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Printed Pages : 3

TCS702

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0101

Roll No.

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B.Tech

(SEM VII) ODD SEMESTER THEORY EXAMINATION 2009-10 DIGITAL IMAGE PROCESSING

Time : 3 Hours]

[Total Marks : 100

- Note :*
- (1) Attempt all questions.
 - (2) Each question carries equal marks.

- 1 Attempt any four parts of the following : $5 \times 4 = 20$
- (a) Explain the sampling and quantisation of images with the help of suitable diagram.
 - (b) Discuss the Visual System and elements of Visual Perception.
 - (c) Discuss the Histogram specification.
 - (d) Explain the contrast stretching with the help of example.
 - (e) Explain the Digital processing of camera images.
 - (f) Explain spatial domain methods.
- 2 Attempt any four parts of the following :
- (a) Explain the concept of filtering and its advantage.



- (b) Discuss low-pass filter and high-pass filter in brief.
- (c) Explain the Minimum Mean-square Error Restoration.
- (d) Explain the operation of Band-pass filters.
- (e) Explain the basis of filtering in Frequency Domain and Frequency Domain method.
- (f) Discuss the common sources of blurring and noise.

3 Attempt any two parts of the following :

- (a) Explain the HSI (Hue Saturation Intensity) colour model. Discuss Image Smoothing too.
- (b) Explain the feature extraction and differentiate it with the segmentation of the image processing.
- (c) Explain the Morphological image processing in detail.

4 Attempt any two parts of the following :

- (a) Explain the Geometric Transformation of Images using Spline-Interpolation.
- (b) Discuss various Thresholding algorithms.
- (c) Write short notes on the following :
 - (i) Edge relaxation
 - (ii) Border Tracing

5 Attempt any four parts of the following :

- (a) Explain the flow diagram of Image analysis and understanding methods.
- (b) What is clustering? Discuss types of clustering.
- (c) Explain the feature extraction and feature detectors.
- (d) Discuss Geometric Invariants.
- (e) Describe in brief object recognition.
- (f) Discuss Multi-level feature processing.