Professional Online Academy Vu Topper RM

CS606-Compiler Construction Update MCQ'S Final Term By Vu Topper RM

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Question No:1 **(Marks:1)** **Vu-Topper RM**

The canonical collection is used to generate which of the following parsing tables?

A. Production and symbol tables
B. First and follow tables
C. Closure and reduction tables
D. Action and goto tables

Question No:2 **(Marks:1)** **Vu-Topper RM**

What does the term "canonical collection" refer to in LR parsing?

A. A set of LR items representing the states of the parser during parsing.
B. A table used for storing parsing actions.
C. The final output of the parsing process.
D. A list of production rules in a grammar.

Question No:3 **(Marks:1)** **Vu-Topper RM**

In LR grammar, the R stands for _____.

A. Right shift
B. Right to left scan
C. Right most derivation
D. Right hand side of grammar

Question No:4 **(Marks:1)** **Vu-Topper RM**

The NFA of LR(0) items represents transitions between:

A. LR(1) items.
B. LR(0) items without considering lookahead symbols.
C. Grammar symbols and their derivations.
D. Non-terminal symbols and their productions.

Question No:5 **(Marks:1)** **Vu-Topper RM**

In the grammar "T → a b c d | a b d c", the _____ is a common prefix for non-terminal 'T'.

A. c d
B. a b
C. b d
D. a c

Question No:6 **(Marks:1)** **Vu-Topper RM**

In the LR table, how are the entries other than the state containing [S' → •S, $] initialized?

A. Marked as "accept"
B. Assigned with reduce actions
C. Marked as "error"
D. Assigned with shift actions

Question No:7 **(Marks:1)** **Vu-Topper RM**

Left factoring is primarily used in which type of parsing?

A. Predictive parsing
B. Bottom-up parsing
C. Shift-Reduce parsing
D. LR parsing

Question No:8 **(Marks:1)** **Vu-Topper RM**

In the handle representation <A → α, k>, what does A represent?

A. The non-terminal on the left-hand side of the production rule.
B. The last symbol in the input string.
C. The position of the handle within the input string.
D. The lookahead symbol.

Question No:9 **(Marks:1)** **Vu-Topper RM**

The output from the algorithm for the construction of collection of canonical sets of LR(1) items is _____.

A. CC sets of LR(1)
B. Original Grammar G
C. CC sets of LR(0)
D. Augmented Grammar G'

Question No:10 **(Marks:1)** **Vu-Topper RM**

Which of the following is NOT a step in the closure procedure for an LR item?

A. Add the item to the closure set.
B. Identify the symbols immediately following the dot in the item.
C. Compute the FIRST set for the nonterminal symbol following the dot.
D. Determine the lookahead symbols for the item.

Question No:11 **(Marks:1)** **Vu-Topper RM**

The augmented grammar has its own start symbol, while original grammar includes an additional production rule, called the augmented start production.

True
False

Question No:12 **(Marks:1)** **Vu-Topper RM**

In Shift-Reduce parser, the handle-recognizing DFA is basically represented as a 2-dimensional table, where _____ correspond to DFA states.

A. Cells
B. Rows
C. Captions
D. Columns

Question No:13 **(Marks:1)** **Vu-Topper RM**

The Upper Frontier is associated with which type of parsing algorithm?

A. Top-Down
B. Bottom-Down
C. Top-Up
D. Bottom-Up

Question No:14 **(Marks:1)** **Vu-Topper RM**

The upper frontier in a shift-reduce parser is the set of symbols at the top of the parser's stack that have not been reduced yet.

True
False

Question No:15 **(Marks:1)** **Vu-Topper RM**

The input to the algorithm for the construction of collection of canonical sets of LR(1) items is _____.

A. Original Grammar G
B. CC sets of LR(1)
C. CC sets of LR(0)
D. Augmented Grammar G'

Question No:16 **(Marks:1)** **Vu-Topper RM**

What is the upper frontier in a partially constructed parse tree?

A. The bottommost part of the tree.
B. The leftmost part of the tree.
C. The topmost part of the tree.
D. The rightmost part of the tree.

Question No:17 **(Marks:1)** **Vu-Topper RM**

In the context of LR(1) parser, which of the following forms the GoTo table in the DFA representation table?

A. Columns with non-terminals
B. Columns with terminals

C. Rows with non-terminals
D. Rows with terminals

Question No:18 **(Marks:1)** **Vu-Topper RM**
LR(0) parsing is a more powerful parsing technique than LR(1) parsing.
True
False

Question No:19 **(Marks:1)** **Vu-Topper RM**
LR parsers are commonly used for:
A. Syntax analysis
B. Register Allocation
C. Code generation
D. Lexical analysis

Question No:20 **(Marks:1)** **Vu-Topper RM**
If closure(I) is "I0 = [S' → ·S, S → ·s]" for a typical grammar, then goto(I0, s) would be _____.
A. S' → S·
B. S → S·
C. S' → s·
D. S → s·

Question No:21 **(Marks:1)** **Vu-Topper RM**
In the context of canonical collection of LR(1) items, if a terminal appears after the placeholder "·" then no further closure is possible.
True
False

Question No:22 **(Marks:1)** **Vu-Topper RM**
The purpose of the added ε-transitions in the NFA is to:
A. Resolve conflicts in the parsing process.
B. Recognize the symbols β before a reduction by X → β.

C. Push the non-terminal X onto the parse stack.
D. Identify the start state of the grammar.

Question No:23 **(Marks:1)** **Vu-Topper RM**
In the context of canonical collection of LR(1) items, if a non-terminal appears after the placeholder "·" then no further closure is possible.
True
False

Question No:24 **(Marks:1)** **Vu-Topper RM**
The canonical collection is constructed by repeatedly applying which operations?
A. Closure and shift
B. Shift and reduce
C. Reduce and goto
D. Closure and goto

Question No:25 **(Marks:1)** **Vu-Topper RM**
The augmented grammar is particularly important in which parsing algorithm?
A. Top-down parsing.
B. Recursive descent parsing.
C. LR(1) parsing.
D. LL(1) parsing.

Question No:26 **(Marks:1)** **Vu-Topper RM**
What does the GoTo table in the DFA representation table represent?
A. Transitioning to terminals
B. Accepting the input
C. Applying production rules
D. Transitioning to non-terminals

Question No:27 **(Marks:1)** **Vu-Topper RM**

A top-bottom parser operates by repeatedly locating handles on the frontier of the partial parse tree and performing reductions that they specify.

True

False

Question No:28 **(Marks:1)** **Vu-Topper RM**

In the context of canonical collection of LR(1) items, compute the state I0 for the grammar " S → E, E → E + (E) | int".

A. s = { [S → •E,],[E→·E+(E),] , [E → •int, $] }

B. s = { [E → •S,],[E→·E+(E),] , [E → •int, $] }

C. s = { [E → •S,],[S→·S+(S),] , [E → •int, $] }

D. s = { [S → •E,],[S→·S+(S),] , [E → •int, $] }

Question No:29 **(Marks:1)** **Vu-Topper RM**

In Shift-Reduce parsing, every legal input eventually reduces the entire frontier to grammar's goal symbol.

True

False

Question No:30 **(Marks:1)** **Vu-Topper RM**

One of the rationales behind the Closure procedure is to:

A. Handle conflicts arising from ambiguous grammar rules.

B. Optimize the performance of the parsing algorithm.

C. Determine potential reductions and expansions in the grammar.

D. Identify grammar errors in the production rules.

Question No:31 **(Marks:1)** **Vu-Topper RM**

In the handle representation <A → α, k>, what does k represent?

A. The index of the first symbol in the handle.
B. The number of non-terminal symbols in the handle.
C. The position of the handle within the input string.
D. The length of the handle.

Question No:32 **(Marks:1)** **Vu-Topper RM**

If [X → α • β, c] is an LR(1) item, then "c" is a/an _____.

A. Production
B. Look-ahead symbol
C. Non-terminal
D. Terminal

Question No:33 **(Marks:1)** **Vu-Topper RM**

In LR(1) parser, the Action table specifies the next state, while the GoTo table determines the particular action (i.e., shift / reduce).

True
False

Question No:34 **(Marks:1)** **Vu-Topper RM**

In the reduce action, the shift-reduce parser applies an inverse production at the right end of the _____ string.

A. Bottom
B. Top
C. Right
D. left

Question No:35 **(Marks:1)** **Vu-Topper RM**

LR parsers CAN NOT handle left-recursive grammars.

True
False

Question No:36 **(Marks:1)** **Vu-Topper RM**

In the context of LR(1) parser, the construction of _____ begins by building a model of parser's initial state.

A. Closure Procedure
B. Upper Frontier
C. Handle
D. Canonical Collection **Page 80**

Question No:37 **(Marks:1)** **Vu-Topper RM**

Which direction does a bottom-up parser use to build the parse tree?

A. From the root to the leaves.
B. From the right to the left.
C. From the leaves to the root.
D. From the left to the right.

Question No:38 **(Marks:1)** **Vu-Topper RM**

The identification of a handle in shift-reduce parsing is an indication that:

A. The parsing process is complete.
B. A syntax error has occurred.
C. A reduction can be performed.
D. The next token needs to be shifted.

Question No:39 **(Marks:1)** **Vu-Topper RM**

When transitioning from "A → α•Xη" to "A → αX•η" in the NFA of LR(0) items, the symbol X is a/an _____ symbol.

A. Terminal
B. Lookahead
C. Start
D. Non-terminal

Question No:40 **(Marks:1)** **Vu-Topper RM**

The pair <A → β, k> is called the handle of the _____ parse.

A. Top-Up
B. Bottom-Up **Page 73**
C. Top-Down
D. Bottom-Down

Question No:41 **(Marks:1)** **Vu-Topper RM**
In the context of Shift-Reduce parser, the number of complete handles is equal to the number of _____.
A. Productions
B. Terminals
C. Non-terminals
D. Symbols

Question No:42 **(Marks:1)** **Vu-Topper RM**
In the context of Shift-Reduce parser, the number of potential handles for a grammar is equal to the _____ of the lengths of the right-hand side of all the productions.
A. Multiplication
B. Sum **Page 77**
C. Division
D. Subtraction

Question No:43 **(Marks:1)** **Vu-Topper RM**
In the handle representation <A → α, k>, where A is the left-hand side non-terminal and α is the right-hand side, what does α represent?
A. The entire input string.
B. The handle itself.
C. The stack symbols of the parser.
D. The input symbols matched by the handle.

Question No:44 **(Marks:1)** **Vu-Topper RM**
The Closure procedure inserts a dot ('•') before the production γ to:
A. Track the position of the dot in the grammar rules.

B. Mark the completion of the left context.
C. Indicate the start of a reduction.
D. Identify the non-terminal symbols in the production.

Question No:45 **(Marks:1)** **Vu-Topper RM**
The recognition of potential handles is crucial for the parser to:
A. Determine the next state in the parsing table.
B. Decide when to perform a reduce operation.
C. Determine the previous state in the parsing table.
D. Decide when to perform a shift operation.

Question No:46 **(Marks:1)** **Vu-Topper RM**
For every LR(0) item "A → α•Xη", the ε-transitions are added for:
A. The terminal symbols in the input sequence.
B. The lookahead symbols of X.
C. The non-terminal symbols in the grammar.
D. The production rules containing X as a non-terminal.

Question No:47 **(Marks:1)** **Vu-Topper RM**
The action table in the DFA representation table is used for:
A. Transitioning to non-terminals
B. Shifting terminals
C. Accepting the input
D. Reducing using production rules

Question No:48 **(Marks:1)** **Vu-Topper RM**
In the context of LR(1) parser, each set in _____ represents a state in the eventual parser DFA.
A. Handle
B. Upper Frontier
C. Closure Procedure
D. Canonical Collection

Question No:49 **(Marks:1)** **Vu-Topper RM**

What would be the potential handle for the grammar "T → Ua, U → vw" at the start of Shift-Reduce parsing?

A. <T → Ua, 1>
B. <U → vw,1>
C. <U → wv,1>
D. <T → aU, 1>

Question No:50 **(Marks:1)** **Vu-Topper RM**

Which of the following production contains a placeholder at its end of right-hand side?

A. Expr → Expr – Term •
B. Expr → Expr – •Term
C. Expr → Expr • – Term
D. Expr → • Expr –Term

Question No:51 **(Marks:1)** **Vu-Topper RM**

In a shift-reduce parser, a placeholder is used to represent an incomplete or partial structure during the parsing process.

True
False

Question No:52 **(Marks:1)** **Vu-Topper RM**

Shift-Reduce parser uses a/an _____ to hold grammar symbols.

A. Array
B. Stack
C. Queue
D. Tree

Question No:53 **(Marks:1)** **Vu-Topper RM**

In Shift-Reduce parsing, the process of identifying and reducing handles is essential for determining the validity of a given input string according to the given grammar.

True
False

Question No:54 **(Marks:1)** **Vu-Topper RM**
In Shift-Reduce parser, the handle-recognizing DFA is basically represented as a 2-dimensional table, where _____ correspond to terminals and non-terminals.

A. Cells
B. Rows
C. Columns
D. Captions

Question No:55 **(Marks:1)** **Vu-Topper RM**
If X is a non-terminal symbol, the transition on symbol X in the NFA of LR(0) items corresponds to:

A. Performing a reduction based on the production rule X → γ.
B. Determining the valid lookahead symbols.
C. Applying the closure operation to the LR(0) items.
D. Shifting X from the parse stack to the input.

Question No:56 **(Marks:1)** **Vu-Topper RM**
If [X → α • β, a] is an LR(1) item, then symbol "•" (between α and β) represents a/an _____.

A. Terminal
B. Placeholder
C. Non-terminal
D. Production

Question No:57 **(Marks:1)** **Vu-Topper RM**
The LR(1) items are used as the states of a finite automaton (FA) that maintains information about the parsing stack and progress of a/an _____ parser.

A. RR(1)

B. LL(1)
C. Shift-reduce
D. Top-down

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