

**B.Tech. – VIEP – COMPUTER SCIENCE AND
ENGINEERING (BTCSVI)****Term-End Examination****December, 2015****BICS-024 : DIGITAL IMAGE PROCESSING***Time : 3 hours**Maximum Marks : 70*

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

1. (a) What do you mean by Image processing ?
Explain the steps in Image processing with
the help of a diagram. 5
- (b) Give various Gray level slicing techniques.
What is contrast stretching ? 5
2. Compare the following basic frequency domain
filters : 10
 - (a) Ideal low pass
 - (b) Butterworth low pass
 - (c) Gaussian low pass

3. Explain Bandpass filter techniques for noise reduction. Also explain in detail Minimum Square Error Filtering. 10
4. Explain the following in detail : 10
- (a) Dilation and Erosion
 - (b) Opening and Closing
5. What do you mean by morphology ? Discuss any one morphological algorithm with a suitable example. 10
6. Discuss the following techniques with examples : 10
- (a) Line Detection
 - (b) Edge Detection
7. What do you mean by thinning and thickening of an image ? Discuss the method for thinning of an image. 10
8. (a) Explain how an image is formed in the human eye and how it adapts and discriminates brightness levels. 5
- (b) What are blurring and ringing effects ? How can they be avoided ? 5

9. Explain Mapping and Stereo Imaging with suitable diagrams. 10

10. Write short notes on any *four* of the following : $4 \times 2 \frac{1}{2} = 10$

- (a) Mean Filter
 - (b) Sampling
 - (c) Element of Visual Perception
 - (d) Convex Hull
 - (e) Multi-level Thresholding
 - (f) Pattern Fitting Approach
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