Homework 2: Book assignment

1.
    a. Valid
    b. Invalid
    c. Invalid
    d. Valid

2.
    a. Identifiers: assign, id, expr, A, B, C
    b. Operators: *, +, -
    c. Seperators: (,), |

3. B = B + (C + (A * A))
   <assign> -> <id> = <expr>
   B = <expr>
   B = <id> + <expr>
   B = B + <expr>
   B = B + (<expr> + <id>)
   B = B + (C + <expr>)
   B = B + (C + <id> * <expr>)
   B = B + (C + (A * <expr>))
   B = B + (C + (A * <id>))
   B = B + (C + (A * A)

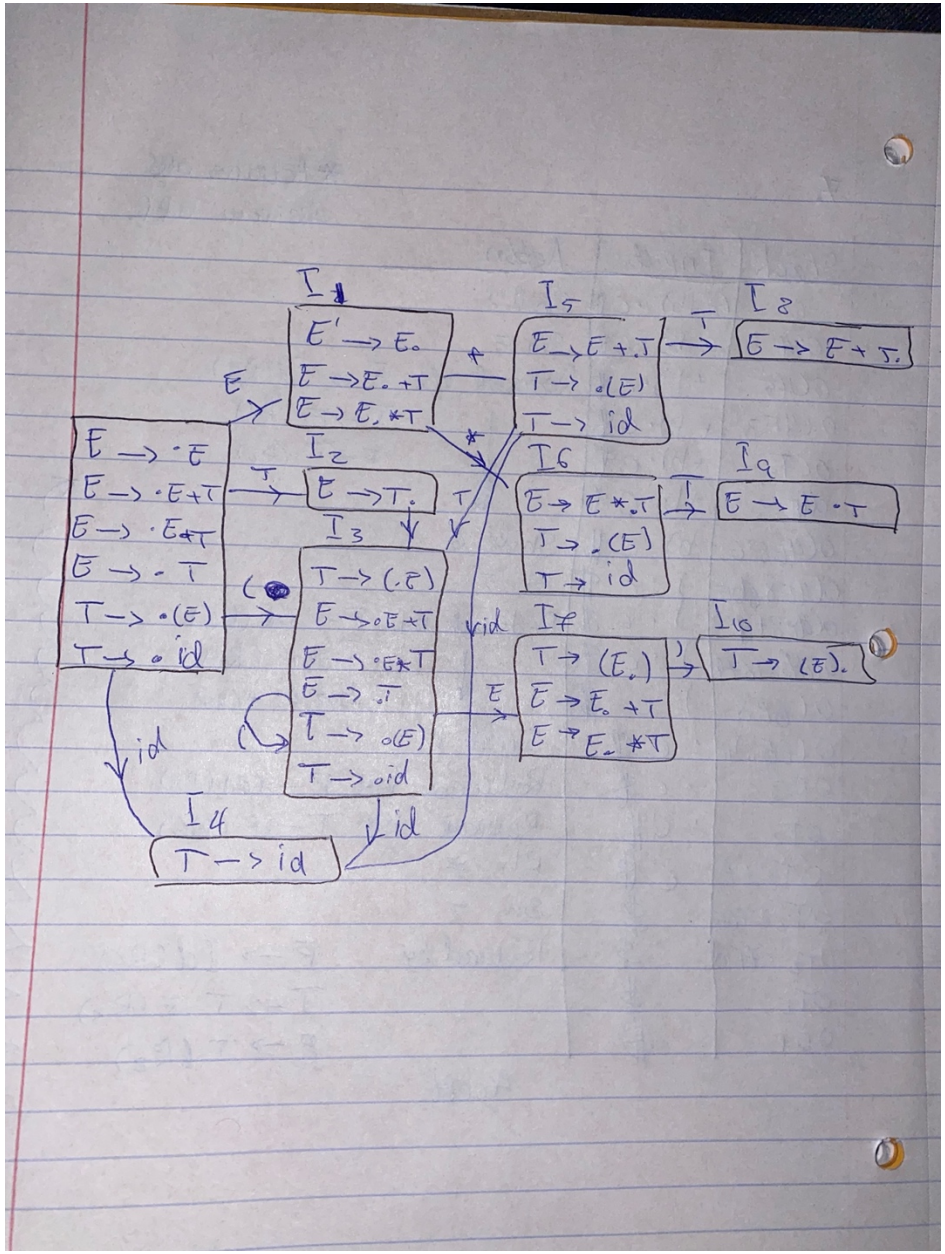
	<assign>				
<id>	=	<expr>			
B	<id>	+	<expr>		
	B		<expr>		
		<id>	+ <expr>		
		C	<expr>		
			<id>	*	<expr>
			A		<id>
					A

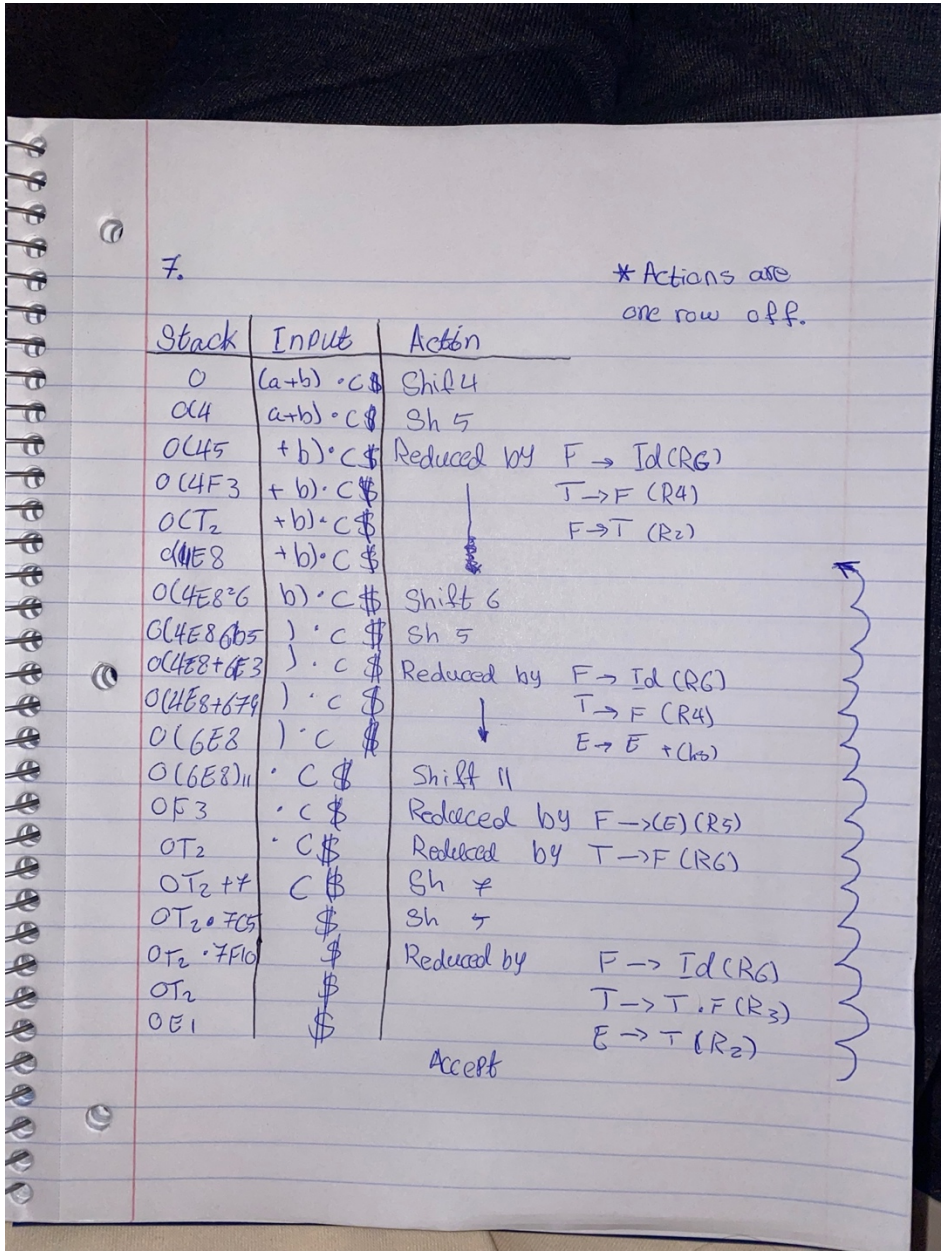
4. S -> Aa | sb | bbb
   S -> bs'
   S' -> Aas' | bbbs | x
   A -> Aa | AbC | C'
   A -> aA' | bCA'
   …
   S -> bs'
   S' AaA' | bbbS' | x
   A -> aA' | bCA'
   A' CA' | x
   C -> C

5. A -> aA'
   A' -> bc | c | x
   B -> b | aB

	+	*	(	)	Id	$	E	T
0		S3		S4			1	2
1	S5	S6						
2	R3	R3	R3	R3	R3	R3		
3			S3		S4		7	2
4	R5	R5	R5	R5	R5	R5		
5			S3		S4			8
6			S3		S4			9
7	S5	S6		S10				
8	R1	R1	R1	R1	R1	R1		
9	R2	R2	R2	R2	R2	R2		
10	R4	R4	R4	R4	R4	R4		

E -> E + T
⇨ E -> E*T
⇨ E -> T
⇨ E -> id
⇨ T -> (E)
⇨ T -> id


I0
E' → E.
E → E. + T
E → E. * T
I1
E' → E.
E → E. + T
E → E. * T
I2
E → T.
I3
T → (.E)
E → .E + T
E → .E * T
E → .T
T → .(E)
T → .id
I4
T → id
I5
E → E + .T
T → .(E)
T → .id
I6
E → E * .T
T → .(E)
T → .id
I7
T → (E.)
E → E. + T
E → E. * T
I8
E → E + T.
I9
E → E * T.
I10
T → (E).
E
T
(
id
+
*
)



7.

* Actions are one row off.

Stack	Input	Action
0	(a+b)·c$	Shift 4
0(4	a+b)·c$	Sh 5
0(4a5	+b)·c$	Reduced by F → Id (R6)
0(4F3	+b)·c$	T → F (R4)
0(4T2	+b)·c$	F → T (R2)
0(4E8	+b)·c$	
0(4E8+6	b)·c$	Shift 6
0(4E8+6b5	)·c$	Sh 5
0(4E8+6F3	)·c$	Reduced by F → Id (R6)
0(4E8+6T9	)·c$	T → F (R4)
0(6E8	)·c$	E → E + (R1)
0(6E8)11	·c$	Shift 11
0F3	·c$	Reduced by F → (E) (R5)
0T2	·c$	Reduced by T → F (R6)
0T2*7	c$	Sh 7
0T2*7c5	$	Sh 5
0T2*7F10	$	Reduced by F → Id (R6)
0T2	$	T → T*F (R3)
0E1	$	E → T (R2)

Accept