

CS 280: Homework 9

Date of Handout: 24 Nov 99

Due Date: 1 Dec 99 in class

Problem 1: (*10 points*) Prove that it is undecidable whether the language accepted by a Turing machine is context free.

Problem 2: (*10 points*) Write an NFA which accepts the regular language $(01 + 011 + 0111)^*$.

Problem 3: (*10 points*) Prove that the language $\{a^m b^n \mid n > 2m\}$ is not regular.

Problem 4: (*10 points*) Write a regular expression for all strings of *as* and *bs* with an even number of *as*.

Problem 5: (*Optional*) (*10 points*) Prove that every infinite recursively enumerable set contains an infinite subset which is recursive.