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10CS/IS663

Sixth Semester B.E. Degree Examination, June/July 2014

Data Compression

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Differentiate between lossless compression and lossy compression. (04 Marks)
- b. What do you mean by self information? Explain it. Also derive the equation for entropy. (10 Marks)
- c. Explain physical and probability models. (06 Marks)
- 2 a. List out the advantages of static dictionary technique. Also explain diagram coding. (06 Marks)
- b. Explain LZ77 adaptive dictionary approach with an example. (10 Marks)
- c. Explain run length coding. (04 Marks)
- 3 a. Explain probability models. (04 Marks)
- b. Discuss quantization problem. (06 Marks)
- c. Explain two types of adaptive quantization. (10 Marks)
- 4 a. Explain LBG algorithm. (07 Marks)
- b. Explain delta modulation. (08 Marks)
- c. Write a note on image coding. (05 Marks)

PART – B

- 5 a. Explain the properties of a linear system. (06 Marks)
- b. Using partial fraction method, compute the inverse z-transform of

$$F(z) = \frac{6z^2 - 9z}{z^2 - 2.5z + 1}$$
 (10 Marks)
- c. Explain properties of z-transform. (04 Marks)
- 6 a. With block diagram, explain sub band coding system. Also explain analysis, quantization, coding and synthesis process. (10 Marks)
- b. Write a note on how sub band coding is used for audio coding. (05 Marks)
- c. Explain how image compression is done using sub band coding. (05 Marks)
- 7 a. Explain multi resolution analysis. (10 Marks)
- b. Explain image compression using wavelets. (05 Marks)
- c. Write a note on JPEG 2000. (05 Marks)
- 8 a. Write a note on motion compensation. (04 Marks)
- b. Explain H.261 video coding algorithm. (10 Marks)
- c. Explain MPEG-2 video standards H.262. (06 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.