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Question Paper Code : 61134

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Sixth/Seventh/Eighth Semester

Electronics and Communication Engineering

CS 1002 — DIGITAL IMAGE PROCESSING

(Common to Computer Science and Engineering and Information Technology)

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a digital image?
2. What are the elements of visual perception?
3. Define Histogram.
4. List the uses of spatial filtering.
5. What is blind image?
6. Define Image Restoration.
7. What is meant by quantization?
8. What are the advantages of variable length coding?
9. What is meant by image segmentation?
10. Define Texture.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the practical limitations in sampling and reconstruction.
(ii) What are two-dimensional Fourier Transforms? Give its transform pair. Also state and prove three properties of DFT.
Or
- (b) Write notes on :
(i) Walsh Hadamard.
(ii) Compare DFT and DCT.
12. (a) Write notes on :
(i) Histogram Equalization.
(ii) Image averaging.
Or
- (b) (i) Discuss in detail about Homomorphic filtering.
(ii) What are frequency domain filters? What are its types? Explain any one type as used in digital image processing.
13. (a) (i) What are inverse filters? How is it used for image restoration? Explain in detail.
(ii) Explain the noise model in image restoration.
Or
- (b) (i) Discuss about blind image restoration techniques.
(ii) Explain the singular value decomposition.
14. (a) (i) Explain the LZW coding.
(ii) Explain about the image compression standards.
Or
- (b) (i) Discuss about the PCM in detail.
(ii) Explain in detail about wavelet coding.
15. (a) (i) Explain the line and edge detection in detail.
(ii) What is the need for introducing motion in image segmentation? Explain in detail about the frequency domain technique used for the same.
Or
- (b) (i) Explain in detail about region based segmentation.
(ii) What are regional descriptors? Explain any one type in detail.