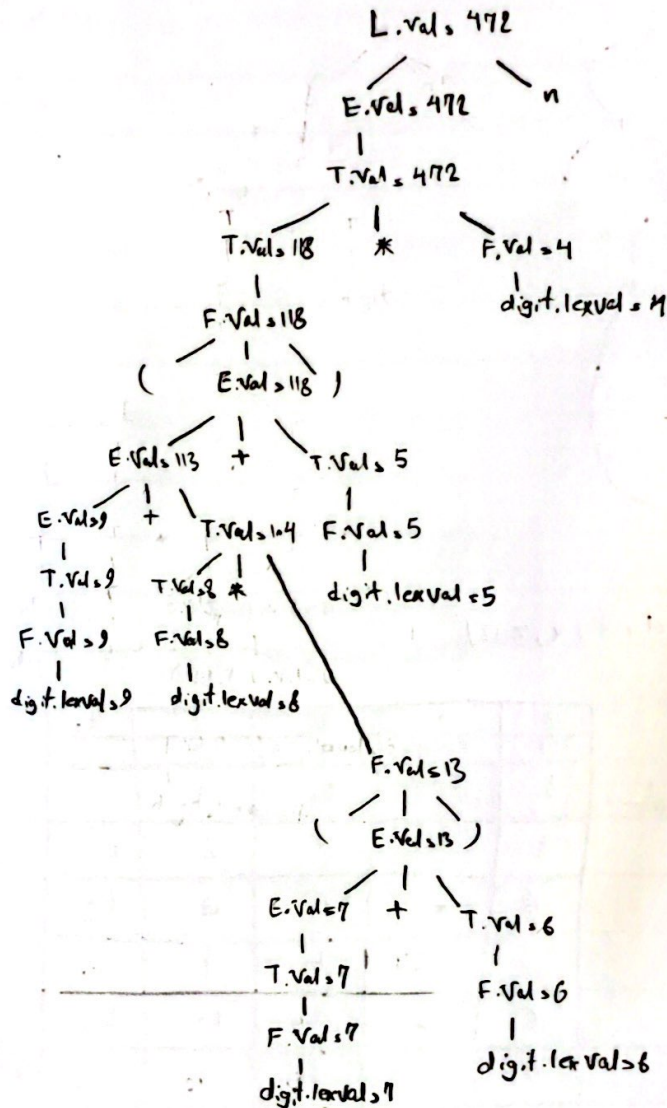


سیرین 4: دبایر

$$(9+8*(7+6)+5)*4n$$

①



②

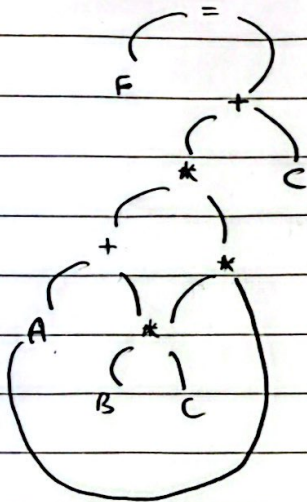
$$S \rightarrow L_1 L_2 \{ S.val = L_1.val + L_2.val \} \mid L_1 \{ S.val = L_1.val \}$$

$$L \rightarrow L_B \{ L.val = L_1.val + B.val \} \mid B \{ L.val = B.val \}$$

$$B \rightarrow T \{ B.val = T.lexval + 1 \} \mid 0 \{ B.val = 0.lexval = 0 \}$$

$$F = ((A+B)*C) * (A*B*C) + C$$

(3)



$$a[i] = b[i] - c * d + f(x, z+2)$$

(4)

Quadruple

0	+	z	2	t ₁
1	param	x		
2	param	t ₁		
3	call	f	2	t ₂
4	*	C	d	t ₃
5	=[]	b	i	t ₄
6	-	t ₄	t ₃	t ₅
7	+	t ₅	t ₂	t ₆
8	[] =	a	i	t ₇
9	=	t ₆		t ₇

triple

0	+	z	2
1	param	x	
2	param	(0)	
3	call	f	2
4	*	C	d
5	s[]	b	i
6	-	(5)	(4)
7	+	(6)	(3)
8	[] =	a	i
9	=	(8)	(7)

(5) الب

$L_1: t_1 = x;$
 $t_2 = x < 100$
 $t_3 = t_1 \text{ AND } t_2$
 if $t_3 == 0$ goto L_4
 $x = x + 1$
 $t_4 = x > 20$
 if $t_4 == 0$ goto L_3

$L_2: x = x + 2$
 goto L_1

$L_3: x = x + 3$
 goto L_1

$L_4:$

$S \rightarrow d, S, \text{ while } (B)$

begin = newlabel()

$B.\text{true} = \text{newlabel}()$

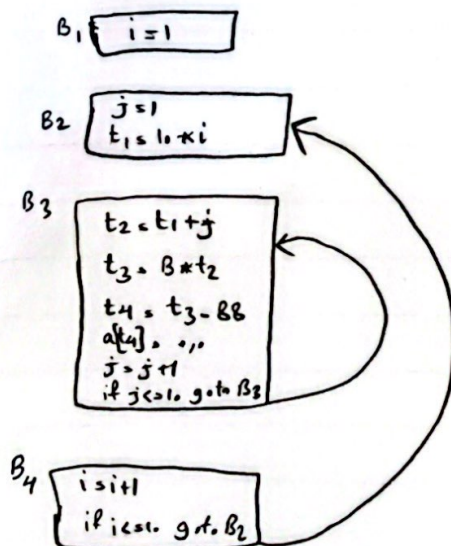
$B.\text{false} = S.\text{next}$

$S.\text{next} = \text{begin}$

$S.\text{code} = \text{label}(\text{begin}) \parallel S.\text{code} \parallel B.\text{code} \parallel \text{label}(B.\text{true})$

$\parallel \text{gen}(\text{goto } \text{begin})$

(ب)



(6) الب

$dp = 0$

(ب)

 $i = 0$
 $L: t_1 = i \times B$
 $t_2 = A[t_1]$
 $t_4 = B[t_1]$
 $t_5 = t_2 * t_4$
 $dp = dp + t_5$
 $i = i + 1$
 $\text{if } i < n \text{ goto } L$