

Programming Principles Exam Notes

Section A

Lexical Analysis

Write regular expressions and include fragments if including them in the answer.

Things to remember:

- ? = zero or one
- * = zero or many
- + = one or many
- Capitalize name of token and remember to add semicolon to end of rule.

Examples:

ID: [a-zA-Z_] [a-zA-Z0-9_]*;

NUMBER: [0-9]+ | '0x' [0-9a-fA-F]+;

Parser

Write corresponding ANTLR rules given part of the Decaf grammar.

Things to remember:

- Use rules in answer if given them.
- include any rules you have created or assumed exist in lexer. E.g. 'COLON: ':'';'
- Carefully read grammar to see if it uses any of the meta-notation which will be given in a table.

Example:

<method_decl> -> {<type> | void} <id> ([{<type> <id>}+, |) <block>

<method_type> -> {<type> | void}

<parameter> -> <type> <id>

Answer:

LBRACKET : '(';

RBRACKET : ')';

COMMA : ',';

method_decl: method_type id LBRACKET (parameter (COMMA parameter)*)? RBRACKET
block;