Compiler Theory Assignment 3

Parsing

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Ans1

(a) $a+b*c+(d*e) \Rightarrow abc*+de*+$

(b) $a-b-c \Rightarrow ab-c-$

(c) $a*(b+c)/d \Rightarrow abc+*d/$

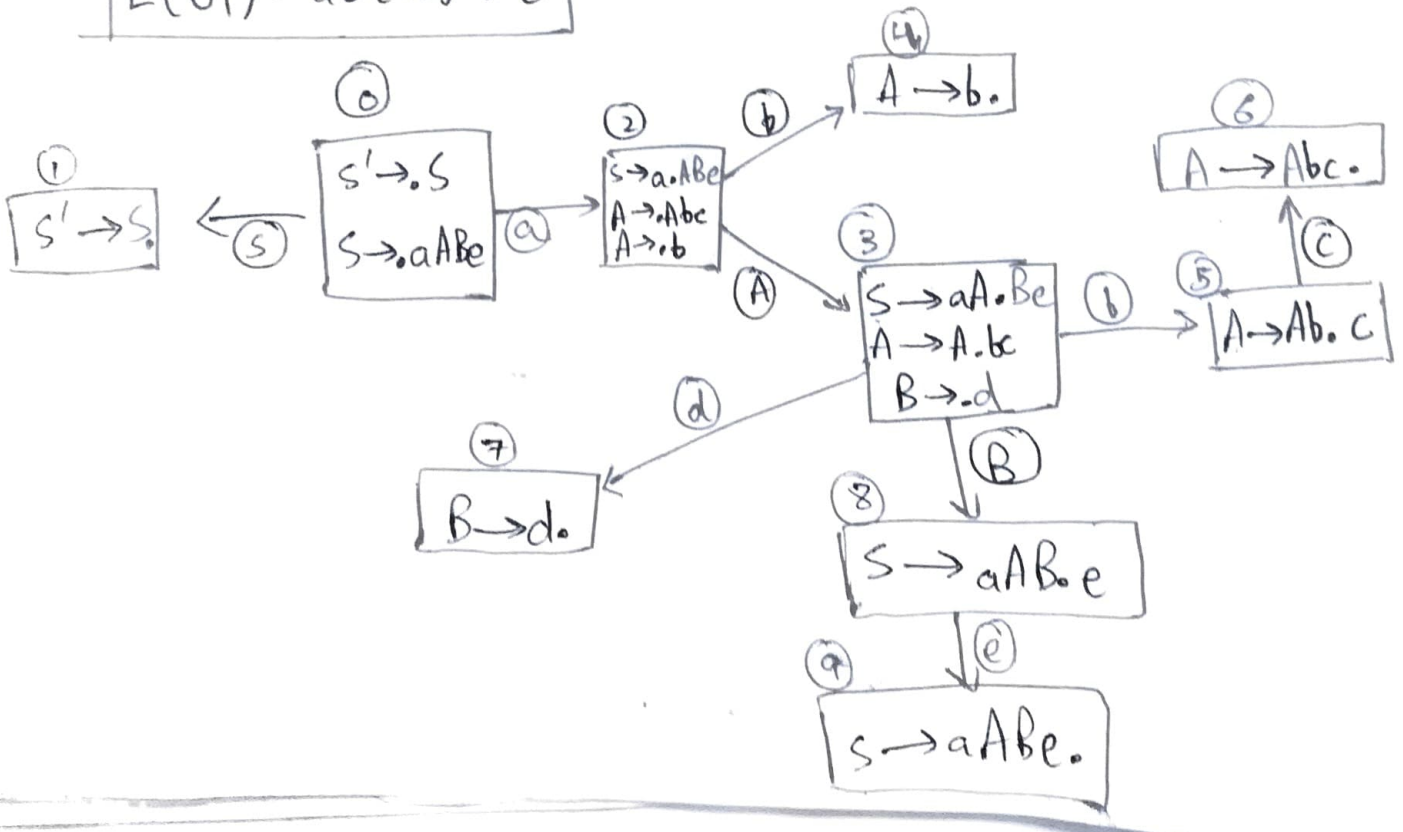
(d) $(a+(b*c))/(d-e) \Rightarrow abc*+de-/$

Ans2 $S \rightarrow aABe$
$A \rightarrow Abc \mid b$
$B \rightarrow d$

Augmented Grammar : $S' \rightarrow S$
$S \rightarrow aABe$
$A \rightarrow Abc$
$A \rightarrow b$
$B \rightarrow d$

FIRST(S) = {a} , FIRST(A) = {b} , FIRST(B) = {d}
FOLLOW(S) = {$} , FOLLOW(A) = {b, d} , FOLLOW(B) = {e} .

$L(G_1) = ab(bc)^*de$

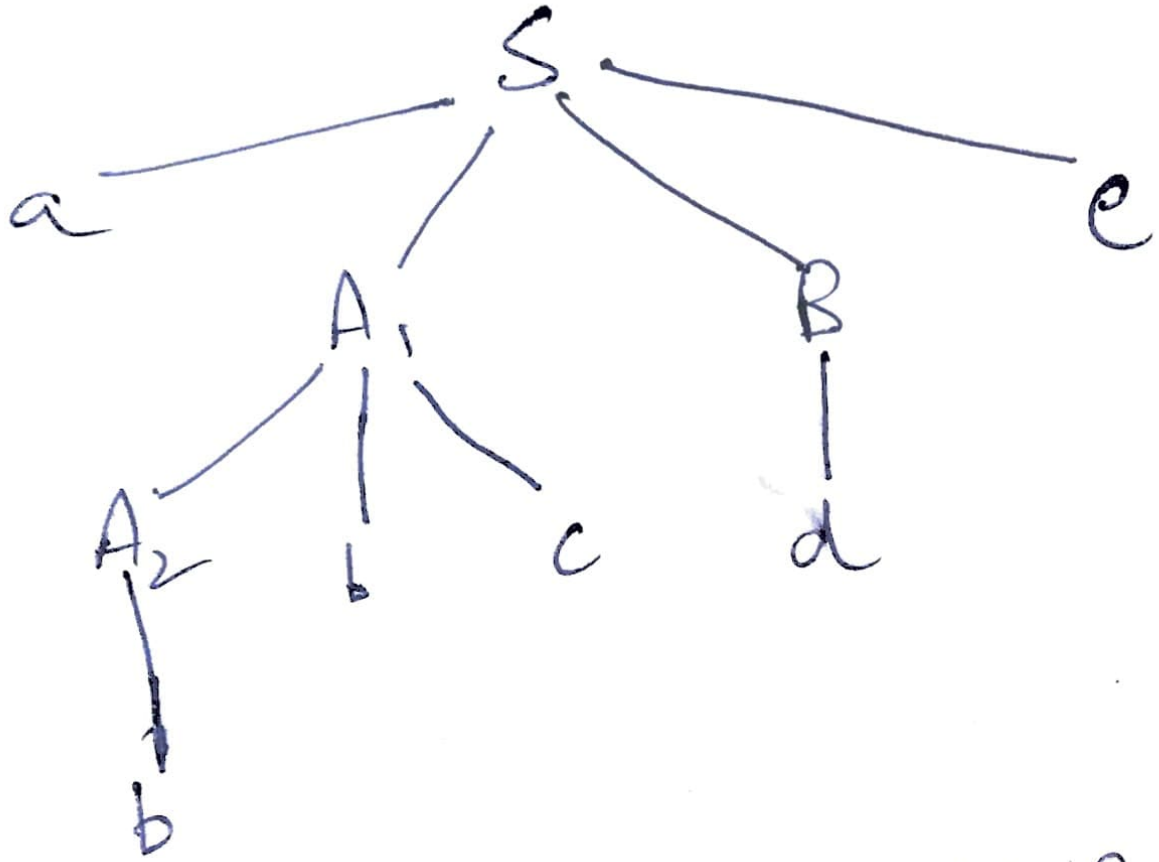


Parse Table

State	a	b	c	d	e	$	S	A	B
0	s2						1		
1						Accept			
2		s4						3	
3		s5		s7					8
4	r3	r3	r3	r3	r3	r3			
5			s6						
6	r2	r2	r2	r2	r2	r2			
7	r4	r4	r4	r4	r4	r4			
8					s9				
9	r1	r1	r1	r1	r1	r1			

input w = abbcde

Step	stack	Symbols	Input	Action
1	0		abbcde$	s2
2	02	a	bbcde$	s4
3	024	ab	bcde$	r3
4	023	aA	bcde$	s5
5	0235	aAb	cde$	s6
6	02356	aAbc	de$	r2
7	023	aA	de$	s7
8	0237	aAd	e$	r4
9	0238	aAB	e$	s9
10	02389	aABe	$	r1
11	01	S	$	Accept



$S \rightarrow aABe \rightarrow aAbcBe \rightarrow abbcBe \rightarrow abbcde$