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<programa> ::= program <id>; <corpo> •
<corpo> ::= <declara> <rotina> begin <sentencas> end
<declara> ::= var <dvar> <mais_dc> | <empty>
<mais_dc> ::= ; <cont_dc>
<cont_dc> ::= <dvar> <mais_dc> | <empty>
<dvar> ::= <variaveis> : <tipo_var>
<tipo_var> ::= integer | real | fila of integer | fila of real
<variaveis> ::= <id> <mais_var>
<mais_var> ::= , <variaveis> | <empty>
<rotina> ::= <procedimento> | <funcao> | <empty>
<procedimento> ::= procedure <id> <parametros> ; <corpo> ; <rotina>
<funcao> ::= function <id> <parametros> : <tipo_funcao> ; <corpo> ; <rotina>
<parametros> ::= ( <lista_parametros> ) | <empty>
<lista_parametros> ::= <lista_id> : <tipo_var> <cont_lista_par>
<cont_lista_par> ::= ; <lista_parametros> | <empty>
<lista_id> ::= <id> <cont_lista_id>
<cont_lista_id> ::= , <lista_id> | <empty>
<tipo_funcao> ::= integer | real | fila of integer | fila of real
<sentencas> ::= <comando> <mais_sentencas>
<mais_sentencas> ::= ; <cont_sentencas>
<cont_sentencas> ::= <sentencas> | <empty>
<var_read> ::= <id> <mais_var_read>
<mais_var_read> ::= , <var_read> | <empty>
<var_write> ::= <id> <mais_var_write>
<mais_var_write> ::= , <var_write> | <empty>
<comando> ::= read ( <var_read> ) | write ( <var_write> ) | for <id> := <expressao> to <expressao> do begin
<sentencas> end | repeat <sentencas> until ( <condicao> ) | while ( <condicao> ) do begin <sentencas> end | if
( <condicao> ) then begin <sentencas> end <pfalsa> | <id> := <expressao> | <chamada_procedimento>
<chamada_procedimento> ::= <id> <argumentos>

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$\langle \text{argumentos} \rangle ::= (\langle \text{lista_arg} \rangle) \mid \langle \text{empty} \rangle$
 $\langle \text{lista_arg} \rangle ::= \langle \text{expressao} \rangle \langle \text{cont_lista_arg} \rangle$
 $\langle \text{cont_lista_arg} \rangle ::= , \langle \text{lista_arg} \rangle \mid \langle \text{empty} \rangle$
 $\langle \text{condicao} \rangle ::= \langle \text{relacao} \rangle (\langle \text{expressao_num} \rangle , \langle \text{expressao_num} \rangle) \mid$
 $\quad \langle \text{relacao} \rangle (\langle \text{expressao_fila} \rangle , \langle \text{expressao_fila} \rangle)$
 $\langle \text{pfalsa} \rangle ::= \text{else begin } \langle \text{sentencas} \rangle \text{ end} \mid \langle \text{empty} \rangle$
 $\langle \text{relacao} \rangle ::= = \mid > \mid < \mid >= \mid <= \mid <>$
 $\langle \text{expressao} \rangle ::= \langle \text{expressao_num} \rangle \mid \langle \text{expressao_fila} \rangle$
 $\langle \text{expressao_num} \rangle ::= \langle \text{termo} \rangle \mid \langle \text{id} \rangle \langle \text{argumentos} \rangle$
 $\langle \text{operando} \rangle ::= \langle \text{id} \rangle \mid \langle \text{integer_num} \rangle \mid \langle \text{real_num} \rangle \mid \langle \text{operador} \rangle (\langle \text{operando} \rangle , \langle \text{operando} \rangle)$
 $\langle \text{operador} \rangle ::= + \mid - \mid * \mid / \mid //$
 $\langle \text{termo} \rangle ::= \langle \text{operador} \rangle (\langle \text{operando} \rangle , \langle \text{operando} \rangle) \mid \langle \text{id} \rangle \mid \langle \text{integer_num} \rangle \mid \langle \text{real_num} \rangle$
 $\langle \text{expressao_fila} \rangle ::= \langle \text{opFila} \rangle (\langle \text{conteudo} \rangle) \mid \text{concatena} (\langle \text{conteudo} \rangle , \langle \text{coneudo} \rangle) \mid \text{inverte} (\langle \text{conteudo} \rangle)$
 $\langle \text{conteudo} \rangle ::= \#\# \mid \# \langle \text{integer_num} \rangle \langle \text{integer_num_cont} \rangle \# \mid \# \langle \text{real_num} \rangle \langle \text{real_num_cont} \rangle \#$
 $\langle \text{integer_num_cont} \rangle ::= , \langle \text{integer_num} \rangle \langle \text{integer_num_cont} \rangle \mid \langle \text{empty} \rangle$
 $\langle \text{real_num_cont} \rangle ::= , \langle \text{real_num} \rangle \langle \text{real_num_cont} \rangle \mid \langle \text{empty} \rangle$
 $\langle \text{opFila} \rangle ::= \text{input} \mid \text{output} \mid \text{length}$
 $\langle \text{id} \rangle ::= \langle \text{letra} \rangle \langle \text{id_cont} \rangle$
 $\langle \text{id_cont} \rangle ::= \langle \text{letra} \rangle \langle \text{id_cont} \rangle \mid \langle \text{digito} \rangle \langle \text{id_cont} \rangle \mid \langle \text{empty} \rangle$
 $\langle \text{num} \rangle ::= \langle \text{digit} \rangle \langle \text{num_cont} \rangle$
 $\langle \text{num_cont} \rangle ::= \langle \text{digito} \rangle \langle \text{num_cont} \rangle \mid \langle \text{empty} \rangle$
 $\langle \text{integer_num} \rangle ::= + \langle \text{num} \rangle \mid - \langle \text{num} \rangle \mid \langle \text{num} \rangle \mid 0$
 $\langle \text{real_num} \rangle ::= + \langle \text{num} \rangle , \langle \text{num} \rangle \mid - \langle \text{num} \rangle , \langle \text{num} \rangle \mid +0 , \langle \text{num} \rangle \mid -0 , \langle \text{num} \rangle \mid \langle \text{num} \rangle , \langle \text{num} \rangle \mid 0 , \langle \text{num} \rangle$
 $\langle \text{letra} \rangle ::= a \mid b \mid \dots \mid z$
 $\langle \text{digito} \rangle ::= 0 \mid 1 \mid \dots \mid 9$
 $\langle \text{digit} \rangle ::= 1 \mid \dots \mid 9$