

## Homework 2

*Due: 10 February 2012*

### Problem 2.1

(Based on problem 3.3.5a/3.6.2/3.6.5)

Consider the language of all strings of lowercase letters that contain the five vowels in order (not necessarily adjacent).

- a. Give a regular expression that matches this language.
- b. Convert the regular expression into an NFA using the techniques in §3.7.4.
- c. Convert the NFA into a DFA using the techniques in §3.7.1.
- d. Give transition tables for the NFA and DFA in parts b and c.

### Problem 2.2

Draw a DFA matching tokens of C. It should include identifiers, all four types of literals and all “punctuation” lexemes, but does not need to consider reserved words, comments, or the special lines that begin with a hash symbol. You do not need to explicitly construct an NFA and convert it; creating the DFA on an ad-hoc basis will be fine.