Reg. No. : | | | | | | | | | | |

Question Paper Code : P 1234

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Seventh Semester

Electronics and Communication Engineering

EC 1009 — DIGITAL IMAGE PROCESSING

(Common to Information Technology)

(Also Common to Eighth Semester Computer Science and Engineering)

(Regulation 2004)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Define 4 and 8 Neighbors of a Pixel.

2.   What are separable image transforms?

3.   Define Histogram.

4.   Name the different types of derivative filters.

5.   Define averaging filters.

6.   Give the difference between Enhancement and Restoration.

7.   Define compression ratio.

8.   What are the basic steps in JPEG?

9.   Show that the average value of the Laplacian operator $\Delta^2 h$ is zero.

10. Define the chain code derivative in 4 and 8 connectivity.

PART B — (5 × 16 = 80 marks)

11. (a) Explain Discrete Cosine Transform and its properties. (16)

Or

(b) Explain in detail how the continuous image can be converted into digital image using suitable technique. (16)

12. (a) Explain Histogram and give its equalization. (16)

Or

(b) Discuss in detail the homomorphic and derivative filters. (16)

13. (a) (i) Explain mean filter in detail. (10)

(ii) Explain the operation of Inverse filtering. (6)

Or

(b) Explain the Adaptive filter. And also what are the two levels of adaptive median filtering algorithms. (16)

14. (a) Explain with block diagram the lossless predictive coding. (16)

Or

(b) Explain with block diagram the lossy predictive coding with delta modulation technique. (16)

15. (a) Illustrate with suitable examples how are gradient operators used for detection of edges in medical images. (16)

Or

(b) Show that how Hough transforms can be used to link edges. (16)

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