CS & IT ENGINEERING

Compiler Design

Syntax Directed Translation

DPP (Discussion Notes)

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01 Question

02 Discussion

Q.1

Synthesized attributes can be easily simulated using [MCQ]

A. LL grammar

B. LR grammar

C. Ambiguous grammar

D. None of these

Q.2

Consider the following translation rules for the grammar G:

S → a{print "A"} A

A → b {print "C"}B

A → ∈ {print "C"}

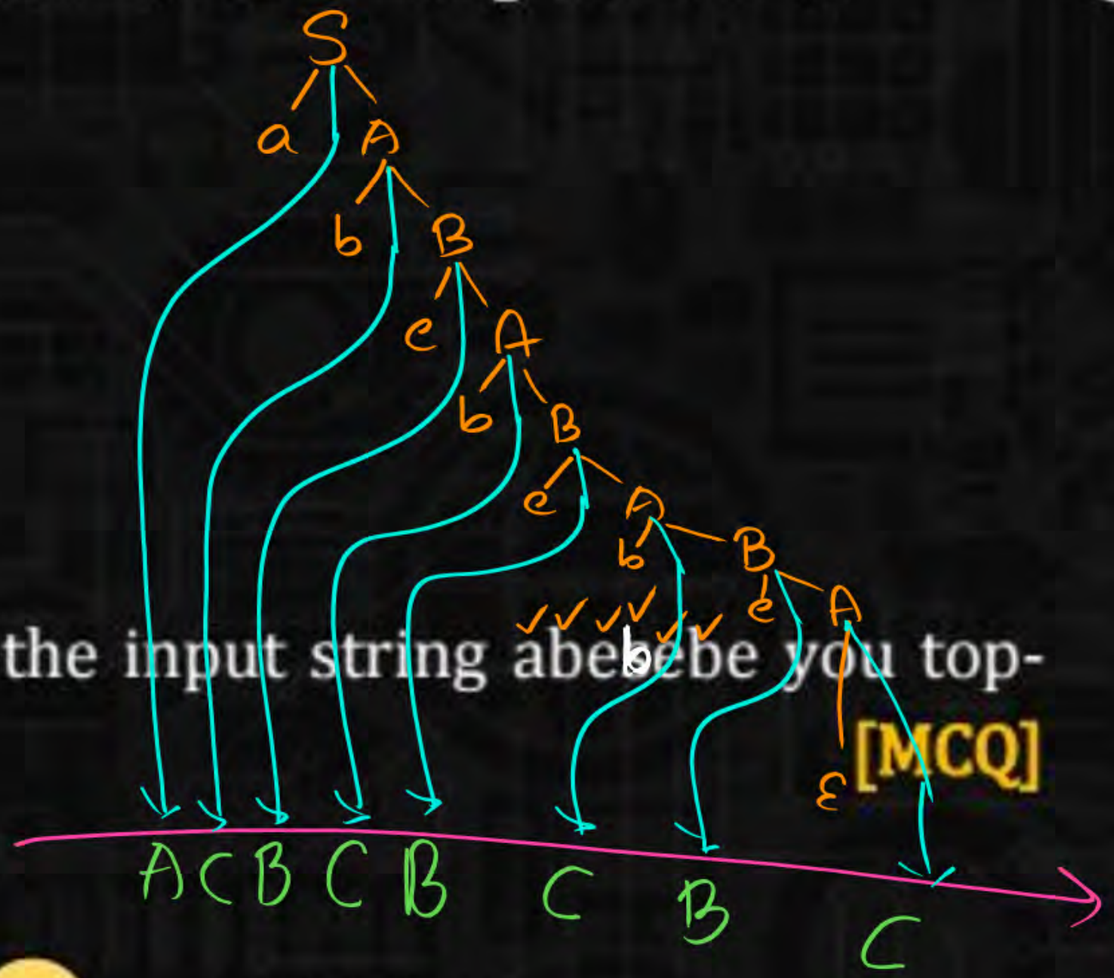
B → e {print "B"}A

B → ∈ {print "C"}

C → c {print "A"}

What will be the output for the input string abebebe you top-down parser?

[MCQ]



A. ACBCCBAC

B. ACCBCCBC

C. ACBCCBCC

D. ACBCBCBC

Q.3

[MCQ]

Consider the following attribute grammar:

$A \rightarrow BA'$ $\quad A' \cdot b = A \cdot a$

$A \cdot a = A' \cdot b$

$A_1' \rightarrow +BA_2'$ $\quad A_2'.b = A_2'.b + B \cdot a$

$A_1'.a = A_2'.a$

a is synthesized

b is inherited

Which of the following is true?

A. Both a and b are inherited attributed.

B. Both a and b are synthesized attributed.

C. a is inherited, b is synthesized

D. b is inherited, a is synthesized

Q.4

[MCQ]

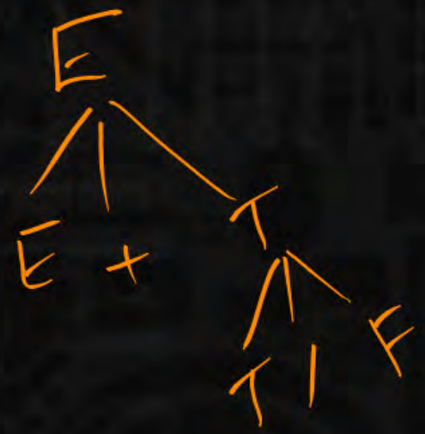
Consider the following grammar:

$E \rightarrow E + T \mid T$

$T \rightarrow T/F \mid F$

$F \rightarrow F * A \mid A$

$A \rightarrow id$



Which one of the following is true?

A. / have higher precedence than *

B. *have higher precedence than +

C. + have lower precedence than/

D. *, +, / all have some precedence.

Q.5

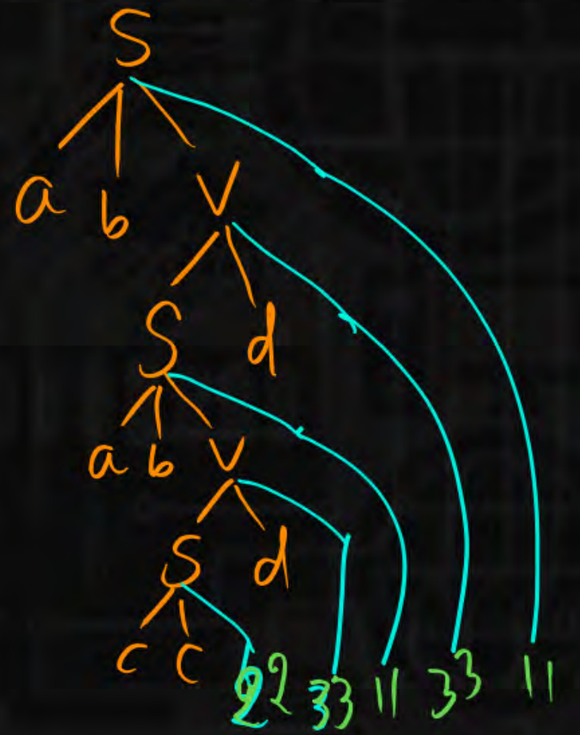
A shift reduce parser perform action specified within process immediately after reduction to the corresponding rule of grammar.

S → abV {print '11'}

S → cc {print '22'}

V → Sd {print '33'}

What is the translation of ababccdd using the SDT scheme described by above rules/ [MCQ]



A. 2233113311

B. 1133113322

C. 2211331122

D. 1122113322

Q.6

[MCQ]

Consider the following transition rules:

$A \rightarrow BC$

$C \rightarrow +BC \mid A+ \mid \in$

$B \rightarrow DB$ {print '+'} $\mid \in$

$D \rightarrow (A) \mid$ id {print number value}

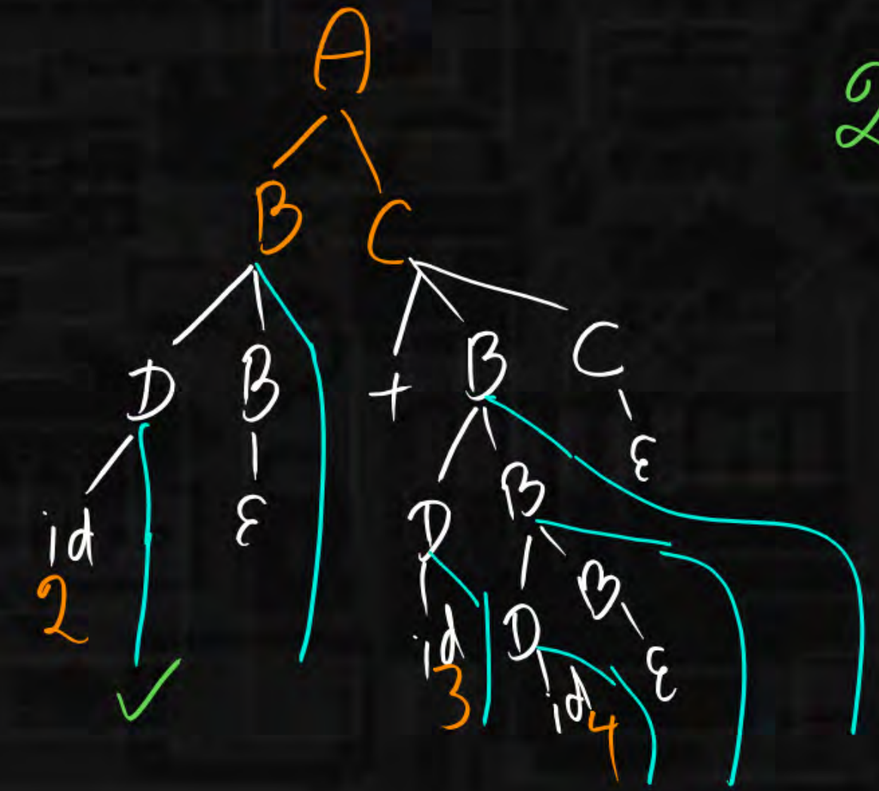
If input is given "2 + 34" then this translation scheme will generate output.

A. 2 + 3 + 4 +

B. + 2 + 3 + 4

C. + + 2 + 34

D. 2 + 34 + +



2 + 3 4 + +

Q.7

___is performed by attaching rules or algorithms to production in a grammar.

[MCQ]

$S \rightarrow a$ { translation Rule }

A. Lexical analysis

B. Execution

C. Syntax directed translation

D. None of these.

Q.8

[NAT]

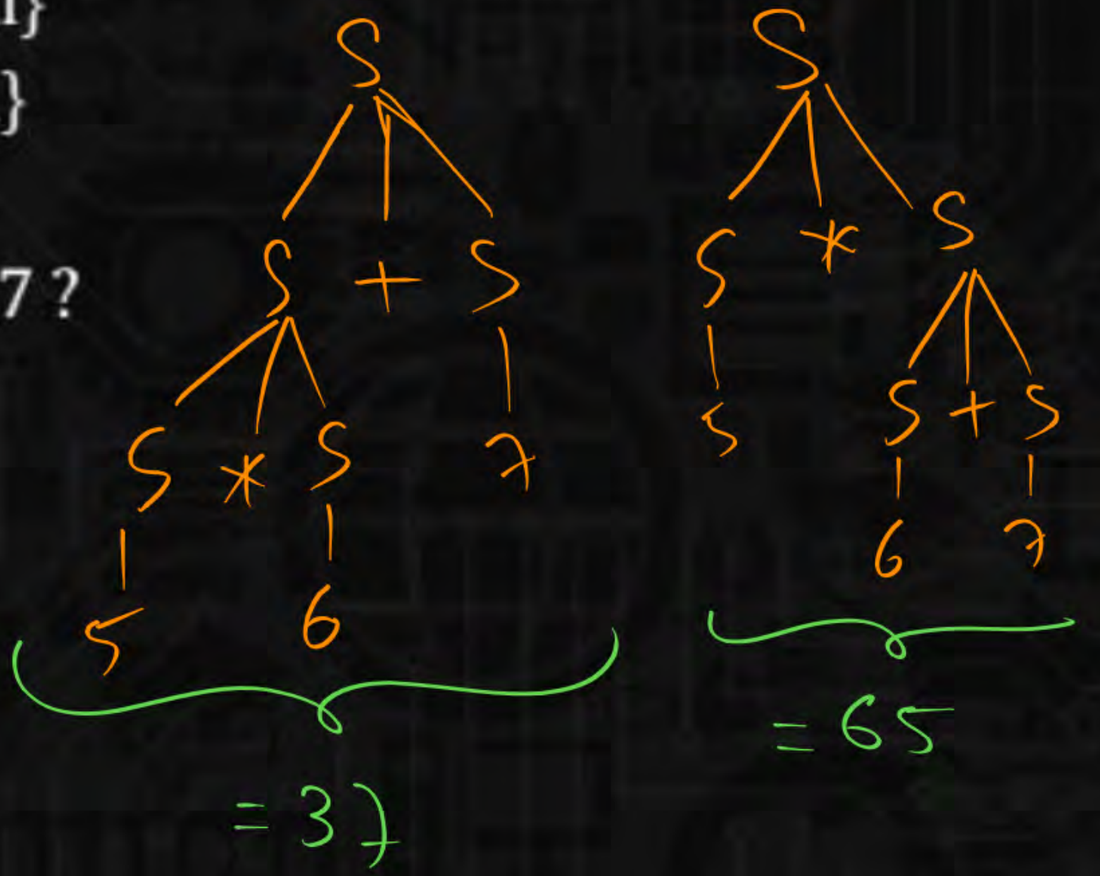
Consider a translation scheme is given as:

$S \rightarrow S_1 + S_2 \{S \cdot val = S_1 \cdot val + S_2 \cdot val\}$

$S \rightarrow S_1 * S_2 \{S \cdot val = S_1 \cdot val * S_2 \cdot val\}$

$S \rightarrow id \{S \cdot val = id\}$

What will be the output for 5 * 6 + 7 ?



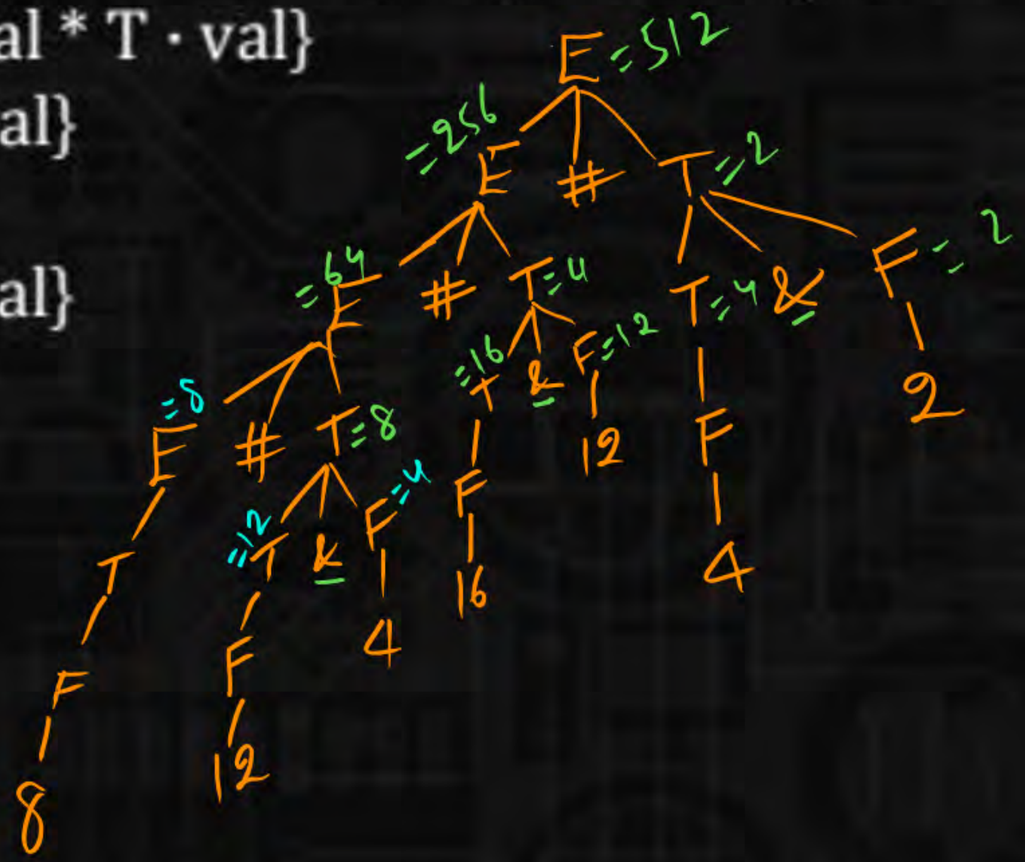
Q.9

[MCQ]

Consider the given translation rules.

If the expression 8 # 12 & 4 # 16 & 12 # 4 & 2 is evaluated to 512, then which of the following is correctly representing x?

$E \rightarrow E_1 \# T$	{E·val = E1· val * T · val}
|T	{E · val = T · val}
$T \rightarrow T_1 \& F$	x
|F	{T · val = F · val}
$F \rightarrow id$	{F · val = id}



A. $T \cdot val = T_1 \cdot val * F \cdot val$

B. $T \cdot val = T_1 \cdot val + F \cdot val$

C. $T \cdot val = T_1 \cdot val - F \cdot val$

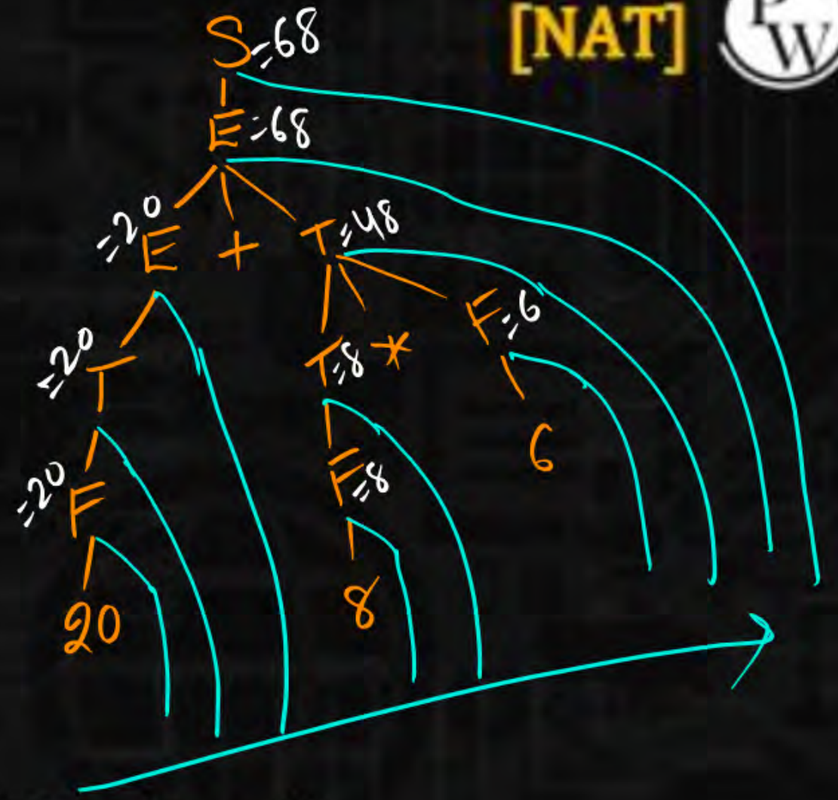
D. $T \cdot val = T \cdot val \div F \cdot val$

Q.10

[NAT]

Consider the following SDT :

$S \rightarrow E$	$\{S \cdot val = E \cdot val\}$
$E \rightarrow E + T$	$\{E \cdot val\} = E_1 \cdot val + T \cdot val\}$
$E \rightarrow T$	$\{E \cdot val = T \cdot val\}$
$T \rightarrow T * F$	$\{T \cdot val = T_1 \cdot val * F \cdot val\}$
$T \rightarrow F$	$\{T \cdot val = F \cdot val\}$
$F \rightarrow (E)$	$\{F \cdot val = E \cdot val\}$
$F \rightarrow a$	$\{F \cdot val = a\}$



What will be the output of the expression "20 + 8 × 6"

=68


THANK YOU GW
SOLDIERS !