Question Paper Code : 41286

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Sixth/Seventh Semester

Information Technology

IT6005 – DIGITAL IMAGE PROCESSING

Common to : Biomedical Engineering/Computer Science and Engineering/
Electronics and Communication Engineering/Electronics and Instrumentation
Engineering/Instrumentation and Control Engineering/Mechatronics
Engineering/Medical Electronics

(Regulations 2013)

Time : Three Hours
Maximum : 100 Marks

Answer ALL questions

PART – A
(10×2=20 Marks)

1. Elucidate on Quantization.

2. List color models involved in hardware.

3. Necessitate the need for transform.

4. Name the different types of derivative filters in DIP.

5. How the derivatives are obtained in edge detection during formulation ?

6. How the discontinuity is detected in an image using segmentation ?

7. What are two main types of Data compression techniques in DIP ?

8. What are different compression methods in image coding ?

9. Define training pattern and training set.

10. Enumerate topological feature.

PART – B
(5×13=65 Marks)

11. a) Describe the fundamental steps in image processing ?

(OR)

b) With a neat diagram explain image sensing and acquisition and also explain image acquisition using sensor arrays.

12. a) Enumerate Discrete Fourier Transform in detail.

(OR)

b) What is histogram equalization ? Discuss in detail about the procedure involved in histogram matching.

13. a) Explain adaptive filter. What are the two levels of adaptive median filtering algorithms ?

(OR)

b) i) What is inverse filtering ? Explain.   7

ii) Explain Wiener filtering for image restoration.   6

14. a) Explain how compression is achieved in transform coding and explain about DCT.

(OR)

b) Explain the need for image compression. How Vector quantization approach is used for compression ?

15. a) Explain chain code in detail with an example.

(OR)

b) Discuss about polygonal approximations with an example.

PART – C   (1×15=15 Marks)

16. a) Justify why histogram processing is called as an efficient tool for graphical representation of the total distribution in a digital image.

(OR)

b) Discuss homomorphic filtering and explain in detail how it is used in correcting non-uniform illumination in images.

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