Given the grammer 8.

S-> aABb

A- clE

B- dle

i. Compute FIRST and FULLOW sets

ii Construct the predictive parsing table

iii. Show that move made dry the predicitive passes on the input ;aldb

50/h:

S-) aABb

Andle

B->dle

Compute first and Jollow sets

FIRST (s) = FIRST (a)

FIRST (A) = FIRST(C) U PIRST(E)

= {c, E}

FIRST(B) = FIRST(d) U FIRST(E)

 $= [d, \in]$

FOLLOW(S) = 1\$4

FOLLOW (A)

S-) aABb

ADWBB

FOLLOW (A) = FIRST (B)

FULLOW (A) = FIRST (B)

= 1d, es

= (d, e) - EU POLLOW(B)

FOLLOW(B)

SYMBOL	FIRST	FULLOW
S	રેવય	{ \$
A	$\{c, \epsilon\}$	ld, 64
В	1d, €3	lbg

Mon desminal	a	C	d	Ь	\$
3	3-7aABb	(3)	12/11/2 11	A	SYNCH
A		A→c	A→E	A→E	
В		and the second	Bad	B→E	and the second s

STACK	INPUT	REMARK
5\$; acdb\$	Grror SKIP;
5\$	acdb \$	
aABb\$	acdb \$	
PB6\$	cdb\$	
CBb\$	cdb\$	
Bb\$	db\$	
d b \$	db\$	
b\$	b\$	
\$	\$	Manufacture of the second of t

1. Construct predictive parsing table for the following gramma S → aABb A > cle B> dle

Solution:

Computing the First and Follow sets for the given grammar

Consider the grammar,

S→aABb

First (s) = First (a) = {a}

A -> c/e

First(A) = First(C) T First(E) = { 3 7 7 4 6 3 = & C E }

B-dle

First(B) = First(d) V First(E) = {d} Tfe} = {de}

Follow Bets:-

Consider the grammar, S-raABb

> Follow(s) = \$ = {\$}

A->C/E

Follow (A)

S->aABb

It is in the form A-74BB Follow (A) = First (B)

Follow (B) = First (B)

= &d, e y

= &d, e y - E V Follow (B)

= &d, e y - E V & Follow (B)

= &d, e y - E V & Follow (B)

Follow (B)

 $S \rightarrow aABb$ $A \rightarrow dBB$

FOLLOW(A) = Forst (B)

Follow (B) = First (b)

= {63

SYMBOL	FIRST	FOLLOW
S	şazı	६ \$ 3
A	{ c, e }₁	 {d,b}
В	fd, e }	£ 63

Nonterminal	a	С	d	b	\$
S	S->aABb				SYNCH
A		A→c	A→e	A-re	
В			B→d	B→e	

Given the Grammer, 5->(1)|a 1->1,5|5

- (i) Do the necessary changes to make it suitable join LL(1) pansen
- (ii) Check the negultant gnammen is LL(1) on not
- (iii) Show the moves made by the proedective pages on the input (a,(a,a))

 $5 \rightarrow (1) |a$ Soln

 $L \rightarrow L, 5|s$

As the given gnammen is left necunisive because of, L->L,515

First eliminate left recursion A->ALB

be convented as $A \rightarrow BA' = (3)$ A' -> LA' E = (2) walls ?

write $L \rightarrow L, 5|s$ as can We

L' →, SL' | E

Now, the grammers taken joss priedective passing $5 \rightarrow (L) |a$

L -> SL'

1' →,51'lE

((n. c), a)

MYTERED STACK

Follow (L')
$$L \rightarrow 5L'$$

$$A \rightarrow \alpha B$$
Follow (B) = Follow (A)
$$Follow (L') = follow(L)$$

$$= \{\}\}$$

SYMBOL	FIRST	FOLLOW
S	{(a}	{,)\$}
L	{ (a }	{).}
Τ,	٤, ٤٤	{) }

Passing Table

Non-Terminal		J	Inputs elilis		
-s	a	216.)	*(4() \$	
S	5 → a	5->(L)		\$(2(2),	
L is	L->5L'	L→SL		\$('11' in	
L' 0	DIOM	#((ι'→ε	L+>,5L'	
	-	A STATE OF THE PARTY OF THE PAR			

onesultant gonammer is in LL(1) The above

Moves made by a predictive passer on input

MATCHED	STACK	INPUT	ACTION
	5\$	(a,(d,a))\$	Carrier to
	(L)\$	(a,(a,a))\$	S->(L)
(L)\$	$\alpha,(\alpha,\alpha)$ \$	Match (
(5L')\$	a,(a,a))\$	L→SL'
(al')\$	a,(a,a))\$	$S \rightarrow a$
(a	L')\$,(a,a))\$	Match a
(a	,sl')\$,(a,a))\$	1'→,SL'
(a,	5L')\$	(a,a))\$	Match,
(a,	(1)1,)\$	(a,a))\$	5→(L)
(a,C	L) ヒ')\$	a,a))\$	Match (L→SL'
(a,C	sr')r')\$	a,a))\$	1.→31 5.→a
(a,C	al') L')\$	(a, a))\$	Matchia
(a, (a	\$ (') د')	, a)) \$	1) → .5L
(a,(a	, sょ')ょ')\$,a))\$ a))\$	Match , 2
(a, la,	\$ ('الم')\$		
(a,la,	\$('بد'نيه	a))\$	Match a
(a,(a,a	レントン\$	1))\$	$L^1 \rightarrow \epsilon$
(a, (a, a) (ソ) \$)) \$	Match)
(a, (a, a)	L') \$ 300 00 000)\$	The state of the s
(a, (a, a))\$)\$	l'→ ∈ Match)
(a,(a,a))	\$	\$	Match J

9) Given the Grammer

- (a) Construct 1st and follow sets.
- (b) Construct Predictive Parsing table.
- (c) Show the moves made by the predictive parser on the Hollowing Input ((a,b),a)

So1 " :-

As the given Grammer is Left Recursive because of L->L,S|S

first eliminate Left Remosion

A-> Aa|B

Can be converted as A->BA'
A'-> &A'|E

we can write

L->1,5|5 05

(1) MOULD

L'->, sL' | e (4) MOUNT

know the Grammer taken for predictive parsing is

S->(L)|a|b

L-> SL'

L'->,SL'|E

Compute first and follow sets.

First(s) = First(c) u first(a) u first(b)
= l(3 u l a 3 u l b 3
= l(a b 3

Symbol	tirst	follow
S	labcz	£,)\$3
L	lab (3	{) }
ر'	₹, € }	٤)}

Predictive Parsing table:

Non terminals	O	Ь	C)	,	\$
S	S->a	S->6	S->(L)			
L	L->8L'	L->sL'	L-> S L'			
L'			1	L'-> E	داً->,۶۲۱	4.8

iii) the moves made by the predictive parser for the following Input ((a,b),a)

Productive in a president designation of the productive of the pro	and the second s		a procure conservativa de la completa con esta estada de decençada de del capacidad debenaram y y consecucione
Matched	STACK	TUPUT	ACTION
	s \$	(Ca,b),a)\$	á.
	(L)\$	((a,b),a)\$	S->(L)
(L)\$	(a,b),a)\$	Match (
(sL')\$	(a,b),a)\$	L->SL'
((L)L')\$	(a,b),a)\$	S->(L)
((L) L')\$	a,b),a)\$	Match (
((SL') L')\$	a,b),a)\$	L-> SL'
((al)1)\$	a,b),a)\$	s-> a
lla	L') L')\$,b),a)\$	Match a
(Ca	, sL')L')\$,b),a)\$	L'->, SL'
lla,	sL')L')\$	b),a)\$	March,
lca,	b L') L')\$	b),a)\$	s -> b
((a,b	L') L')\$),a)\$	Marchb
((a,b) L')\$), a)\$	L'-> €
((a,b)	L')\$,a)\$	Match)
((a,b)	, SL')\$,a)\$	L'->, SL'
((a,b),	SL')\$	a)\$	Match,
((a1b),	al)\$	a)\$	s-> a
C(a16), a	L')\$	2\$	Marcha
((a,b),a)\$)\$	L'-> €
((a,b),a)	\$	\$	Match)