8E5008

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B. Tech. VIII Semester (Main/Back) Examination-2014

INFORMATION TECHNOLOGY# 8IT3

DATA COMPRESSION TECHNIQUES

Time : 3 Hours | Min. Passing Marks : 24 | Maximum Marks : 80

Instruction to Candidates :

*Attempt any **five** questions, selecting **one** question from **each** unit. All questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)*

Unit-'I'

1. (*a*) Write down the application of lossless compression. [8]

   (*b*) Explain Kraft-McMillan inequality in detail. [8]

OR

1. (*a*) Explain Haffman coding. Also write down its Encoding Algorithm. [8]

   (*b*) What is Rice code? Explain in detail. [8]

Unit-'II'

2. (*a*) Explain Arithmetic loding in detail. Also write down its algorithm. [8]

   (*b*) Write down the differences between LZ77 and LZ78. [8]

OR

2. (*a*) Define move-to-front encoding. [8]

   (*b*) Explain facsimile encoding. also define its types. [8]

Unit-'III'

3. (*a*) Explain rate distortion theory and its uses in detail. [8]

   (*b*) Give the difference between uniform quantization and non-uniform quantization. [8]

OR

3. (*a*) Give the difference between vector quantization and scalar quantization. [8]

   (*b*) Explain lattice algorithm and give the advantage of lattice algorithm. [8]

Unit-'IV'

4. (*a*) Define the steps required in DPCM compression of images and video signals. [8]

   (*b*) Design the CVSD decoder block diagram. [8]

OR

4. (*a*) Define the performance measurement of delta modulation. [8]

   (*b*) Explain in detail

   (i) z-transform

   (ii) DCT [8]

Unit-'V'

5. (*a*) List out the applications used in wavelet based compression. [8]

   (*b*) Discuss various MPEG standards. [8]

OR

5. (*a*) Explain the basic sub band coding algorithm. [8]

   (*b*) What is filter? write out some filters used in sub band coding? [8]