CS 350 Theory of Computation

Assignment 3 (8 marks)

Question 1 (2 marks)

Design context-free grammars for the following languages
(1.1) $L = \{a^n b^m | n \neq 2m\}$.
(1.2) $L = \{a^n b^m | n \leq m + 3\}$.

Question 2 (1 marks)

Problem 2.9 (page 121).

Question 3 (1 marks)

Problem 2.12 (page 121).

Question 4 (1 marks)

Problem 2.13 (page 121).

Question 5 (1 marks)

Problem 2.14 (page 121).

Question 6 (2 marks)

Using pumping lemma to prove that the following languages are not context-free.
(6.1) $L = \{a^n b^j c^k | k = nj\}$.
(6.2) $L = \{a^n b^j | n \geq (j-1)^3\}$.

Date Due: before the end of class on **Tuesday, March 23, 2004.** Late assignment will lose 2 marks for each overdue day.