

**B.Tech. – VIEP – COMPUTER SCIENCE AND
ENGINEERING (BTCSVI)**

00563 Term-End Examination

June, 2018

BICS-024 : DIGITAL IMAGE PROCESSING

Time : 3 hours

Maximum Marks : 70

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

1. (a) Explain the components of an image processing system, with the help of a suitable diagram. 5
- (b) What is the requirement of histogram specification in image processing ? List the steps performed in the process of histogram specification. 5
2. (a) Differentiate between contrast stretching and histogram equalization. 5
- (b) State and prove the translation property of Discrete Fourier Transform. 5

3. (a) Discuss the concept of sampling and quantization, in the context of image processing. 5
- (b) What is thresholding ? What is the role of thresholding in image processing ? List the different types of thresholding. 5
4. Explain the Canny optimal edge detection method with the help of suitable diagram and example. 10
5. Differentiate between the concept of image registration and image restoration. List the algorithms designated under each concept, separately. 10
6. Explain the correspondence between filtering in spatial and frequency domain. Draw a tree structure to mark the filtering techniques of each domain, i.e. spatial and frequency domain. 10
7. Explain the process of Dilation and Erosion, with the help of suitable example. Prove that Erosion and Dilation are dual transformations. 10
8. What do you mean by Color space ? Classify the color space and describe the CMY color model. 10

9. Write short notes on any *two* of the following (give suitable example for each) : 5+5

- (a) Power Law Transform
- (b) Contrast Stretching
- (c) Bit Plane Slicing

10. Explain the term Feature extraction in the context of Image processing. Discuss the techniques involved in feature extraction. 10
