

THEORY OF COMPUTATION - SPRING 2018 - ASSIGNMENT 3

1) Suppose M recognizes the language L . Show (conceptually) how to construct M^c which recognizes the complementary language $L^c = \{w \mid w \notin L\}$. Σ is fixed.

2,3,4) Give regular expressions generating the languages in 1.6 on p.84

5) Design DFAs recognizing any five of the languages above

6) Suppose $\Sigma(D) = \{a, b\}$ and let $D = \{w \mid w \text{ contains an even number of } a\text{'s and an odd number of } b\text{'s and does not contain the substring } ab\}$. Design a DFA with five states that recognizes D and give a regular expression that generates D .