

Question 1

A file contains the following characters:

x_i	a	b	c	d	e
$p(x_i)$	0.5	0.15	0.2	0.05	0.1

- (a) Calculate the entropy for this file. (b) Construct a Huffman code.
(c) Calculate the expected length of the code. (d) Calculate the efficiency of the code.

Question 2

A file contains the following characters:

x_i	a	b	c	d	e	f
$p(x_i)$	0.3	0.25	0.2	0.12	0.08	0.05

- (a) Calculate the entropy for this file. (b) Construct a Huffman code.
(c) Calculate the expected length of the code. (d) Calculate the efficiency of the code.

Question 3

A file contains the following characters:

x_i	x_1	x_2	x_3	x_4	x_5	x_6	x_7
$p(x_i)$	0.3	0.2	0.2	0.1	0.1	0.05	0.05

- (a) Calculate the entropy for this file. (b) Construct a Huffman code.
(c) Calculate the expected length of the code. (d) Calculate the efficiency of the code.

Question 4

A file contains the following characters:

x_i	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}	x_{11}
$p(x_i)$	0.3	0.15	0.15	0.1	0.05	0.05	0.05	0.05	0.04	0.04	0.02

- (a) Construct a Huffman code.