combination process with one example.
- b) Discuss about Hit or Miss Transformation. [9+6]
- 8.a) Describe in detail the lossless predictive coding error free compression.
- b) Explain briefly the transform based compression. [8+7]

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