

CS 451 F01 Automata and Formal Languages, Spring 2007
Quiz 6 Solutions

Quiz 6 was given in class on Wednesday, April 4, 2007.

1. [3.5 pts] **TMs with semi-infinite tapes.**

1a. [2 pts] What is meant by “semi-infinite tape”?

A *semi-infinite tape* is a tape that is only infinite in one direction: there are cells to the right of the starting position, but not to the left.

Equivalently, we can consider a semi-infinite tape to be a normal tape in which the TM is not allowed to go to the left of its starting position.

1b. [1.5 pt] Does this class of machines have the same computational power as the class of TMs? (That is, do they allow for accepting the same languages?) *Circle one.*

☒ YES

☐ NO

2. [1.5 pts] Does the class of 2-stack machines have the same computational power (as in 1b) as the class of TMs? *Circle one.*

☒ YES

☐ NO