



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

PAPER ID : 121853

Roll No.

--	--	--	--	--	--	--	--	--	--

B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15
IMAGE PROCESSING

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all the problems.

1 Justify the validity of following statements with reasons :

- (a) In image processing dirac delta impulse helps to express image digitization in an elegant way.
- (b) Image is a stochastic process.
- (c) M pyramid and T pyramid provides data structures to describe multiple image resolution.
- (d) Grey level quantization governs the appearance of shading and false counter.
- (e) Kalman is used for path detection.
- (f) "Log Sigmoid" function is most eminently used function in Neural Networks.

2 Answer any two parts of the following : **10×2=20**

- (a) Discuss Fourier wavelet principal components, analysis in image analysis in detail.

- (b) Differentiate in between
 - (i) Linear and Bicubic interpolation
 - (ii) Winer and Inverse filtration
- (c) Discuss in detail how curve detection is done using Hough transform.

3 Answer any two parts of the following : **10×2=20**

- (a) Discuss matched based segmentation in detail. What is supervised and unsupervised evaluation ? Differentiate with some examples.
- (b) Discuss various types of boundaries with its boundaries in detail.
- (c) Discuss neural network model in detail. What is Boltzman, Hopfield and Koherien model ? How they are useful for the recognition ?

4 Answer any two parts of the following : **10×2=20**

- (a) Discuss use of Fuzzy logic in image recognition with examples.
- (b) How pattern recognition method is done for rapid object recognition. Explain in detail.
- (c) Discuss ADA BOOST feature selection and Learning Algorithm in detail.

5 Write short notes on : (any four)

5×4=20

- (a) Vignetting
 - (b) Kalman theorem
 - (c) Marr's theorem
 - (d) Viterbi algorithm
 - (e) Isomorphism
 - (f) Estimation and Detection
 - (g) 3D-Image processing.
-