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ECS-077

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 990077

Roll No.

B. Tech.

(SEM. VII) (ODD SEM.) THEORY EXAMINATION, 2014-15

DATA COMPRESSION

Time : 3 Hours] [Total Marks : 100

1 Attempt any two questions: 10×2=20

(a) What is data compression and why we need it? Describe two applications where lossy compression technique is necessary for data compression.

(b) Explain modeling and coding with the help of examples also explain. What do you understand by prefix code?

(c) Explain different approaches for building mathematical model also define two state Markov model for binary images.

2 Attempt any two questions: 10×2=20

(a) (I) Differentiate between conventional Huffman coding and adaptive Huffman coding.

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(II) Write short notes on the following :

(X) Golomb codes

(Y) Rice codes

(b) (I) Draw the Huffman tree for the following symbols whose frequency occurrence in a message text is started along with their symbol below:

A:15, B:6, C:7, D:12, E:25, F:4, G:6, H:10, I:15

Decode the message 1110100010111011

(II) Explain redundancy code with the help of one example.

(c) What are the various application of Huffman coding and also give various steps required in encoding procedure?

3 Attempt any four questions : **5×4=20**

(a) Explain run length encoding technique with the help of suitable example.

(b) Explain the JBIG standard of Bi level image compression.

(c) Give LZ77 approach for adaptive dictionary based encoding

(d) Explain graphic inter change format (GIF) and where it is used.

(e) Write short notes on following :

(I) Compression over modems

(II) V.42 bits.

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(f) Discuss the steps involved in Basic Algorithm for Prediction with Partial Match(PPM)

4 Attempt any two questions: **10×2=20**

(a) What do you mean by Quantization ? Describe the quantization problem with the help of an example in detail.

(b) Differentiate between Uniform Quantization and Non Uniform Quantization.

(c) What is rate distortion criterion? Explain the rate distortion function for binary source and Gaussian source.

5 Attempt any two questions : **10×2=20**

(a) What is Vector Quantization? Explain procedure for vector Quantization.

(b) Explain the basic steps for Linde-Buzo Gray Algorithm.

(c) Write short notes on any two :

(I) Structure vector quantization

(II) Pyramid vector quantization

(III) Advantages of Scalar quantization.

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