练习3：

1.

由题：

由状态图可知，f 不合法，eeff 不合法，eefe 合法

2.

(1) 正则文法：　$Z \rightarrow A1 \mid 0$

　　　　　　　　$A \rightarrow A0 \mid 0$

(2) $V = \{A, Z, 0, 1\}$

　　$V_t = \{0, 1\}$

　　$V_n = \{A, Z\}$

(3) 由文法可知，$L(G[Z]) = \{0\} \cup \{0^n 1 \mid n \geq 1\}$

```
procedure getSymbol()
    while read char != EOF do
        if char is a whitespace or newline then
            skip char
        else if char is a letter then
            symbol := ""
            while char is a letter or digit do
                symbol := symbol + char
                read next char
            retract
            if symbol is a keyword then
                return keyword token
            else
                return identifier token
        else if char is a digit then
            number := ""
            while char is a digit do
                number := number + char
                read next char
            retract
            return number token
        else if char is ':' then
            op := char
            read next char
            if char is '=' then
                op := op + char
            else retract
        else if char is '<' or '>' then
            op := char
            if char is '<' then
                read next char
                if char is '=' or '>' then
                    op := op + char
                else retract
            else char is '>' then
                read next char
                if char is '=' then
                    op := op + char
                else retract
            return operator token for op
        else if char is '+' or '-' or '*' or '/' then
            return operator token for char
        else if char is '(' or ')' or ',' or ';' then
            return punctuation token for char
        else
            error("Unexpected character")
    return EOF
```