

Theory of Computation

Assignment 2

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Q2. Unambiguous Grammar for the basic C described in the problem statement.

Program: P

For Loop Statement: F

Assignment Statement: A

Write Statement: W

Read Statement: R

Declaration Statement: D

$P \rightarrow DK \mid RK \mid WK \mid AK \mid FK$

$K \rightarrow RK \mid WK \mid AK \mid AK \mid FK \mid \}; \mid \epsilon$

$D \rightarrow \text{int } C$

$C \rightarrow V, C \mid C;$

$R \rightarrow \text{read } V;$

$W \rightarrow \text{write } V;$

$A \rightarrow V = E;$

$E \rightarrow V + E \mid V - E \mid V * E \mid V / E \mid V > E \mid V == E \mid V$

$F \rightarrow \text{for}(E ; E ; E) \{ K$

$V \rightarrow aM \mid bM \mid cM \mid dM \mid \dots\dots\dots ZM \mid 0M \mid 1M \mid \dots\dots 9M$

$M \rightarrow aM \mid bM \mid cM \mid dM \mid \dots\dots\dots ZM \mid 0M \mid 1M \mid \dots\dots 9M \mid \epsilon$