

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 $N \times N$ 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?