

7.1

- ①  $a * (-b + c)$   $ab@c+*$   
 ②  $a + b * (c + d / e)$   $abcde/+**$   
 ③  $-a + b * (-c + d)$   $a@bc@d+*+$   
 ④  $\text{not } A \text{ or not } (C \text{ or not } D)$   $A \text{ not } C D \text{ not or not or}$   
 ⑤  $(A \text{ and } B) \text{ or } (\text{not } C \text{ or } D)$   $AB \text{ and } C \text{ not } D \text{ or or}$   
 ⑥  $(A \text{ or } B) \text{ and } (C \text{ or not } D \text{ and } E)$   $AB \text{ or } C D \text{ not } E \text{ and or and}$   
 ⑦  $\text{if } (x+y) * z = 0 \text{ then } (a+b) \uparrow c \text{ else } a \uparrow b \uparrow c$   
 $xy+z \neq 0 = ab+c \uparrow abc \uparrow \uparrow \text{ if-then-else}$

7.3

$$-(a+b) * (c+d) - (a+b+c)$$

四元式序列:

- |     | op. | arg1           | arg2           | result.        |
|-----|-----|----------------|----------------|----------------|
| (1) | (+) | a              | b              | T <sub>1</sub> |
| (2) | (@) | T <sub>1</sub> | -              | T <sub>2</sub> |
| (3) | (+) | c              | d              | T <sub>3</sub> |
| (4) | (*) | T <sub>2</sub> | T <sub>3</sub> | T <sub>4</sub> |
| (5) | (+) | a              | b              | T <sub>5</sub> |
| (6) | (+) | T <sub>5</sub> | c              | T <sub>6</sub> |
| (7) | (-) | T <sub>4</sub> | T <sub>6</sub> | T <sub>7</sub> |

三元式序列:

- |     | op. | arg1 | arg2 |
|-----|-----|------|------|
| (1) | (+) | a    | b    |
| (2) | (@) | (1)  | -    |
| (3) | (+) | c    | d    |
| (4) | (*) | (2)  | (3)  |
| (5) | (+) | a    | b    |
| (6) | (+) | (5)  | c    |
| (7) | (-) | (5)  | (6)  |

间接三元式序列:

- |     |     |     |     |
|-----|-----|-----|-----|
| (1) | (+) | a   | b   |
| (2) | (@) | (1) | -   |
| (3) | (+) | c   | d   |
| (4) | (*) | (2) | (3) |
| (5) | (+) | (1) | c   |
| (6) | (-) | (4) | (5) |

间接码表

- |     |
|-----|
| (1) |
| (2) |
| (3) |
| (4) |
| (1) |
| (5) |
| (6) |

7.4

$A := B * (-C + D)$   
 $T1 := @C$   
 $T2 := T1 + D$   
 $T3 := B * T2$   
 $A := T3$

7.6

$A \text{ or } (B \text{ and not } (C \text{ or } D))$

(0)

- |     |                |             |
|-----|----------------|-------------|
| (1) | (jnz, A, -, 0) | if A goto 0 |
| (2) | (j, -, -, 3)   | goto 3      |
| (3) | (jnz, B, -, 5) | if B goto 5 |
| (4) | (j, -, -, 0)   | goto 0      |
| (5) | (jnz, C, -, 4) | if C goto 4 |
| (6) | (j, -, -, 7)   | goto 7      |
| (7) | (jnz, D, -, 5) | if D goto 5 |
| (8) | (j, -, -, 1)   | goto 1.     |

7.7

while  $A < C$  and  $B < D$  do

if  $A = 1$  then

$C := C + 1$

else

while  $A \leq D$  do

$A := A + 2;$

- |      |                |                       |
|------|----------------|-----------------------|
| (1)  | (j<, A, C, 3)  | if $A < C$ goto 3     |
| (2)  | (j, -, -, 16)  | goto 16               |
| (3)  | (j<, B, D, 5)  | if $B < D$ goto 5     |
| (4)  | (j, -, -, 16)  | goto 16               |
| (5)  | (j=, A, 1, 7)  | if $A = 1$ goto 7     |
| (6)  | (j, -, -, 10)  | goto 10               |
| (7)  | (+, C, 1, T1)  | $T1 = C + 1$          |
| (8)  | (:=, T1, -, C) | $C = T1$              |
| (9)  | (j, -, -, 1)   | goto 1                |
| (10) | (j≤, A, D, 12) | if $A \leq D$ goto 12 |
| (11) | (j, -, -, 1)   | goto 1                |
| (12) | (+, A, 2, T2)  | $T2 = A + 2$          |
| (13) | (:=, T2, -, A) | $A = T2$              |
| (14) | (j, -, -, 10)  | goto 10               |
| (15) | (j, -, -, 1)   | goto 1                |
| (16) |                |                       |