

ANNA UNIVERSITY COIMBATORE
B.E. / B.TECH. DEGREE EXAMINATIONS : MAY / JUNE 2010
REGULATIONS : 2007
SIXTH SEMESTER
070290074 - DIGITAL IMAGE PROCESSING
(COMMON TO ECE / MEDICAL ELECTRONICS)

TIME : 3 Hours

Max.Marks : 100

PART – A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1. List out a few basic elements of digital image processing systems.
2. Define pixels.
3. Distinguish between spatial and gray-level resolutions.
4. What is Mach band effect?
5. What do you mean by brightness adaptation?
6. Distinguish between transmissivity and reflectivity.
7. Write a typical 5x5 Toeplitz matrix.
8. Compare FFT and FWT.
9. Write the hadamard matrix for n=2.
10. What do you mean by spatial domain?
11. Define the term contrast stretching.
12. What is meant by point processing?
13. Distinguish between constrained and unconstrained restorations.
14. What is relative data redundancy?
15. Define compression ratio.
16. List out the 3 basic data redundancies.
17. Write down the 3X3 mask for detecting lines in various directions.
18. Define object point or background point.
19. Distinguish between local and global thresholds.

20. State the important features of MPEG- 4.

PART – B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

21. With suitable diagrams brief about the following elements of visual perception, namely, structure of the human eye, image formation in the eye and Brightness Adaptation and Discrimination.
22. Describe the following color models with relevant diagrams: RGB and HIS
23. With the support of suitable mathematical equations briefly explain discrete Hadamard transform and Slant transform.
24. What are histograms? Draw the histograms for a bright, dark, low-contrast, and high-contrast images. With help mathematical equations briefly explain histogram equalization.
25. With the help of supporting mathematical expressions explain various non-linear filtering operations. Also, brief about the degradation model.
26. Discuss about region growing and region splitting segmentation methods.
27. Briefly explain about the following image representation schemes namely polygonal approximation, signatures and skeletons.
28. Describe the principle behind transform coding with respect to wavelet transform. Also, brief about LZW coding scheme.

*******THE END*******