

Quiz 2

Name:

Student ID:

The AEP and source coding.

A discrete memoryless source emits a sequence of statistically independent binary digits with probabilities $p(1) = 0.03$ and $p(0) = 0.97$. The digits are taken 50 at a time and a binary codeword is provided for every sequence of 50 digits containing three or fewer “1”s.

- (a) Assuming that all codewords are the same length, find the minimum length required to provide codewords for all sequences with three or fewer “1”s.
- (b) Calculate the probability of observing a source sequence for which no codeword has been assigned.