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Question Paper Code : 31496

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Eighth Semester

Computer Science and Engineering

IT 2023/IT 603 — DIGITAL IMAGE PROCESSING

(Common to Sixth Semester – Information Technology)

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define eight connected and m-connected among pixels in an image.
2. Write the expansion of image file formats : BMP, TIFF.
3. Why DCT is preferred for image compression application than DFT?
4. Compare zero crossing and LOG operators.
5. Write B distance formula.
6. What is erosion and dilation?
7. What is multi resolution analysis? Is it same as WLT? Justify.
8. How run length coding leads to compression?
9. How unsupervised classification works without prior knowledge?
10. State the image fusion.

PART B — (5 × 16 = 80 marks)

11. (a) What are the components of an image processing system? Explain how various types of images are acquired. State the influences of sampling and quantisations in them.

Or

- (b) Describe arithmetic and geometrical operations on images. What are the possible applications?

12. (a) (i) Explain the working of any two smoothing and sharpening filters. (8)
(ii) Describe the filters in DFT. (8)

Or

- (b) What are the salient features of an image histogram? How can image histogram is used for image enhancement of monochrome and color images? Explain.

13. (a) How do you detect discontinuities present while analysing an image? How this is filled and objects are represented? Compare any three boundary descriptors.

Or

- (b) Discuss when do you say image segmentation is complete. Explain image segmentation schemes and how features are extracted.

14. (a) What are the various types of Wavelet Transforms? What is meant by image pyramids? Explain the concept of multi resolution analysis. What do you extract more when compared to single resolution analysis?

Or

- (b) Explain lossless and lossy compression schemes, discuss any one in each. What are the standards of image compression? (8 + 8)

15. (a) Explain the principle of video motion analysis and image understanding.

Or

- (b) Write short notes on :
(i) Steganography
(ii) Color image processing.