

**B.Tech. SEM -VII Electronics / (E & TC Engg.) 2014 Course (CBCS) :  
SUMMER - 2019**

**SUBJECT-ELECTIVE-I DIGITAL IMAGE PROCESSING**

Day: Wednesday  
Date: 15/05/2019

S-2019-2824

Time: 02.30 PM TO 05.30 PM  
Max. Marks: 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

**Q.1** List the components of Digital Image Processing and describe few of its applications. (10)

**OR**

**Q.1** a) How image is sampled and quantized? (05)  
b) Give basic relationships between pixels. (05)

**Q.2** Describe the following terms. (10)  
i) Histogram matching ii) Local histogram processing

**OR**

**Q.2** a) How image sharpening is obtained using spatial domain filters? (05)  
b) How can Gaussian filter be used for image enhancement? (05)

**Q.3** What are various image compression methods? Explain Huffman coding. (10)

**OR**

**Q.3** a) Describe the principal types of data redundancies. (05)  
b) Derive the equations for discrete wavelet transform. (05)

**Q.4** Why digital water making is necessary? Describe typical image water marking system. (10)

**OR**

**Q.4** a) Enlist gray scale morphological algorithms. Illustrate any one algorithm. (05)  
b) Write the significance of convex hull & thinning. (05)

**Q.5** Discuss the segmentation using morphological watersheds. (10)

**OR**

**Q.5** a) Describe any one advanced technique for edge detection. (05)  
b) Write a note on Hough transform. (05)

**Q.6** Describe the block diagram of Iris recognition system. (10)

**OR**

**Q.6** a) Compare 2D and 3D images. (05)  
b) Explain the concept of image recognition. (05)

\* \* \* \* \*