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**Question Paper Code : 23345**

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Eighth Semester

Computer Science and Engineering

EC 1009/CS 1002/070250051 — DIGITAL IMAGE PROCESSING

(Common to Seventh Semester Electronics and Communication Engineering and  
Information Technology)

(Regulation 2004/2007)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is blind image restoration?
2. Draw the block diagram for homomorphic filtering approach.
3. How will you generate shift code?
4. Mention the reason for which chain code approach is unacceptable.
5. What do you mean by periodic noise?
6. How will you implement high boost filtering with one pass?
7. State Walsh-Hadamard transform.
8. List out the types of adjacency.
9. How to construct zonal mask?
10. Define convex deficiency.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Write notes on the following : (8)  
(1) Distance measures  
(2) Zooming and shrinking digital images.  
(ii) Explicate the properties of 2D-Fourier transform. (8)

Or

- (b) (i) How will you represent digital images? Explain in detail. (8)  
(ii) Explain the basic relationship between pixels. (8)
12. (a) (i) Discuss in detail about the basic types of functions used frequently for image enhancement. (8)  
(ii) Summarize the features of box filter. (8)

Or

- (b) (i) Elaborate the image enhancement techniques using arithmetic/logic operations. (8)  
(ii) Write any two smoothing frequency domain filters in detail. (8)
13. (a) (i) Explicate and give the PDF for the following : (8)  
(1) Gamma noise  
(2) Salt and Pepper noise  
(3) Exponential noise  
(4) Rayleigh noise.  
(ii) Paraphrase on Constrained least square filtering. (8)

Or

- (b) (i) What is Singular value decomposition? Explain in detail. (8)  
(ii) Describe in detail about the features of Weiner filtering. (8)
14. (a) (i) Illustrate the basic arithmetic coding process. (8)  
(ii) Summarize on vector quantization. (8)

Or

- (b) (i) Explain the following : (8)  
(1) Relative Address Coding  
(2) Double Delta Coding.  
(ii) With a neat block diagram, explain wavelet coding. (8)

15. (a) (i) Elaborate the three principal approaches that are used in image processing to describe the texture of a region. (8)
- (ii) Compare and contrast global and adaptive thresholding. (8)

Or

- (b) (i) Discuss in detail about Gradient and Laplacian operators. (8)
- (ii) Paraphrase on polygonal approximation (8)