

CPSC 323 Compilers & Languages (Spring 2024)

Study Guide for Midterm 1

What are the different types of programming languages?

Explain Compiler Design, including its structure and applications?

What is a Lexical Analyzer and how does it function?

Define the terms "tokens" and "lexemes".

Explain regular languages and regular grammar.

What is a Deterministic Finite State Automaton (DFA) and how is it defined?

What is a Non-deterministic Finite State Automaton (NFA) and how is it defined?

What are the key differences between DFA and NFA?

How do you determine if a string is acceptable by DFA or NFA?

Explain DFA equivalence of NFA.

How can you convert NFA with Epsilon transitions to NFA without Epsilon?

Describe regular expressions and their implementation in Finite Automata (FA).

Explain the Pumping Lemma and how it is used to prove if a language is non-regular.

Define Context-Free Grammar.

Discuss the concepts of Left Recursion and Backtracking.

What is the Chomsky Hierarchy of Grammars and how does it classify languages?

What are the methods to remove backtracking and Left recursion in grammar?

Explain Top-Down parsers, including Recursive Descent Parsers, Predictive Recursive Descent Parsers, and Table-driven parsers.

What are First() and Follow() functions in the context of parsers?

What are the drawbacks associated with Top-Down parsers?