

Exam. Code: 0926

Sub. Code: 6551

2054

B.E. (Information Technology)

Eighth Semester

IT-801(b): Digital Image Processing

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.

x-x-x

- Q1. a) What are the various Image Compression Standards?
b) Explain the Concepts of Wavelets
c) Explain Shannon–Nyquist theorem in Image processing
d) Explain inverse filtering
e) Explain the process of digitization while acquiring an image through a normal camera. (10)

Section – A

- Q2. a) With the help of block diagram, describe in detail fundamental steps in image processing. (05)
b) What are the various Image Enhancements and Restoration Techniques? Explain the concepts of Histogram processing and Spatial Filtering? (05)

Q3. Explain the various Noise Models. Given below is a 3 X 3 image. What would be the value of the centre pixel change to when the image passed through a

- a) Arithmetic Mean Filter b) Geometric Mean Filter c) Harmonic Mean Filter
d) Max-Filter e) Min-filter

1	7	5
6	2	3
1	4	2

(10)

Q4. Write short notes on the following: -

- a) Sharpening Filters b) Homomorphic Filtering
c) Image Restoration d) Noise Models e) Frequency domain filters (10)

P.T.O.

(2)

Section – B

Q5. a) Construct the Huffman code for the following sequence

b b c a a c b c c c

Compute the average length, entropy and efficiency of the code . (06)

b) Explain the concept of Recognition based on Decision Theoretic methods in detail. (04)

Q6. a) Explain the Concepts of Image Segmentation and what are the various techniques of Segmentation. (06)

b) Describe the procedure involved in Hough transform for line detection. (04)

Q7. Write short notes on the following:

a) Object Recognition

b) Edge and Boundary linking

c) Thresholding

d) JPEG Compression

e) Arithmetic Coding

(10)

x-x-x