ELEX 3525 Quiz 4 **Paper, 1** A00123456 (0)

Show your work and underline your final answer. Numeric answers must include units. Books, notes and calculators allowed. No other electronic devices allowed.

1. A code has codewords `0000000`, `0011001`, and `1010101`. What is the minimum distance of this code? How many errors is this code guaranteed to detect? How many errors is it guaranteed to correct?

2. The codeword `1010111` is received. Was/were there errors? If so, in which bit(s)? Indicate any errored bit(s) unambiguously (e.g. circle it/them).

3. You create a maximum-length PRBS that has one run of 16 ones. How long will it take to transmit the complete sequence (one period) at 1 Mb/s?

4. An Ethernet frame contains, immediately following the preamble, the following bytes (in hexadecimal notation):

   `00 1d  60 9f 21 94 bc 83 85 f9 7d 7c 08 06`

   What is the source address? Give your answer as bytes in hexadecimal notation.

ELEX 3525 Quiz 4 **Paper, 2** A00123456 (255)

Show your work and underline your final answer. Numeric answers must include units. Books, notes and calculators allowed. No other electronic devices allowed.

1. A code has codewords `0000000`, `0011001`, and `1010101`. What is the minimum distance of this code? How many errors is this code guaranteed to detect? How many errors is it guaranteed to correct?

2. The codeword `0011000` is received. Was/were there errors? If so, in which bit(s)? Indicate any errored bit(s) unambiguously (e.g. circle it/them).

3. You create a maximum-length PRBS that has one run of 10 ones. How long will it take to transmit the complete sequence (one period) at 1 Mb/s?

4. An Ethernet frame contains, immediately following the preamble, the following bytes (in hexadecimal notation):

   `00 1d  60 9f 21 94 bc 83 85 f9 7d 7c 08 06`

   What is the source address? Give your answer as bytes in hexadecimal notation.