

Breadth Exam in Formal Language Theory

Fall 2006

This exam is closed-book, closed-notes. There is one question.

Question 1

Let $X = \{ w \in \{0, 1\}^* \mid 000 \text{ is not a substring of } w \}$.

(a) Find a DFA M such that $L(M) = X$. [35 points]

(b) Prove that your answer to Part (a) is correct. [65 points]