CBCS SCHEME

USN | | | | | | | | | | |

18AI62

Sixth Semester B.E. Degree Examination, June/July 2024
Digital Image Processing

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Define Digital Image Processing. Discuss the fundamental steps in digital image processing with neat diagram. **(12 Marks)**

b. Describe the structure of a cross section of the human eye. **(08 Marks)**

OR

2 a. Illustrate image sensing and acquisition process. (Any one method) **(10 Marks)**

b. Discuss "some basic relationship between pixels. **(10 Marks)**

Module-2

3 a. Explain Power-Law (Gamma) transformation with diagram. **(10 Marks)**

b. Describe histogram processing with atleast two examples. **(10 Marks)**

OR

4 a. Discuss the properties of the 2-D Discrete Fourier transform. **(12 Marks)**

b. Explain in detail Gaussian highpass filters. **(08 Marks)**

Module-3

5 a. Discuss any three 'noise probability density function'. **(12 Marks)**

b. Briefly explain the 'order – statistic filters'. **(08 Marks)**

OR

6 a. Describe Minimum Mean Square Error (Wiener) filtering with an example. **(10 Marks)**

b. Briefly describe the three ways to estimate the degradation function for use in image restoration. **(10 Marks)**

Module-4

7 a. Explain the conceptual relationship between the RGB and HSI color models. **(10 Marks)**

b. Describe the background of wavelets with suitable illustrations. **(10 Marks)**

OR

8 a. Explain the functional block diagram for pseudo color image processing. **(10 Marks)**

b. Explain the simple system for constructing two intimately related image pyramids. **(10 Marks)**

Module-5

9 a. Discuss the different ways of classifying the segmentation algorithm. **(10 Marks)**

b. Discuss the three types of grey level discontinuities in a digital image. **(10 Marks)**

OR

10 a. Describe boundary descriptors with respect to numbers. **(10 Marks)**

b. Discuss the dilation and erosion operators. **(10 Marks)**

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