C 31630 (Pages : 2) Name.....

Reg. No.....

EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, MAY/JUNE 2007

IT 2K 803—DIGITAL SIGNAL COMPRESSION

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

1. (a) Explain what is meant by lossless compression.
   (b) Explain what is meant by entropy coding.
   (c) Explain what is meant by integer bit allogation algorithm.
   (d) Explain about zonal coding.
   (e) Define vector quantizer and explain.
   (f) Explain the basic concept of predictive vector quantization.
   (g) Draw the block diagram of the CELP model of speech production and explain.
   (h) Explain Lempel-Ziv Welch coding technique for data compression.

(8 × 5 = 40 marks)

Part B

2. (a) Draw block diagram of lossless predictive coding system and explain in detail.

Or

(b) Draw the block diagram of adaptive delta modulation system and explain.

(15 marks)

3. (a) Explain the data compression scheme using transform coding with a neat block diagram.

Or

(b) Draw the block diagram of sub band coding of speech signal and explain.

(15 marks)

4. (a) Draw the block diagram of multistage vector quantization encoder and decoder. Explain with search procedure.

Or

(b) (i) Explain what is meant by memoryless vector quantizer. (6 marks)
   (ii) Explain Lloyd algorithm for vector quantization design. (9 marks)

Turn over

5. (a) Write short notes on :

(i) JPEG standard for still images. (8 marks)

(ii) Fractal image compression. (7 marks)

Or

(b) (i) Explain wavelet coding system with block diagram. (8 marks)

(ii) Find the Huffman code for the symbol having following probabilities :

0.3, 0.25, 0.2, 0.12, 0.08, 0.05.

(7 marks)

[4 × 15 = 60 marks]