

Please write your name and net id on the upper right corner of each page.

1. Write a cfg for $(0+1)^* - \{1010010001 \cdots 10^n 1 \mid n \geq 1\}$.
2. Let $L = \{a^n b^n c^n d^n \mid n \geq 1\}$. Show that L can be expressed as the intersection of two context-free languages. Show that the complement of L is a context-free language.
3. 6.2.1 c
4. Write a cfg for the set of all strings of balanced parentheses. The parentheses must be properly nested. Some sample strings in the language are $((()))$, $((()((()))))$, etc.
5. Give a decision procedure for determining if a regular set is finite.