

**R16**

Code No: 136BD

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech III Year II Semester Examinations, July/August - 2021**

**DIGITAL IMAGE PROCESSING**  
(Electronics and Communication Engineering)

**Time: 3 hours**

**Max. Marks: 75**

**Answer any five questions**  
**All questions carry equal marks**

---

- 1.a) What is meant by Digital Image Processing? Explain three different PN processes in image processing.
- b) Compute Haar transform for  $N=8$ . [8+7]
2. What is image enhancement? Explain how can be a monochrome image can be enhanced by histogram equalization. [15]
- 3.a) Explain the basics of spatial filtering. Also discuss in detail about the different filters used in the enhancement of images in spatial domain.
- b) Discuss the image smoothing filter with its model in the spatial domain. [8+7]
- 4.a) Explain the algebraic approach to Image Restoration with necessary equations.
- b) Explain the use of wiener filter in image restoration. [10+5]
- 5.a) Explain how to detect a boundary in an image.
- b) Explain the methods of region band segmentation. [7+8]
- 6.a) Explain the concept of thresholding in image segmentation and write its merits and demerits
- b) Explain the opening operation in image morphology with examples. [8+7]
- 7.a) What are different types of redundancies in an image? Explain them.
- b) Explain fidelity criteria for image processing with suitable examples. [10+5]
- 8.a) With a neat block diagram explain the predictive coding with delta modulation technique.
- b) Explain in detail about lossy compression wavelet coding. [8+7]

---ooOoo---