CSUS
COLLEGE OF ENGINEERING AND COMPUTER SCIENCE
Department of Computer Science

CSc 135
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## COMPUTING THEORY & PROGRAMMING LANGUAGES

## Study Guide for Quiz 2

Review the notes I distributed, the assignments and the solutions posted on SacCT as well as the examples in the notes.  There are few things you will need to remember, however, memory alone will not help you.  I intend to test your understanding, not your memory.  You need to explain what you do, not let me figure out what I want to make of a bunch of unconnected equations or pictures.

### *Lexical Analysis*
1. Given the description of tokens and a character string give the list of tokens identified by a **scanner**.  *Remember the principle of the longest string.*

### *BNF, EBNF, Parse Trees & Syntax Diagrams and Chomsky's Hierarchy*
1. Derivations & parse tree: given a grammar and a string give a leftmost derivation, a rightmost derivation, and/or a parse tree.
2. Convert grammar rules to EBNF.

### *Syntactic Analysis, Recursive Descent Parsing*
Given a grammar:
1. Compute the FIRST and FOLLOW sets; indicate if the rules of predictive parsing are verified;
2. Write a recursive-descent parser for a simple grammar;
3. Indicate if a string is/is not in the language generated by the grammar.

### *Non-Deterministic Finite State Automata*

1. Given a description of a language build an FSA which accepts that language (I will usually limit the number of states and/ the number of transitions.  Your automaton must be truly non-deterministic.
2. Given an FSA, what language does it accepts?
3. Conversion of an NFA to a DFA