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BICS-024

B. TECH.-VIEP-COMPUTER SCIENCE AND ENGINEERING (BTCSVI)

Term-End Examination

June, 2019

BICS-024 : DIGITAL IMAGE PROCESSING

Time : 3 Hours *Maximum Marks : 70*

***Note** : Answer any **seven** questions. All questions carry equal marks.*

1. Explain plane-to-plane transformation. 10

2. Explain the elements of visual perception. 10

3. What is the difference between bitmap images and vector images ? Explain HSV, RGB and CMY color models. Discuss advantages and disadvantages of each of those color models. 10

4. What are Wavelet functions ? Derive wavelet transforms in one dimension. 10

5. What do you mean by Image Restoration ? Explain the degradation model in detail. Discuss the minimum mean-square error approach of Restoration. 10

6. Explain the concept of thresholding in image segmentation and write its merits and demerits. 10

7. Explain the need for image compression. How run length encoding approach is used for compression ? 10

8. What is the need of transforming any image from spatial domain to frequency domain ? List the algorithms used to perform transformation from spatial domain to frequency domain. Explain on the basis of filtering in frequency domain. 10

   Differentiate between low pass filters and high pass filters.

9. Differentiate between the following : 10]

   (a) Dilation and Erosion

   (b) Arithmetic mean filter and Geometric mean filter

10. Write short notes on any *two* of the following : 2×5

    (a) Chain codes

    (b) Convex Hull

    (c) Pattern Fitting Approach