Summary in Graph

Exam Summary (GO Classes Test Series 2024 | Compiler Design | Test 2)

Qs. Attempted:	**14** 5 + 9	**Correct Marks:**	**16** 4 + 12
Correct Attempts:	**10** 4 + 6	**Penalty Marks:**	**1** 0.33 + 0.67
Incorrect Attempts:	**4** 1 + 3	**Resultant Marks:**	**15** 3.66 + 11.33

Total Questions:	**15** 5 + 10
Total Marks:	**25** 5 + 20
Exam Duration:	**45 Minutes**
Time Taken:	**41 Minutes**

EXAM RESPONSE EXAM STATS FEEDBACK

Technical

Q #1 Multiple Select Type Award: 1 Penalty: 0 Compiler Design

Consider the following CFG, where the set of terminals is $\{a, b, \#, \%, !\}$:

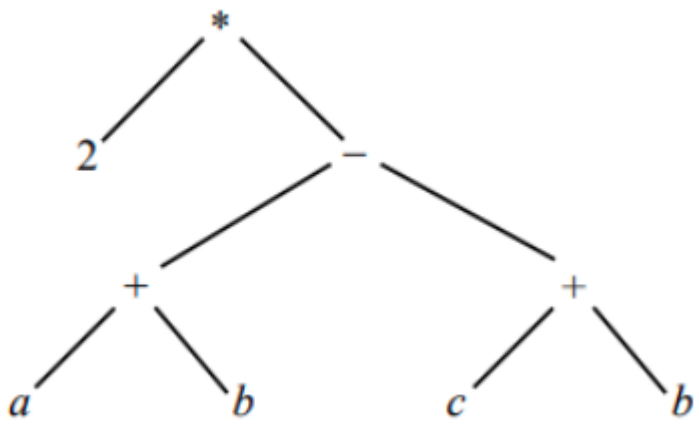
$$\begin{aligned} \mathrm{S} &\rightarrow \%a\mathrm{T} \mid \mathrm{U}! \\ \mathrm{T} &\rightarrow a\mathrm{S} \mid ba\mathrm{T} \mid \epsilon \\ \mathrm{U} &\rightarrow \#a\mathrm{TU} \mid \epsilon \end{aligned}$$

Which of the following is true?

A. The FIRST sets for each of the nonterminals $\mathrm{S}, \mathrm{T}, \mathrm{U}$ is as follows :
   $\mathrm{S} : \{\%, \#, !\}$
   $\mathrm{T} : \{a, b, \epsilon\}$
   $\mathrm{U} : \{\#, \epsilon\}$
B. The FOLLOW sets for each of the nonterminals $\mathrm{S}, \mathrm{T}, \mathrm{U}$ is as follows :
   $\mathrm{S} : \{\#, !, \$\}$
   $\mathrm{T} : \{\#, !, \$\}$
   $\mathrm{U} : \{!\}$
C. The grammar is $\mathrm{LL}(1)$
D. The grammar is $\mathrm{LR}(1)$

Your Answer: A;B;C;D | Correct Answer: A;B;C;D | Correct | Discuss

Q #2 | Multiple Choice Type | Award: 1 | Penalty: 0.33 | Compiler Design



Which of the following arithmetic expressions corresponds directly to the parse tree given by the diagram in the figure above?

A. $2(a - c)$
B. $2a - 2c$
C. $2(a + b - c + b)$
D. $2((a + b) - (c + b))$

Your Answer: D | Correct Answer: D | Correct | Discuss

Q #3 | Multiple Choice Type | Award: 1 | Penalty: 0.33 | Compiler Design

Inherited attributes are attributes at a node whose dependency is

A. Restricted to siblings
B. Restricted to parent
C. Both A and B
D. Neither A nor B

Your Answer: C | Correct Answer: D | Incorrect | Discuss

Q #4 | Multiple Choice Type | Award: 1 | Penalty: 0.33 | Compiler Design

Consider the following statements with respect to storage allocation:

- $\mathrm{S1}$: Names local to a procedure are allocated space on a heap automatically.
- $\mathrm{S2}$: Stack allocation is used for data that may live even after a procedure call returns.
- $\mathrm{S3}$: Heap allocation is used for symbol tables.

Which one of the following is true?

A. $\mathrm{S1}, \mathrm{S2}$ are false but $\mathrm{S3}$ is true
B. $\mathrm{S1}, \mathrm{S2}$ and $\mathrm{S3}$ are false
C. $\mathrm{S1}, \mathrm{S2}$ are true but $\mathrm{S3}$ is false
D. $\mathrm{S1}, \mathrm{S3}$ are true but $\mathrm{S2}$ is false

Your Answer: A | Correct Answer: A | Correct | Discuss

Q #5 | Multiple Choice Type | Award: 1 | Penalty: 0.33 | Compiler Design

Consider the syntax directed translation scheme given below:

$\mathrm{S} \rightarrow \mathrm{L}$	$\mathrm{S.val} = \mathrm{L.val}$
$\mathrm{L} \rightarrow \mathrm{L_1B}$	$\mathrm{L.val} = \mathrm{L_1.\,val} * 2 + \mathrm{B.\,val}$
$\mathrm{L} \rightarrow \mathrm{B}$	$\mathrm{L.val} = \mathrm{B.val}$
$\mathrm{B} \rightarrow 0$	$\mathrm{B.val} = 0$
$\mathrm{B} \rightarrow 1$	$\mathrm{B.val} = 1$

If the input string is 1101, then the value of attribute of starting symbol is

A. 5
B. 13
C. 110
D. 20

Your Answer: B | Correct Answer: B | Correct | Discuss

Q #6 | Multiple Select Type | Award: 2 | Penalty: 0 | Compiler Design

Which of the following is/are true about the following grammar : $\mathrm{S} \rightarrow \mathrm{S}a \mid b$

A. Given grammar is $\mathrm{SLR}(1)$
B. Given grammar is $\mathrm{LR}(0)$
C. A recursive descent parser can not parse given grammar
D. Set of all viable prefixes for given grammar is $\{a, \mathrm{S}, b\}$

Your Answer: A;B | Correct Answer: A;B;C | Incorrect | Discuss

Q #7 | Multiple Choice Type | Award: 2 | Penalty: 0.67 | Compiler Design

In a language in which operations are associated right-to-left instead of left-to-right $(\text{i.e.},\ a + b + c = a + (b + c))$, the value of the expression

$$7 - (16/(3 + 1) * 2) - 4$$

is

A. -1
B. 1
C. 3
D. 9

Your Answer: D | Correct Answer: D | Correct | Discuss

Q #8 | Multiple Choice Type | Award: 2 | Penalty: 0.67 | Compiler Design

Consider the Syntax-Directed Translation scheme given below.

Grammar	Semantic Rules
$E_1 \rightarrow E_2 + T$	$E_1.string = E_1.string \|\| T.string \|\| \text{'+'}$
$E_1 \rightarrow T$	$E_1 \cdot string = T.string$
$T_1 \rightarrow T_2 * F$	$T_1.string = T_2.string \|\| F.string \|\| \text{'*'}$
$T \rightarrow F$	$T.string = F.string$
$F \rightarrow (E)$	$F.string = E.string$
$F \rightarrow num$	$F.string = num.string$

What does this SDT does?

A. It translate arithmetic expression from infix into postfix notation
B. It translate arithmetic expression from postfix into infix notation
C. It translate arithmetic expression from prefix into postfix notation
D. It translate arithmetic expression from infix into prefix notation

Your Answer: A **Correct Answer: A** Correct Discuss

Q #9 Multiple Choice Type Award: 2 Penalty: 0.67 Compiler Design

Consider the following statements given below

- $S1 : A \rightarrow XYZ\{Y.S = A.S, Y.S = X.S, Y.S = Z.S\}$ is not an L-attributed grammar since $Y.S = A.S$ and $Y.S = X.S$ are allowed but $Y.S = Z.S$ violates the L-attributed SDT definition as attributed is inheriting the value from its right sibling.
- $S2 : S$-attributed $SDTs$ are evaluated in bottom-up parsing, as the values of the parent nodes depend upon the values of the child nodes.

Which of the above statement(s) is/are CORRECT?

A. Only $S1$
B. Only $S2$
C. Both $S1$ and $S2$
D. Neither $S1$ nor $S2$

Your Answer: C **Correct Answer: C** Correct Discuss

Q #10 Multiple Select Type Award: 2 Penalty: 0 Compiler Design

The syntax of a propositional calculus can be described by the context-free grammar $G = \langle V_n, V_t, P, S \rangle$ where $V_n = \{S\}, V_t = \{$ not, if, then, and, or, $p, q, r\}$,

$$\begin{aligned} P = \{ & S \rightarrow p, S \rightarrow q, S \rightarrow r \\ & S \rightarrow \text{ not } S, \\ & S \rightarrow \text{if } S \text{ then } S \\ & S \rightarrow S \text{ or } S, \\ & S \rightarrow S \text{ and } S\} \end{aligned}$$

Choose the False statements about the above grammar and language :

A. The given grammar is ambiguous.
B. "and" has higher precedence than "or"
C. "or" has higher precedence than "and"
D. "or", "and" are left associative, But not right associative

Your Answer: B;C;D **Correct Answer: B;C;D** Correct Discuss

Q #11 Multiple Select Type | Award: 2 | Penalty: 0 | Compiler Design

Let P be a procedure that for some inputs calls itself (i.e., is recursive). If P is guaranteed to terminate. Which of the following statements must be true?

A. P has a local variable.
B. P has an execution path where it does not call itself.
C. P either refers to a global variable or has at least one parameter.
D. P cannot have more than one parameter.

Your Answer: A;B;C | **Correct Answer: B;C** | Incorrect | Discuss

Q #12 Multiple Choice Type | Award: 2 | Penalty: 0.67 | Compiler Design

Expressions in a certain language can be described in Backus-Naur form (BNF) as follows:

```
< expression > ::= < term > | < expression > op1 < term >
< term > ::= < item > | < term > op2 < item >
< item > ::= < variable > | < number >
```

The syntax is most appropriate when the order of evaluation is

A. from left to right always
B. from left to right, but **op1** takes precedence over **op2**
C. from left to right, but **op2** takes precedence over **op1**
D. In any order, but **op1** takes precedence over **op2**

Your Answer: C | **Correct Answer: C** | Correct | Discuss

Q #13 Multiple Choice Type | Award: 2 | Penalty: 0.67 | Compiler Design

Which of the following statements are True/False, map them appropriately, with respect to syntax directed definitions?

I. The terminals in a SDD can have both synthesized as well as inherited attributes.
II. Value of attributes of terminals is generally supplied by lexical analyzer
III. The start symbol doesn't have an inherited attribute
IV. Attribute grammar is a SDD in which function in the semantic rules should produce side effects.

A. $\mathrm{T\ T\ T\ T}$
B. $\mathrm{T\ F\ T\ F}$
C. $\mathrm{T\ T\ T\ F}$
D. $\mathrm{F\ T\ T\ F}$

Your Answer: C | **Correct Answer: D** | Incorrect | Discuss

Q #14 Multiple Select Type | Award: 2 | Penalty: 0 | Compiler Design

Consider the following grammar G :

$$\mathrm{A} \rightarrow \mathrm{A\ and\ A} \mid \mathrm{A\ or\ A} \mid \langle \mathrm{A} \rangle \mid \mathrm{true} \mid \mathrm{false}$$

Which of the following is true?

A. G can be parsed by a $\mathrm{LL}(1)$ parser
B. G can be parsed by a $\mathrm{LALR}(1)$ parser
C. $\mathrm{L}(\mathrm{G})$ is ambiguous.
D. G is ambiguous.

Your Answer: D **Correct Answer: D** Correct Discuss

Q #15 Multiple Select Type Award: 2 Penalty: 0 Compiler Design

Which of the following is/are true about handles and viable prefixes in shift-reduce parsing?

1. Handles always appear at the top of the stack
2. Handles are never to the left of the rightmost nonterminal
3. A viable prefix does not extend past the right end of the handle
4. For any grammar, the set of viable prefixes is a regular language
5. Viable prefix is a prefix of the handle
6. As long as a parser has viable prefixes on the stack no parsing error has been detected
7. Bottom-up parsing algorithms are based on recognizing handles

A. $1, 2$ and 3 are true
B. $4, 6$ and 7 are true
C. 5 is wrong
D. All are true except 7

Your Answer: **Correct Answer: A;B** Not Attempted Discuss

You're doing good, you can target above 70 percentage!