

Q.1. Write a left-associative Context Free Grammar (CFG) for the Arithmetic operations (Addition - Subtraction - Multiplication - Division). (10)

Using this CFG create a parse-tree for the expression: $9 * 3 + 7 / 5$

Q.2. Consider the CFG of the following post-fix notation (10)

$$S \rightarrow SS+ \mid SS* \mid a$$

(a) Show how the string $aa+aa+*$ can be generated by this grammar

(b) Construct a parse tree for this string

Q.3. Describe the role of Regular Expression and CFG in Compiler Construction. (10)

Differentiate between the Regular Expression and CFG. Give examples.

Q.4. Formally Define Regular Expression. (10)

Write the Regular expression for (i) C language identifiers

(ii) Unsigned numbers (integers or floating point)

Q.5. Describe the role of Finite Automata in Compiler Construction. (10)

Formally define Finite Automata. Give examples.

Q.1. Write a left-associative Context Free Grammar (CFG) for the Arithmetic operations (Addition - Subtraction - Multiplication - Division). (10)

Using this CFG create a parse-tree for the expression: $9 * 3 + 7 / 5$

Q.2. Consider the CFG of the following post-fix notation (10)

$$S \rightarrow SS+ \mid SS* \mid a$$

(a) Show how the string $aa+aa+*$ can be generated by this grammar

(b) Construct a parse tree for this string

Q.3. Describe the role of Regular Expression and CFG in Compiler Construction. (10)

Differentiate between the Regular Expression and CFG. Give examples.

Q.4. Formally Define Regular Expression. (10)

Write the Regular expression for (i) C language identifiers

(ii) Unsigned numbers (integers or floating point)

Q.5. Describe the role of Finite Automata in Compiler Construction. (10)

Formally define Finite Automata. Give examples.