

CS 451 F01 Automata and Formal Languages, Spring 2007
Quiz 5 Solutions

Quiz 5 was given in class on Friday, March 23, 2007.

1. [5 pts] For each of the following decision problems, indicate whether there is an algorithm to solve it. *Circle one in each part.*

1a. [1 pt] Given a Context-Free Language, determine whether there is at least one string in it.

ALGORITHM

NO ALGORITHM

This asks whether there is an algorithm to test whether a CFL is empty.

1b. [1 pt] Given a CFL, determine whether there is at least one string that is **not** in it.

ALGORITHM

NO ALGORITHM

This asks whether there is an algorithm to test whether a CFL contains all strings over its alphabet.

1c. [1 pt] Given two CFLs, determine whether they have any strings in common.

ALGORITHM

NO ALGORITHM

1d. [1 pt] Given a CFL and a string, determine whether the string is in the language.

ALGORITHM

NO ALGORITHM

1e. [1 pt] Given two CFLs, determine whether they are identical.

ALGORITHM

NO ALGORITHM