

Read the questions carefully and check one option

<p>Question 1: Which of the following statements is correct for attributes of a syntax directed definition:</p> <p>A. Synthesized attributes are initialized by the scanner.</p> <p>B. Synthesized attributes depend only on information below them in the parse tree</p> <p>C. Inherited attributes are useful only in object-oriented languages.</p> <p>D. Synthesized attributes are computed at run time.</p>
<p>Question 2: The main difference between a sentence and a sentential form is</p> <p>A. there is no difference;</p> <p>B. a sentence contains only terminal symbols but a sentential form can contain some non-terminal symbols</p> <p>C. sentential forms are a subset of sentences but the converse is not true</p> <p>D. sentences are derived from S but sentential forms are not</p>
<p>Question 3: Which of the following systems is used to describe syntax of a programming language?</p> <p>A. BNF</p> <p>B. Syntax directed definition</p> <p>C. Finite automaton</p> <p>D. Regular expression</p>
<p>Question 4: In KPL, the declaration $const\ y = 0 + y + 1;$ leads to an error because we can not apply constant folding to its expression.</p> <p>A. TRUE</p> <p>B. FALSE</p>
<p>Question 5: How many tokens are there in the following assignment $ac := ba\ (.1.)$ of KPL?</p> <p>A. 6</p> <p>B. 7</p> <p>C. 8</p> <p>D. 9</p>
<p>Question 6: What programming languages are classified as low-level language?</p> <p>A. Basic, Fortran, Java</p> <p>B. Machine code and Assembly</p> <p>C. Visual C and Visual Foxpro</p> <p>D. Prolog</p>
<p>Question 7: What are the stages in the compilation process?</p> <p>A. Feasibility study, system design and testing</p> <p>B. Implementation and documentation</p> <p>C. Left recursion elimination</p> <p>D. Lexical analysis, syntax analysis and code generation</p>
<p>Question 8: Shift reduce parsers are</p> <p>A. Top down parser</p> <p>B. Bottom up parser</p> <p>C. May be top down or bottom up parser</p> <p>D. None of the above</p>
<p>Question 9: A grammar will be meaningless</p> <p>A. if terminal set and non-terminal set are not disjoint</p> <p>B. if left hand side of a production is a single terminal</p> <p>C. if left hand side of a production has no non terminal</p> <p>D. all of these</p>
<p>Question 10: A computer software that translates some form of source code into machine code is called</p> <p>A. Language processor</p> <p>B. Interpreter</p> <p>C. Compiler</p> <p>D. Assembler</p>
<p>Question 11: Consider the context free grammar: $A \rightarrow ABaa, A \rightarrow bCb, A \rightarrow \epsilon, B \rightarrow BbC, B \rightarrow \epsilon, C \rightarrow b, C \rightarrow \epsilon$. What is $FIRST(A)$?</p> <p>A. $\{\epsilon\}$</p> <p>B. $\{\epsilon, a, b\}$</p> <p>C. $\{\epsilon, b\}$</p> <p>D. None of the above</p>
<p>Question 12: Given the following KPL program segment</p> <pre> Procedure A, x, y : integer ; Procedure B; x, z : real ; begin S1 end; (*B *); Procedure C; i : integer ; begin S2 end; (*C*) end ; (*A*) </pre> <p>The variables accessible in S1 and S2 are</p> <p>A. x of A, y, x of B and z in S1 and x of B, y and i in S2</p> <p>B. x of B, y and z in S1 and x of B, i and z in S2</p> <p>C. x of B, z and y in S1 and x of A, i and y in S2</p> <p>D. none of these</p>

Time period: 60 minutes

This is a close book exam. You are not allowed to bring reference materials.

<p>Question 13 : Given grammar $S \rightarrow aSb$, $S \rightarrow c$ and string $aacbb$. Which of the following is the next configuration of $(q, 3, S1aS1aS1, aSbbb)$?</p> <p>A. $(q, 3, S1aS1aS2, cbb\#)$ B. $(q, 4, S1aS1aS2c, bb\#)$ C. $(b, 3, S1aS1aS1, aSbbb\#)$ D. None of the above</p>
<p>Question 14: The translator used in C language is</p> <p>A. Compiler B. Interpreter C. Assembler D. Linker</p>
<p>Question 15: Which of the following statement is correct about array data type in KPL?</p> <p>A. KPL supports only one- dimensional and two- dimensional arrays B. KPL supports only one-dimensional arrays C. KPL supports arrays with arbitrary number of dimension D. KPL does not support arrays</p>
<p>Question 16: Which of the following systems is used to describe syntax of a programming language?</p> <p>A. Push down automaton B. Syntax directed definition C. Finite automaton D. Formal grammar</p>
<p>Question 17: We can optimize code by</p> <p>A. Dead code elimination B. Common subprograms C. Copy intermediate loop D. Loop declaration</p>
<p>Question 18: Left parse is</p> <p>A. The sequence of productions used in an arbitrary derivation of a from S. B. Reversion of the sequence of productions used in left derivation of a from S C. The sequence of productions used in left derivation of a from S D. None of the above</p>
<p>Question 19: Which of the following grammars is $LL(1)$</p> <p>A. $S \rightarrow 1SA, S \rightarrow 0A1, S \rightarrow 2, A \rightarrow 0A1, A \rightarrow 1$ B. $S \rightarrow aAS \mid B, A \rightarrow cS \mid \epsilon, B \rightarrow c$ C. $S \rightarrow aSa \mid bSb \mid cSc \mid a \mid b \mid c \mid \epsilon$ D. $S \rightarrow \epsilon \mid ab \mid ba \mid aSb \mid bSa$</p>
<p>Question 20: Task of the lexical analysis is</p> <p>A. To parse the source program into the basic elements or tokens of the language B. To build a literal table and an identifier table C. To build a uniform symbol table D. All of these</p>
<p>Question 21: The output of the parser is</p> <p>A. A set of regular expressions B. Syntax tree C. Set of tokens D. Strings of character</p>
<p>Question 22: Which of the following instructions is written in three address code?</p> <p>A. $t[i] := x[1] + 1$ B. $t[i] := y[j]$ C. $t[i] := 1 + x[i]$ D. $a := t[i] + b$</p>
<p>Question 23 : Each syntax diagram defines a</p> <p>A. Non-terminal B. Grammar symbol C. Terminal D. Production</p>
<p>Question 24: Which of the following software tool is parser generator ?</p> <p>A. Bison B. Yacc C. Both A and B D. None of these</p>
<p>Question 25: With which of the following kind of grammar the top down parser falls into an infinite derivation chain?</p> <p>A. Ambiguous grammar B. Left linear grammar C. LR grammar D. Left recursive grammar</p>

<p>Question 26: Recursive descent parser is an example of</p> <p>A. Top down backtracking parser B. Bottom up backtracking parser C. Predictive parser D. None of the above</p>
<p>Question 27: Consider the following context free grammar:</p> $\begin{aligned} \text{List} &\rightarrow \text{ids}; \\ \text{ids} &\rightarrow \text{id}, \text{ids} \mid \text{id} \end{aligned}$ <p>Which of the following is a sentential form for this language?</p> <p>A. id,id,ids; B. ids,id,id; C. ids,ids; D. all of the above</p>
<p>Question 28: Whether a given pattern constitutes a token or not depends on the</p> <p>A. Source language B. Target language C. Compiler D. All of these</p>
<p>Question 29: Which of the following is used to describe the result of a predictive parser?</p> <p>A. State B. Stack C. Configuration D. Left parse</p>
<p>Question 30: The graph that shows basic blocks and their successor relationship is called</p> <p>A. Directed acyclic graph B. Flow graph C. Control graph D. Hamiltonion graph</p>
<p>Question 31: Semantics analysis generate intermediate code</p> <p>A. TRUE B. FALSE</p>
<p>Question 32: Which of the following productions will match zero or more occurrences of the letter b followed by exactly one c?</p> <p>A. $A \rightarrow Ab \mid c$ B. $A \rightarrow bA \mid c$ C. $A \rightarrow Ac \mid b$ D. $A \rightarrow bA \mid c$</p>
<p>Question 33: Consider the context free grammar $\{L \rightarrow TL', L' \rightarrow \vee TL', L' \rightarrow \epsilon, T \rightarrow PT', T' \rightarrow \wedge PT', T' \rightarrow \epsilon, P \rightarrow i, P \rightarrow (L)\}$. What is Follow(T)?</p> <p>A. $\{(\vee\}$ B. $\{\vee,)\}$ C. $\{\vee, \\$,)\}$ D. None of the above</p>
<p>Question 34: A grammar that produces at most one parse tree for each string is called</p> <p>A. Ambiguous B. Unambiguous C. Regular D. None of these</p>
<p>Question 35: The phases of a compiler includes</p> <p>A. Source Code, Token stream B. Testing and Coding C. Parse tree, Intermediate Code, Object Code D. All of the above E. None of the above</p>