## G 6019

### M.E. DEGREE EXAMINATION, MAY/JUNE 2007.

*Elective*

Applied Electronics/Communication Systems/Computer and Communication

AN 1621 — DIGITAL IMAGE PROCESSING

(Regulation 2005)

Time : Three hours                                    Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.  What is Image Sampling?

2.  Define saturation in digital image.

3.  Write down the various 2D transforms.

4.  Compare one dimension and two dimension DFT.

5.  List down the various Geometric Transformation.

6.  Difference between Unconstrained and Constrained Restoration.

7.  Draw the back propagation diagram in Neural Network.

8.  Define Edge detection.

9.  What is the context in which run length coding would be efficient?

10. What are Shift codes?

PART B — (5 × 16 = 80 marks)

11. (a)  Explain the various elements of digital image processing systems with a
         suitable diagram.                                           (16)

Or

    (b)  (i)   Write short notes on digital color images.            (8)

         (ii)  Explain HSI models.                                   (8)

12. (a) Explain Discrete Sine and Walsh transforms with a suitable algorithm.

(16)

Or

(b) Explain Slant and Wavelet transforms in detail. (16)

13. (a) Discuss various Spatial transformations with suitable diagrams and discuss their effects. (16)

Or

(b) Write short notes on : (16)
   (i) Geometric mean
   (ii) Harmonic mean
   (iii) Median
   (iv) Directional smoothing.

14. (a) Discuss Neural Network applications in Image processing. (16)

Or

(b) (i) What is the need for image segmentation? (2)

   (ii) Discuss any three segmentation algorithm in detail. (14)

15. (a) Explain the concepts of context based compression. (16)

Or

(b) Discuss the following in detail :
   (i) Arithmetic coding. (8)
   (ii) Vector quantization. (8)

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