program;  $\operatorname{start}$ program program unit unit unit var\_declaration  $func\_declaration$  $func\_definition$  $type\_specifier~ID~LPAREN~parameter\_list~RPAREN~SEMICOLON$ func\_declaration type\_specifier ID LPAREN RPAREN SEMICOLON func\_definition type\_specifier ID LPAREN parameter\_list RPAREN compound\_statement type\_specifier ID LPAREN RPAREN compound\_statement parameter\_list COMMA type\_specifier ID parameter\_list parameter\_list COMMA type\_specifier type\_specifier ID type\_specifier LCURL statements RCURL  $compound\_statement$ LCURL RCURL  $var_{-}declaration$ type\_specifier declaration\_list SEMICOLON type\_specifier INT **FLOAT** VOID

declaration\_list : declaration\_list COMMA ID

declaration\_list COMMA ID LTHIRD CONST\_INT RTHIRD

ID

ID LTHIRD CONST\_INT RTHIRD

;

statements : statement

statements statement

;

statement : var\_declaration

expression\_statement compound\_statement

FOR LPAREN expression\_statement expression\_statement expression

RPAREN statement

IF LPAREN expression RPAREN statement

IF LPAREN expression RPAREN statement ELSE statement

WHILE LPAREN expression RPAREN statement PRINTLN LPAREN ID RPAREN SEMICOLON

RETURN expression SEMICOLON

;

 $expression\_statement$  : SEMICOLON

expression SEMICOLON

;

variable : ID

ID LTHIRD expression RTHIRD

;

 $expression \quad : \quad logic\_expression$ 

variable ASSIGNOP logic\_expression

;

logic\_expression : rel\_expression

rel\_expression LOGICOP rel\_expression

:

 $rel_{expression}$ :  $simple_{expression}$ 

simple\_expression RELOP simple\_expression

;

simple\_expression : term

simple\_expression ADDOP term

term : unary\_expression

term MULOP unary\_expression

:

unary\_expression : ADDOP unary\_expression

NOT unary\_expression

factor

:

factor : variable

ID LPAREN argument\_list RPAREN

LPAREN expression RPAREN

CONST\_INT CONST\_FLOAT variable INCOP variable DECOP

;

 $argument\_list$  : arguments

•

 $arguments \hspace*{0.2cm} : \hspace*{0.2cm} arguments \hspace*{0.2cm} COMMA \hspace*{0.2cm} logic\_expression \hspace*{0.2cm}$ 

logic\_expression

;