Zoom Webinar

Recording

View

ACE Live Class 1

OneNote for Windows 10 — ramesh masuna

Home Insert Draw View Help Share

Statement for Linked Answer Questions 21 & 22

For the grammar below, a partial LL(1) parsing table is also presented along with the grammar. Entries that need to be filled are indicated as E1, E2 and E3. ε is the empty string, $ indicates end of input, and, | separates alternate right hand sides of productions.

(GATE - 12)

(4 - marks)

$S \rightarrow aAbB \mid bAaB \mid \varepsilon$

$A \rightarrow S$

$B \rightarrow S$ follow(S)

	a	b	$
S	E1	E2	S→ε
A	A→S	A→S	error
B	B→S	B→S	E3

21. The FIRST and FOLLOW sets for the non-terminals A and B are

first(A) = first(B) = {a, b, ε} ; follow(A) = {a, b} , follow(B) = {a, b, $}

22. The appropriate entries for E1, E2, and E3 are

	first	follow
$S \rightarrow aAbB \mid bAaB \mid \varepsilon$	a, b, ε	$, a, b
$A \rightarrow S$	a, b, ε	a, b
$B \rightarrow S$	a, b, ε	$, a, b

E1: $S \rightarrow aAbB, S \rightarrow \varepsilon$

E2: $S \rightarrow bAaB, S \rightarrow \varepsilon$

E3: $B \rightarrow S$

6:09 PM 4/4/2022

Zoom Webinar

Recording

View

Q. Consider the following context-free grammar where the set of terminals is {a, b, c, d, f} [GATE-2021]

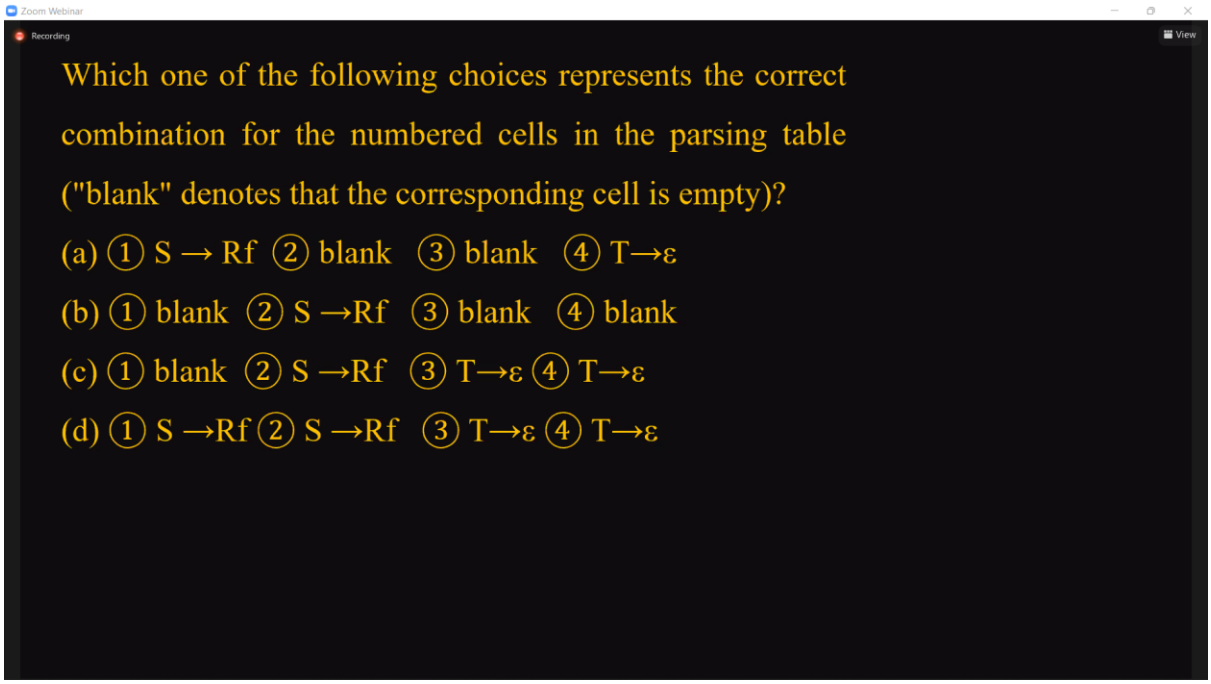
$S \rightarrow d\ a\ T \mid Rf$

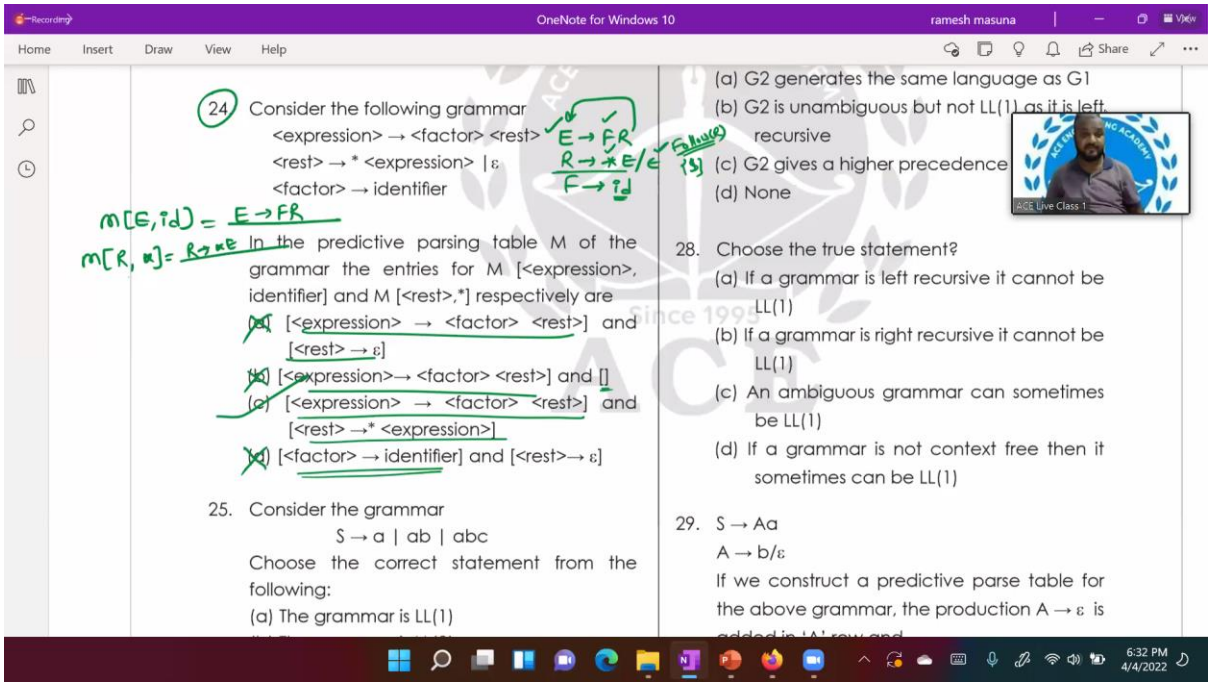
$T \rightarrow a\ S \mid baT \mid \varepsilon$

$R \rightarrow caTR \mid \varepsilon$

The following is a partially-filled LL(1) parsing table

	a	b	c	d	f	$
S			①	S→daT	②	
T	T→aS	T→baT	③		T→ε	④
R			T→CaTR		T→ε	


Zoom Webinar
Recording
View
Which one of the following choices represents the correct combination for the numbered cells in the parsing table ("blank" denotes that the corresponding cell is empty)?
(a) ① S → Rf ② blank ③ blank ④ T→ε
(b) ① blank ② S →Rf ③ blank ④ blank
(c) ① blank ② S →Rf ③ T→ε ④ T→ε
(d) ① S →Rf ② S →Rf ③ T→ε ④ T→ε


Recording
OneNote for Windows 10
ramesh masuna
Home
Insert
Draw
View
Help
Share
24. Consider the following grammar
<expression> → <factor> <rest>
<rest> → * <expression> | ε
<factor> → identifier
In the predictive parsing table M of the grammar the entries for M [<expression>, identifier] and M [<rest>,*] respectively are
(a) [<expression> → <factor> <rest>] and [<rest> → ε]
(b) [<expression>→ <factor> <rest>] and []
(c) [<expression> → <factor> <rest>] and [<rest> →* <expression>]
(d) [<factor> → identifier] and [<rest>→ ε]
25. Consider the grammar
S → a | ab | abc
Choose the correct statement from the following:
(a) The grammar is LL(1)
(a) G2 generates the same language as G1
(b) G2 is unambiguous but not LL(1) as it is left recursive
(c) G2 gives a higher precedence
(d) None
28. Choose the true statement?
(a) If a grammar is left recursive it cannot be LL(1)
(b) If a grammar is right recursive it cannot be LL(1)
(c) An ambiguous grammar can sometimes be LL(1)
(d) If a grammar is not context free then it sometimes can be LL(1)
29. S → Aa
A → b/ε
If we construct a predictive parse table for the above grammar, the production A → ε is
ACE Live Class 1
6:32 PM
4/4/2022

[<rest> → ε]

(b) [<expression>→ <factor> <rest>] and []

(c) [<expression> → <factor> <rest>] and [<rest> →* <expression>]

(d) [<factor> → identifier] and [<rest>→ ε]

25. Consider the grammar

S → a | ab | abc

Choose the correct statement from the following:

(a) The grammar is LL(1)

(b) The grammar is LL(2)

(c) The grammar is LL(3)

(d) None of the above

LL(1)

(c) An ambiguous grammar can sometimes be LL(1)

(d) If a grammar is not context free then it sometimes can be LL(1)

29. S → Aa

A → b/ε

If we construct a predictive parse table for the above grammar, the production A → ε is added in 'A' row and _____.

(a) '$' column (b) 'ε' column

(c) 'a' column (d) 'b' column

S → AaC/Bd

A → BC

B → bB/C

C → accS

For which non terminals, its follow set contains terminal 'a'.

(a) {C} (b) {A}

(c) {A,B,C} (d) {A,B,C,S}

24. Consider the following grammar

<expression> → <factor> <rest>

<rest> → * <expression> | ε

<factor> → identifier

In the predictive parsing table M of the grammar the entries for M [<expression>, identifier] and M [<rest>,*] respectively are

(a) [<expression> → <factor> <rest>] and [<rest> → ε]

(b) [<expression>→ <factor> <rest>] and []

(c) [<expression> → <factor> <rest>] and

27. Consider the grammar, G1

E → E +E | E*E | (E) | id Ambiguous

Consider the grammar G2,

low + E → E+T | T

high * T → T*F | F

F → (E) | id

Unambiguous.

Choose the incorrect statement?

(a) G2 generates the same language as G1 (T)

(b) G2 is unambiguous but not LL(1) as it is left recursive (T)

(c) G2 gives a higher precedence to + over *

(d) None

28. Choose the true statement?

(a) If a grammar is left recursive it cannot be LL(1)

(b) If a grammar is right recursive it cannot be LL(1)

(c) An ambiguous grammar can sometimes be LL(1)

24. Consider the following grammar
<expression> → <factor> <rest>
<rest> → * <expression> | ε
<factor> → identifier
In the predictive parsing table M of the grammar the entries for M [<expression>, identifier] and M [<rest>,*] respectively are
(a) [<expression> → <factor> <rest>] and [<rest> → ε]
(b) [<expression>→ <factor> <rest>] and []
(c) [<expression> → <factor> <rest>] and [<rest> →* <expression>]
(d) [<factor> → identifier] and [<rest>→ ε]

25. Consider the grammar
S → a | ab | abc
Choose the correct statement from the following:
(a) The grammar is LL(1)
(b) The grammar is LL(2)
(c) G2 generates the same language as G1
(b) G2 is unambiguous but not LL(1) as it is left recursive
(c) G2 gives a higher precedence to + over *
(d) None

28. Choose the true statement?
(a) If a grammar is left recursive it cannot be LL(1)
(b) If a grammar is right recursive it cannot be LL(1)
(c) An ambiguous grammar can sometimes be LL(1)
(d) If a grammar is not context free then it sometimes can be LL(1)

29. S → Aa
A → b/ε
If we construct a predictive parse table for the above grammar, the production A → ε is added in 'A' row and _____.

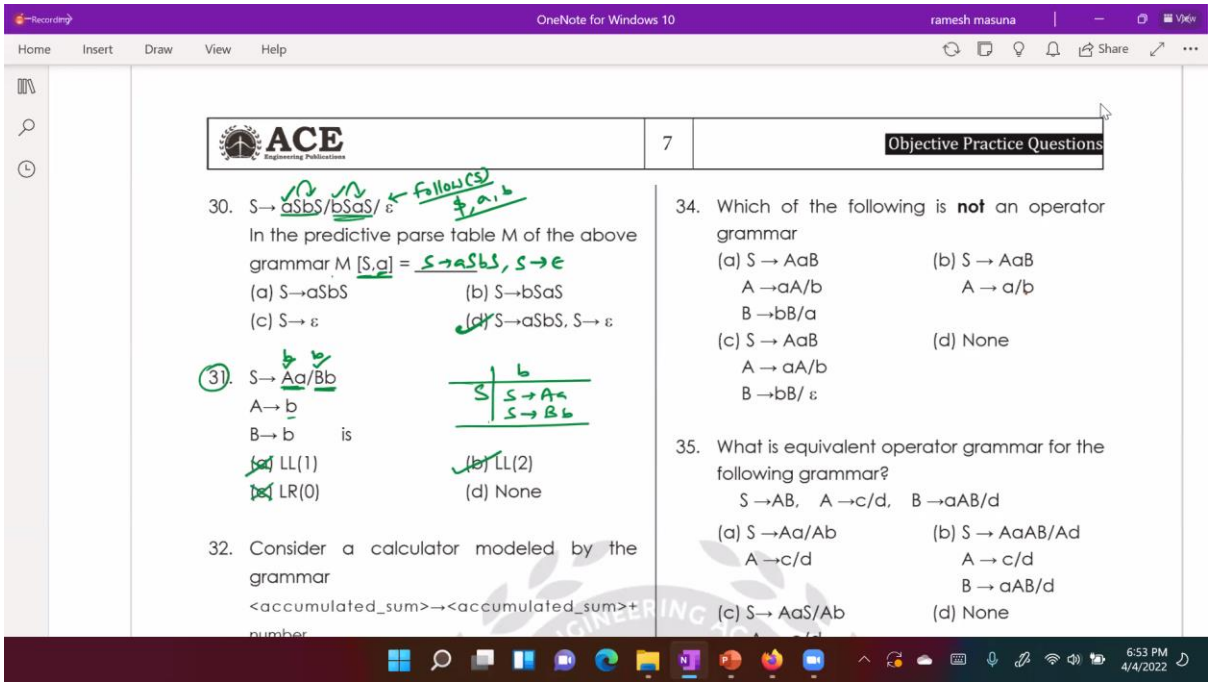
30. S→ aSbS/bSaS/ ε
In the predictive parse table M of the above grammar M [S,a] = _____
(a) S→aSbS (b) S→bSaS
(c) S→ ε (d) S→aSbS, S→ ε

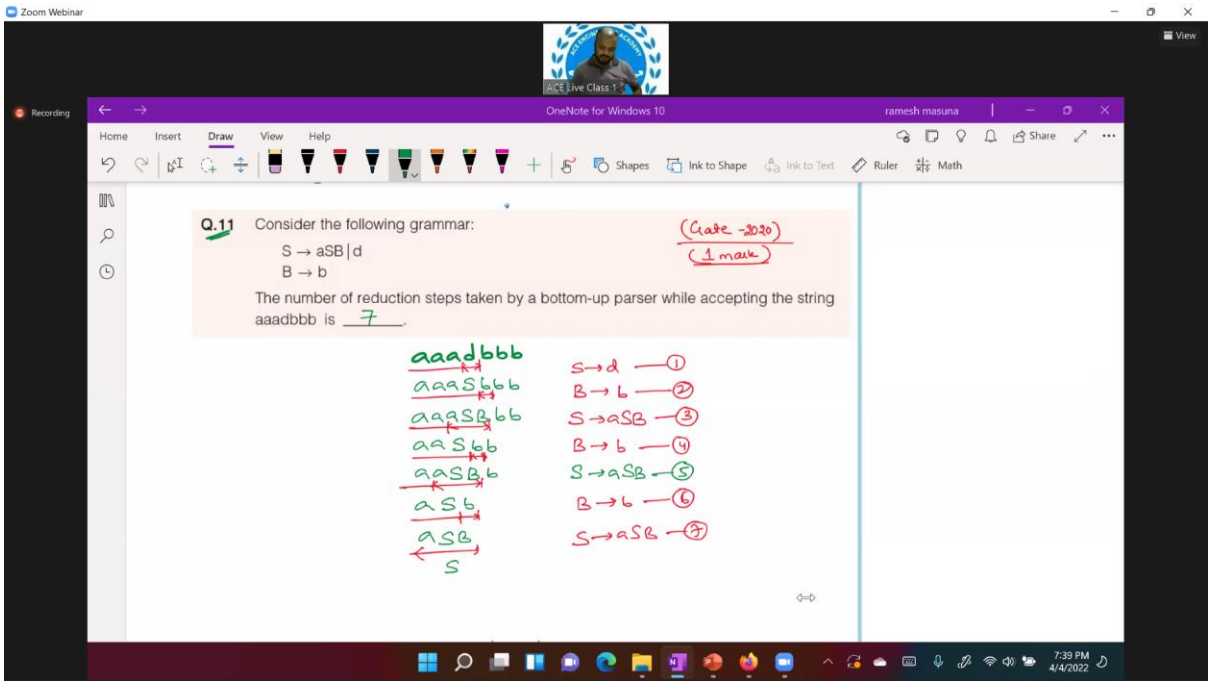
31. S→ Aa/Bb
A→ b
B→ b is
(a) LL(1) (b) LL(2)
(c) LR(0) (d) None

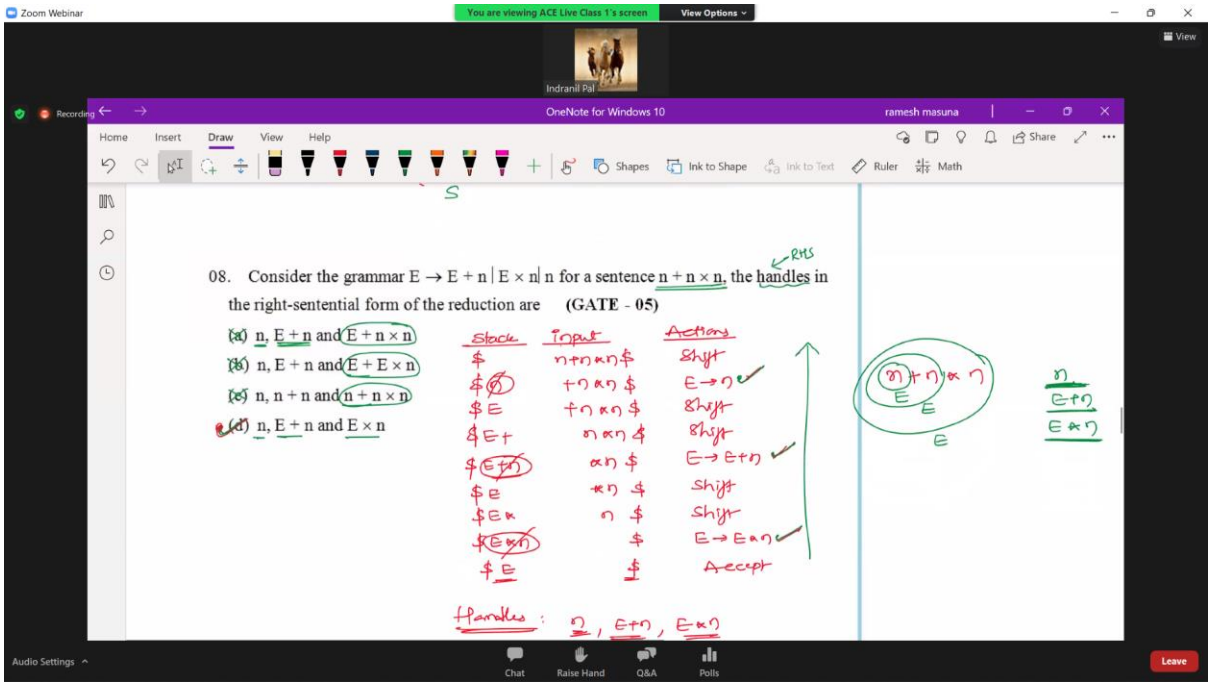
32. Consider a calculator modeled by the grammar
<accumulated_sum>→<accumulated_sum>+ number

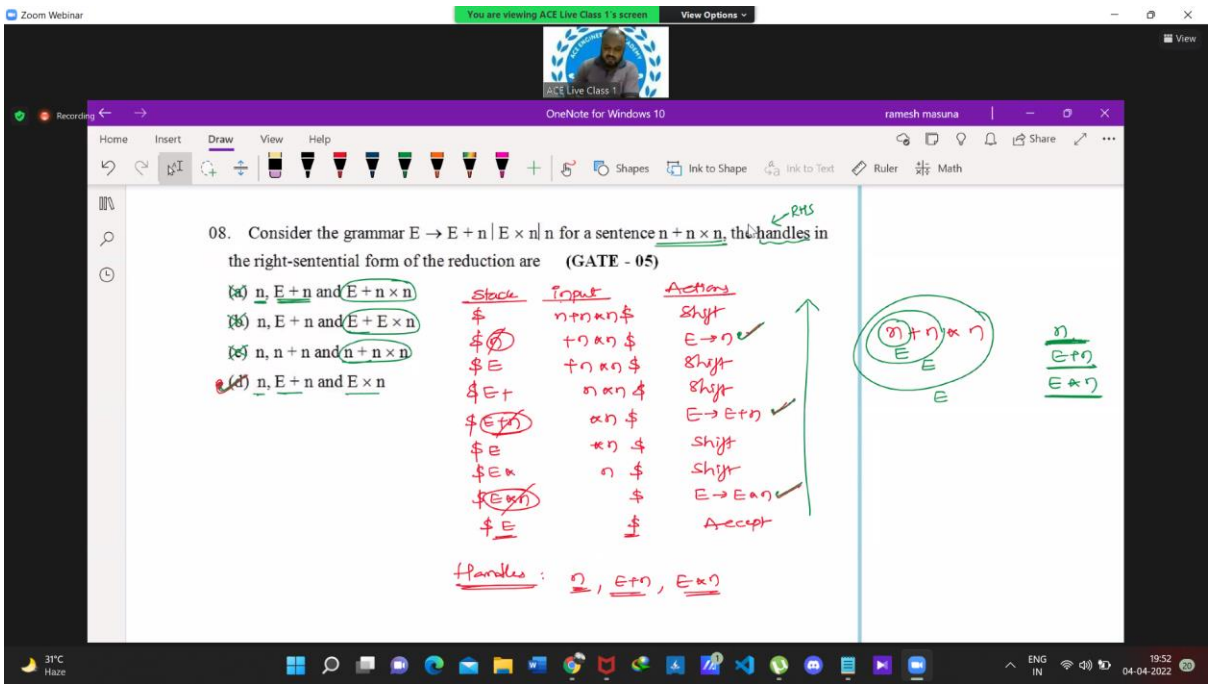
34. Which of the following is **not** an operator grammar
(a) S → AaB
A →aA/b
B →bB/a
(b) S → AaB
A → a/b
(c) S → AaB
A → aA/b
B →bB/ ε
(d) None

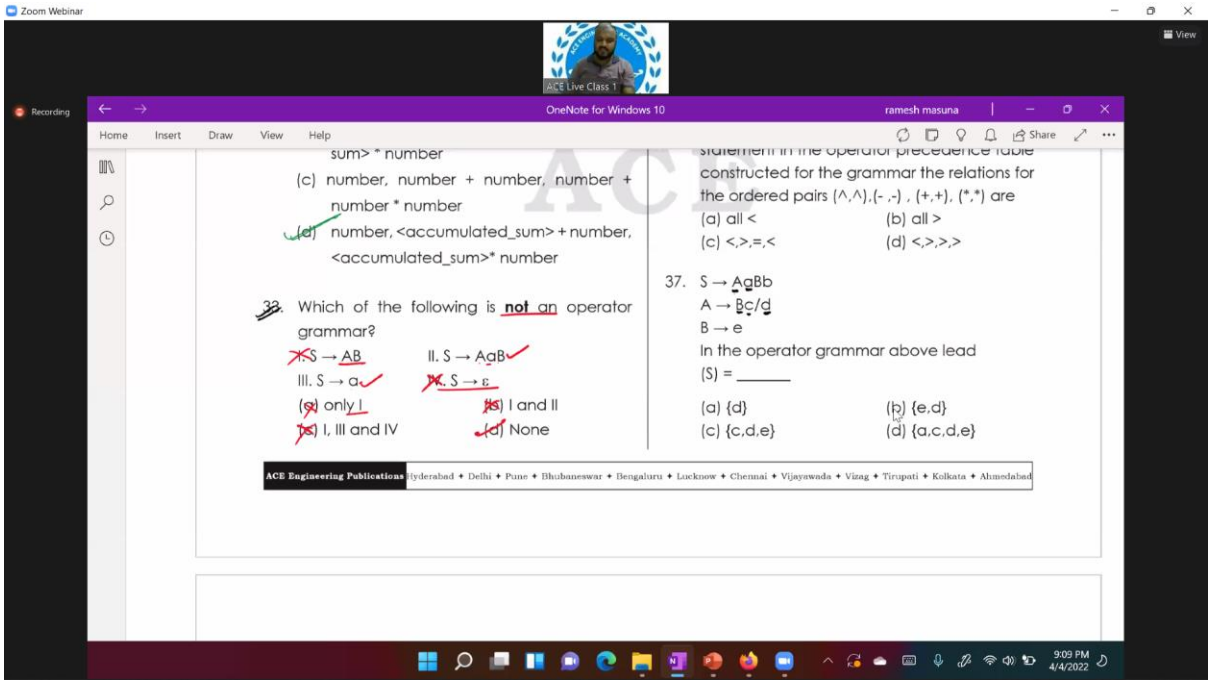
35. What is equivalent operator grammar for the following grammar?
S →AB, A →c/d, B →aAB/d
(a) S →Aa/Ab
A →c/d
(b) S → AaAB/Ad
A → c/d
B → aAB/d
(c) S→ AaS/Ab
(d) None


OneNote for Windows 10
ramesh masuna
Home Insert Draw View Help
ACE Engineering Publications
7
Objective Practice Questions
30. S→ aSbS/bSaS/ ε
In the predictive parse table M of the above grammar M [S,a] =
(a) S→aSbS
(b) S→bSaS
(c) S→ ε
(d) S→aSbS, S→ ε
31. S→ Aa/Bb
A→ b
B→ b
is
(a) LL(1)
(b) LL(2)
(c) LR(0)
(d) None
32. Consider a calculator modeled by the grammar
<accumulated_sum>→<accumulated_sum>+
34. Which of the following is not an operator grammar
(a) S → AaB
A →aA/b
B →bB/a
(b) S → AaB
A → a/b
(c) S → AaB
A → aA/b
B →bB/ ε
(d) None
35. What is equivalent operator grammar for the following grammar?
S →AB, A →c/d, B →aAB/d
(a) S →Aa/Ab
A →c/d
(b) S → AaAB/Ad
A → c/d
B → aAB/d
(c) S→ AaS/Ab
(d) None
6:53 PM
4/4/2022


Zoom Webinar
ACE Live Class 1
Recording
OneNote for Windows 10
ramesh masuna
Home Insert Draw View Help
Shapes Ink to Shape Ink to Text Ruler Math
Q.11 Consider the following grammar:
S → aSB | d
B → b
(Gate -2020)
(1 mark)
The number of reduction steps taken by a bottom-up parser while accepting the string aaadbbb is 7.
aaadbbb
aaaSbbb
aaSBbb
aaSbb
aaSBb
aSb
aSB
S
S→d ①
B→b ②
S→aSB ③
B→b ④
S→aSB ⑤
B→b ⑥
S→aSB ⑦
7:39 PM
4/4/2022


Zoom Webinar
You are viewing ACE Live Class 1's screen
View Options
Indranil Pal
OneNote for Windows 10
ramesh masuna
Home
Insert
Draw
View
Help
Shapes
Ink to Shape
Ruler
Math
08. Consider the grammar E → E + n | E × n | n for a sentence n + n × n, the handles in the right-sentential form of the reduction are (GATE - 05)
(a) n, E + n and E + n × n
(b) n, E + n and E + E × n
(c) n, n + n and n + n × n
(d) n, E + n and E × n
RMS
Stack
Input
Actions
Handles : n, E+n, E×n
Audio Settings
Chat
Raise Hand
Q&A
Polls
Leave


Zoom Webinar
You are viewing ACE Live Class 1's screen
View Options
ACE Live Class 1
OneNote for Windows 10
ramesh masuna
Home
Insert
Draw
View
Help
Shapes
Ink to Shape
Ruler
Math
08. Consider the grammar E → E + n | E × n | n for a sentence n + n × n, the handles in the right-sentential form of the reduction are (GATE - 05)
(a) n, E + n and E + n × n
(b) n, E + n and E + E × n
(c) n, n + n and n + n × n
(d) n, E + n and E × n
RMS
Stack
Input
Actions
Handles : n, E+n, E×n
31°C
Haze
ENG
IN
19:52
04-04-2022



sum> * number

(c) number, number + number, number + number * number

(d) number, <accumulated_sum> + number, <accumulated_sum>* number

38. Which of the following is **not** an operator grammar?

I. S → AB
II. S → AaB
III. S → a
IV. S → ε

(a) only I
(b) I and II
(c) I, III and IV
(d) None

statement in the operator precedence table constructed for the grammar the relations for the ordered pairs (^,^),(- ,-) , (+,+), (*,*) are

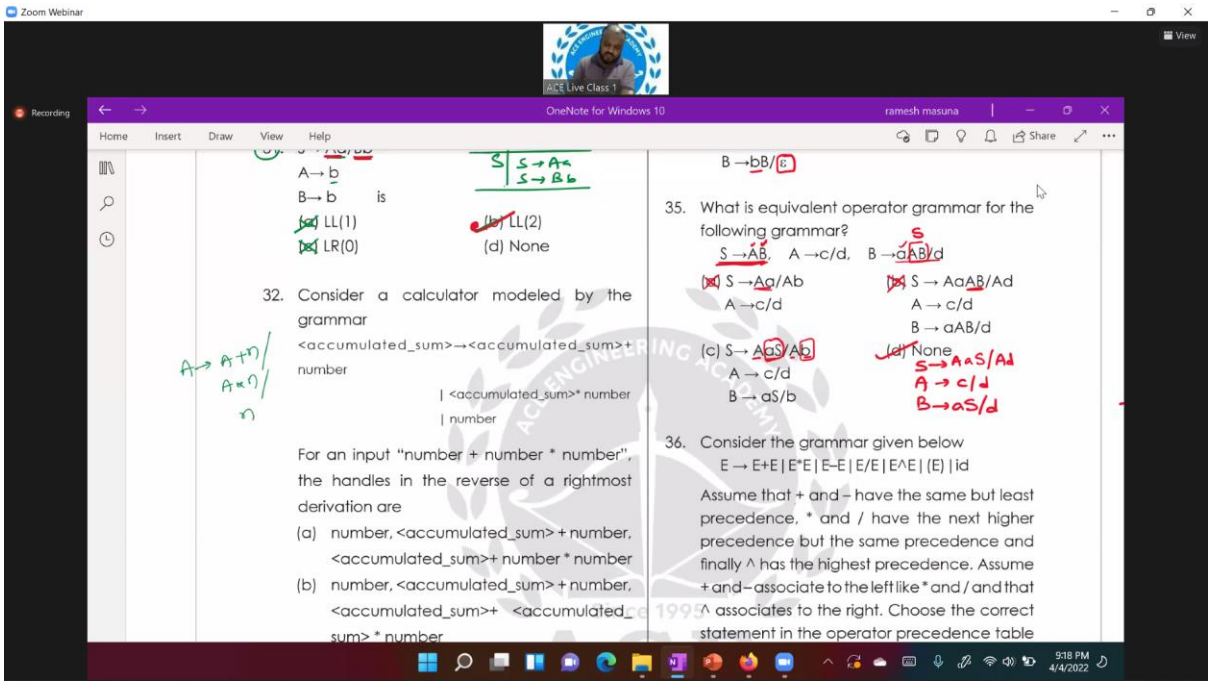
(a) all <
(b) all >
(c) <,>,=,<
(d) <,>,>,>

37. S → AgBb
A → Bc/d
B → e

In the operator grammar above lead

(S) = _____

(a) {d}
(b) {e,d}
(c) {c,d,e}
(d) {a,c,d,e}



A → b
B → b is

(a) LL(1)
(b) LL(2)
(c) LR(0)
(d) None

32. Consider a calculator modeled by the grammar

<accumulated_sum> → <accumulated_sum> + number
| <accumulated_sum>* number
| number

For an input "number + number * number", the handles in the reverse of a rightmost derivation are

(a) number, <accumulated_sum> + number, <accumulated_sum>+ number * number
(b) number, <accumulated_sum> + number, <accumulated_sum>+ <accumulated_sum> * number

B → bB/ε

35. What is equivalent operator grammar for the following grammar?

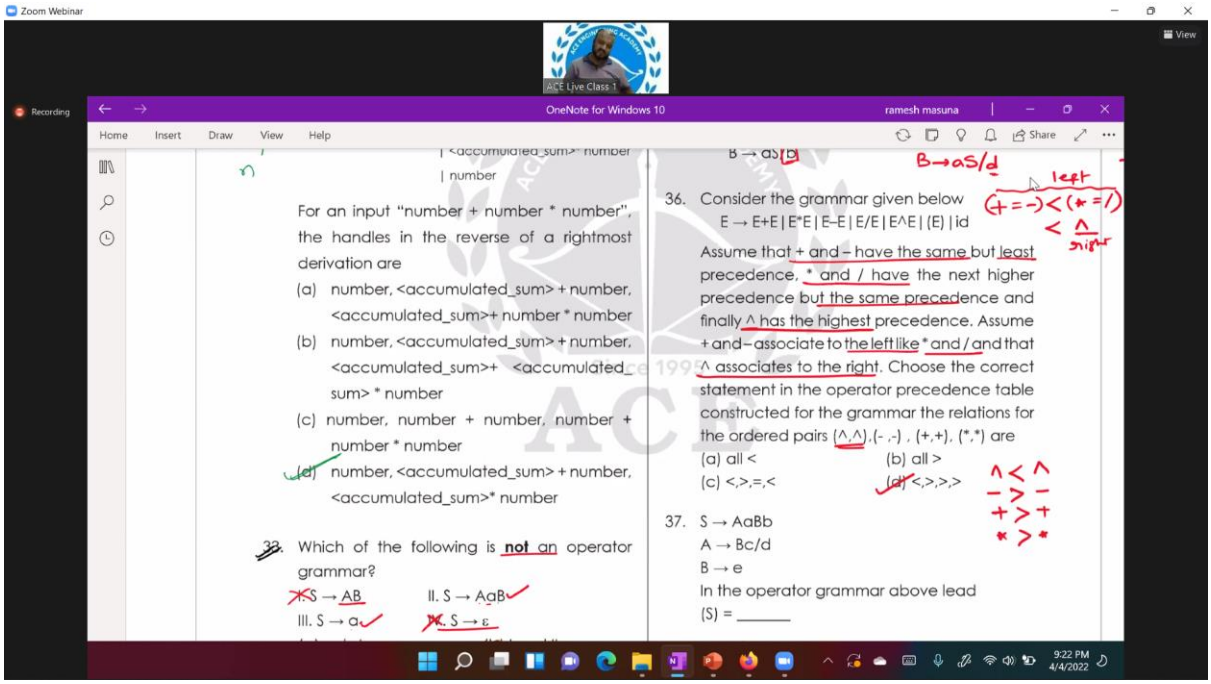
S → AB, A → c/d, B → aAB/d

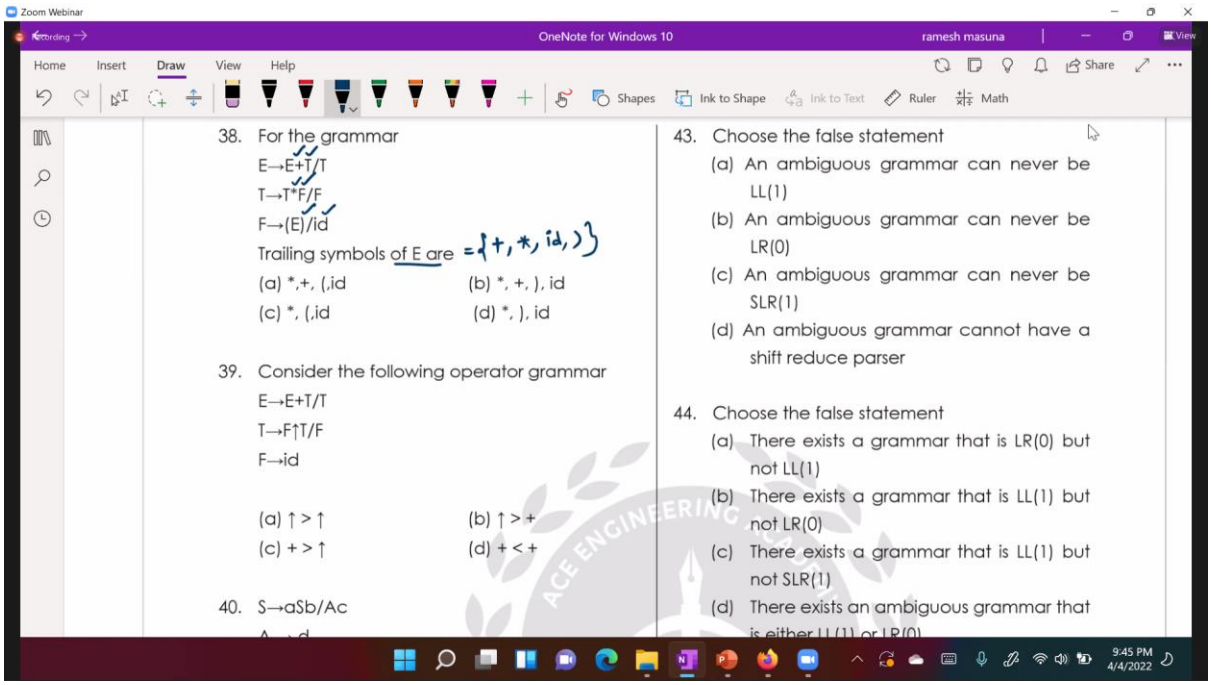
(a) S → Aa/Ab
A → c/d
(b) S → AaAB/Ad
A → c/d
B → aAB/d
(c) S → AaS/Ab
A → c/d
B → aS/b
(d) None

36. Consider the grammar given below

E → E+E | E*E | E–E | E/E | E^E | (E) | id

Assume that + and – have the same but least precedence, * and / have the next higher precedence but the same precedence and finally ^ has the highest precedence. Assume + and – associate to the left like * and / and that ^ associates to the right. Choose the correct statement in the operator precedence table


Zoom Webinar
ACE Live Class 1
Recording
OneNote for Windows 10
ramesh masuna
Home Insert Draw View Help
Share
| number
For an input "number + number * number", the handles in the reverse of a rightmost derivation are
(a) number, <accumulated_sum> + number, <accumulated_sum>+ number * number
(b) number, <accumulated_sum> + number, <accumulated_sum>+ <accumulated_sum> * number
(c) number, number + number, number + number * number
(d) number, <accumulated_sum> + number, <accumulated_sum>* number
33. Which of the following is not an operator grammar?
S → AB
II. S → AaB
III. S → a
S → ε
B → aS/d
36. Consider the grammar given below
E → E+E | E*E | E-E | E/E | E^E | (E) | id
Assume that + and – have the same but least precedence, * and / have the next higher precedence but the same precedence and finally ^ has the highest precedence. Assume + and – associate to the left like * and / and that ^ associates to the right. Choose the correct statement in the operator precedence table constructed for the grammar the relations for the ordered pairs (^,^),(- ,-) , (+,+), (*,*) are
(a) all <
(b) all >
(c) <,>,=,<
(d) <,>,>,>
37. S → AaBb
A → Bc/d
B → e
In the operator grammar above lead
(S) = _____
9:22 PM
4/4/2022


Zoom Webinar
Recording
OneNote for Windows 10
ramesh masuna
Home Insert Draw View Help
Share
Shapes
Ink to Shape
Ink to Text
Ruler
Math
38. For the grammar
E→E+T/T
T→T*F/F
F→(E)/id
Trailing symbols of E are
(a) *,+, (,id
(b) *, +,), id
(c) *, (,id
(d) *,), id
39. Consider the following operator grammar
E→E+T/T
T→F↑T/F
F→id
(a) ↑ > ↑
(b) ↑ > +
(c) + > ↑
(d) + < +
40. S→aSb/Ac
43. Choose the false statement
(a) An ambiguous grammar can never be LL(1)
(b) An ambiguous grammar can never be LR(0)
(c) An ambiguous grammar can never be SLR(1)
(d) An ambiguous grammar cannot have a shift reduce parser
44. Choose the false statement
(a) There exists a grammar that is LR(0) but not LL(1)
(b) There exists a grammar that is LL(1) but not LR(0)
(c) There exists a grammar that is LL(1) but not SLR(1)
(d) There exists an ambiguous grammar that
9:45 PM
4/4/2022