

Code: EC7T2

**IV B.Tech - I Semester – Regular / Supplementary Examinations
November 2016**

**DIGITAL IMAGE PROCESSING
(ELECTRONICS & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) What is meant by a pixel? Discuss how a digital image can be represented with pixels? 7 M

b) Explain about image sampling and quantization process. 7 M

2. a) Explain how Fourier transforms are useful in digital image processing and explain the properties of Fourier transform. 7 M

b) Explain the properties of slant transform. 7 M

3. a) Define histogram of a digital image. Explain how histogram is useful in image enhancement? 7 M

b) What is meant by image enhancement and how it is achieved by point processing? 7 M

4. a) Explain the basics of filtering in the frequency domain. 7 M
- b) Explain about image sharpening process with an example. 7 M
5. a) Explain the process of converting colors from RGB to HIS and vice versa. 7 M
- b) Discuss with an example how a color image can be represented? 7 M
6. a) What is meant by degradation functions? Explain the process of estimating the degradation function. 7 M
- b) Explain about constrained least squares restoration process for image restoration. 7 M
7. a) Explain the significance of Thresholding in image segmentation. 7 M
- b) Discuss about edge linking and boundary detection. 7M
8. a) Define image compression. Explain about the redundancies in a digital image. 7 M
- b) What is error-free compression? Explain about source encoder. 7 M