

M460 Information and Coding Theory

practice exam

not graded, no solutions!

Exercise # 1

(0 points)

Compute the ternary entropy of the source \mathcal{S} with probability distribution

0.25, 0.2, 0.15, 0.15, 0.1, 0.1, 0.03, 0.02.

Exercise # 2

(0 points)

Compute a ternary Huffman code for the above source \mathcal{S} . Compute its average word length and efficiency.

Exercise # 3

(0 points)

Compute a ternary Shannon-Fano code for the above source \mathcal{S} . Compute its average word length and efficiency.

Exercise # 4

(0 points)

Make up a source with 5 symbols whose binary Huffman code has average word length 1.8

Exercise # 5

(0 points)

Encode the following text using

- a) A binary Huffman code
- b) A Shannon-Fano code
- c) A binary Huffman code encoding pairs of source words

In each case, compute the expected word length and efficiency.

mercedes corvette hyundai kia ford hyundai corvette hyundai mercedes
hyundai BMW toyota toyota mercedes corvette hyundai mercedes kia
hyundai ford kia corvette BMW toyota dodge corvette hyundai kia ford
kia hyundai dodge kia ford dodge ford mercedes hyundai kia toyota
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