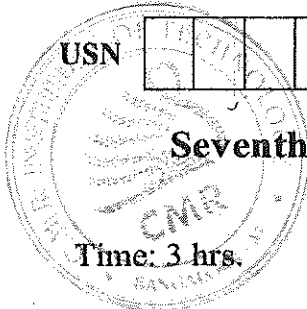


CBCS SCHEME

15EC72



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Seventh Semester B.E. Degree Examination, Dec.2019/Jan.2020 Digital Image Processing

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- a. With the help of a block diagram, explain the fundamental steps in digital image processing. (10 Marks)
- b. Explain the concept of sampling and quantization using a single example. (06 Marks)

OR

- a. Explain the importance of brightness adaption and discrimination in image processing. (06 Marks)
- b. Explain 'false contouring' and check board pattern in image processing. (06 Marks)
- c. Explain city block distance with an example. (04 Marks)

Module-2

- a. Explain the power law transformation and piece -wise linear contrast stretching with a neat graphical illustration. (10 Marks)
- b. Explain with a block diagram, the basic steps for image filtering in frequency domain. (06 Marks)

OR

- a. Perform histogram, equalization of the 5×5 image.

Gray level	0	1	2	3	4	5	6	7
Number of pixels	0	0	0	6	14	5	0	0

Table Q4(a)

- whose data is shown in table Q4(a). (08 Marks)
- b. Explain the smoothing of images in frequency domain using :
i) ideal low pass filter ii) butter-worth low pass filter. (08 Marks)

Module-3

- a. Explain the basic model of image restoration process. Explain any four important noise probability density functions. (10 Marks)
- b. Explain minimum mean square error (Wiener) filtering in image processing. (06 Marks)

OR

- a. Explain adaptive mean filter and list its advantages. (08 Marks)
- b. With necessary mathematical equations, explain estimate the degradation function by modeling. (08 Marks)

Module-4

- a. Develop a procedure for converting :
i) RGB to HSI model
ii) HSI to RGB model. (08 Marks)
- b. Obtain the Harr transform matrix for $N = 4$. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

OR

- 8 a. Write a note on pseudocolor image processing. Explain intensity slicing as applied to pseudo color image processing. (08 Marks)
- b. Explain Erosion and Dilation in image processing. (08 Marks)

Module 5

- 9 a. Explain Marr-Wildreth edge detector in image processing. (08 Marks)
- b. Explain MPP algorithm in image representation (MPP – Minimum Perimeter Polygon). (08 Marks)

OR

- 10 a. Explain basic global thresholding with iterative algorithm. (08 Marks)
- b. Explain simple descriptors and Fourier descriptors. (08 Marks)
