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B.TECH.

THEORY EXAMINATION (SEM–VIII) 2016-17

IMAGE PROCESSING

Time : 3 Hours ***Max. Marks : 100***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION – A

1. Explain the following: **10 x 2 = 20**

(a) Define sampling process.

(b) What is bit plane silencing?

(c) Name any two noise model

(d) What is hue and saturation?

(e) What is meant by pixel?

(f) Specify the elements of DIP system.

(g) What do you mean by mach bands?

(h) What is kalman theorem?

(i) How cones and rods are distributed in retina?

(j) What is meant by path?

SECTION – B

2. Attempt any five parts of the following questions: **5 x 10 = 50**

(a) Justify that image is a stochastic process.

(b) Explain stereo imaging elements of visual perception

(c) Classify different types of image quantizer .What do you mean by image quantizer ? What are the advantages of image quantizer ?. Discuss uniform optimal quantizer.

(d) Find the expression for DFT of an NxN image u(m,n) and the properties of this transform.

(e) Draw the block diagram of a digital image restoration system and explain it. Classify the image restoration system and explain Wener filter.

(f) What is image segmentation? Why it is required? Explain region growing technique.

(g) How pattern recognition method is done for rapid object recognition? Explain in detail.

(h) Draw the block diagram of signature verification and explain its working.

SECTION – C

Attempt any two parts of the following questions: **2 x 15 = 30**

3 Explain Hough transform, topological and texture analysis.

4 **Write short note on :**

(i) Pseudo color enhancement.

(ii) Finger print classification.

(iii) Run length coding

5 Define the moment for a two dimensional signal f(x, y)> 0. How different order of moments is useful in image recognition? What are the different moment invariant related to image recognition?