Read the questions carefully and check one option

Question 1: *Which of the following statements is correct for attributes of a syntax directed definition:*

A. Synthesized attributes are initialized by the scanner.
B. Synthesized attributes depend only on information below them in the parse tree
C. Inherited attributes are useful only in object-oriented languages.
D. Synthesized attributes are computed at run time.

Question 2: *The main difference between a sentence and a sentential form is*

A. there is no difference;
B. a sentence contains only terminal symbols but a sentential form can contain some non-terminal symbols
C. sententialforms are a subset of sentences but the converse is not true
D. sentences are derived from S but sentential forms are not

Question 3: *Which of the following systems is used to describe syntax of a programming language?*

A. BNF
B. Syntax directed definition
C. Finite automaton
D. Regular expression

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.*

A. TRUE B. FALSE

Question 5: *How many tokens are there in the following assignment ac := ba (.1.) of KPL?*

A. 6
B. 7
C. 8
D. 9

Question 6: *What programming languages are classified as low-level language?*

A. Basic, Fortran, Java
B. Machine code and Assembly
C. Visual C and Visual Foxpro
D. Prolog

Question 7: *What are the stages in the compilation process?*

A. Feasibility study, system design and testing
B. Implementation and documentation
C. Left recursion elimination
D. Lexical analysis, syntax analysis and code generation

Question 8: *Shift reduce parsers are*

A. Top down parser
B. Bottom up parser
C. May be top down or bottom up parser
D. None of the above

Question 9: *A grammar will be meaningless*

A. if terminal set and non-terminal set are not disjoint
B. if left hand side of a production is a single terminal
C. f left hand side of a production has no non terminal
D. all of these

Question 10: *A computer software that translates some form of source code into machine code is called*

A. Language processor
B. Interpreter
C. Compiler
D. Assembler

Question 11: *Consider the context free grammar: A -> ABaa, A -> bCba, A--> ε, B --> BbC, B -> ε,C -> b , C -> ε. What is FIRST (A)?*

A. {ε} C. {ε,b}
B. {ε, a,b} D. None of the above

Question 12: *Given the following KPL program segment*

```
Procedure A,
x, y : integer ;
Procedure B;
                 x, z : real ;
begin
      S1
end;  (*B *);
Procedure C;
i : integer ;
begin
       S2
end;(*C*)
end ;  (*A*)
```

The variables accessible in S1 and S2 are

A. x of A, y, x of B and z in S1 and x of B, y and i in S2
B. x of B, y and z in S1 and x of B, i and z in S2
C. x of B, z and y in S1 and x of A, i and y in S2
D. none of these

Time period: 60 minutes
This is a close book exam. You are not allowed to bring reference materials.

Question 13 : *Given grammar S→ aSb, S →c and string aacbb. Which of the following is the next configuration of (q, 3, S1aS1aS1,aSbbb)?*

A. (q, 3, S1aS1aS2, cbb#)
B. (q, 4, S1aS1aS2c,bb#)
C. (b, 3, S1aS1aS1,aSbbb#)
D. None of the above

Question 14: *The translator used in C language is*

A. Compiler
B. Interpreter
C. Assembler
D. Linker

Question 15: *Which of the following statement is correct about array data type in KPL?*

A. KPL supports only one- dimensional and two- dimentional arrays
B. KPL supports only one-dimentional arrays
C. KPL supports arrays with arbitrary number of dimension
D. KPL does not support arrays

Question 16:*Which of the following systems is used to describe syntax of a programming language?*

A. Push down automaton
B. Syntax directed definition
C. Finite automaton
D. Formal grammar

Question 17: *We can optimize code by*

A. Dead code elimination
B. Common subprograms
C. Copy intermediate loop
D. Loop declaration

Question 18: *Left parse is*

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

Question 19: *Which of the following grammars is LL(1)*

A. $S \rightarrow 1SA, S \rightarrow 0A1, S \rightarrow 2, A \rightarrow 0A1, A \rightarrow 1$
B. $S \rightarrow aAS \mid B, A \rightarrow cS \mid \varepsilon, B \rightarrow c$
C. $S \rightarrow aSa \mid bSb \mid cSc \mid a \mid b \mid c \mid \varepsilon$
D. $S \rightarrow \varepsilon \mid ab \mid ba \mid aSb \mid bSa$

Question 20: *Task of the lexical analysis is*

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

Question 21*: The output of the parser is*

A. A set of regular expressions
B. Syntax tree
C. Set of tokens
D. Strings of character

Question 22*: Which of the following instructions is written in three address code?*

A. t[i]:=x[1]+1
B. t[i]:=y[j]
C. t[i]:=1+x[i]
D. a:=t[i]+b

Question 23 *: Each syntax diagram defines a*

A. Non-terminal
B. Grammar symbol
C. Terminal
D. Production

Question 24: *Which of the following software tool is parser generator* ?

A. Bison
B. Yacc
C. Both A and B
D. None of these

Question 25: *With which of the following kind of grammar the top down parser falls into an infinite derivation chain?*

A. Ambiguous grammar
B. Left linear grammar
C. LR grammar
D. Left recursive grammar

Time period: 60 minutes
This is a close book exam. You are not allowed to bring reference materials.

Question 26: *Recursive descent parser is an example of*

A. Top down backtracking parser
B. Bottom up backtracking parser
C. Predictive parser
D. None of the above

Question 27: *Consider the following context free grammar:*

$List \rightarrow ids$**;**
$ids \rightarrow$ **id,**ids | **id**

Which of the following is a sentential form for this language?

A. id,id,ids;
B. ids,id,id;
C. ids,ids;
D. all of the above

Question 28: *Whether a given pattern constitutes a token or not depends on the*

A. Source language
B. Target language
C. Compiler
D. All of these

Question 29: Which of the following is used to describe the result of a predictive parser?

A. State
B. Stack
C. Configuration
D. Left parse

Question 30: *The graph that shows basic blocks and their successor relationship is called*

A. Directed acyclic graph
B. Flow graph
C. Control graph
D. Hamiltonion graph

Question 31: *Semantics analysis generate intermediate code*

A. TRUE B. FALSE

Question 32: *Which of the following productions will match zero or more occurences of the letter b followed by exactly one c?*

A. $A \rightarrow Ab \mid c$
B. $A \rightarrow bA \mid c$
C. $A \rightarrow Ac \mid b$
D. $A \rightarrow bA \mid c$

Question 33: *Consider the context free grammar* $\{L \rightarrow TL', L' \rightarrow \vee TL', L' \rightarrow \varepsilon, T \rightarrow PT', T' \rightarrow \wedge PT', T' \rightarrow \varepsilon, P \rightarrow i, P \rightarrow (L)\}$*.What is Follow(T)?*

A. $\{(, \vee\}$
B. $\{\vee,)\}$
C. $\{\vee, \$,)\}$
D. None of the above

Question 34: *A grammar that produces at most one parse tree for each string is called*

A. Ambiguous
B. Unambiguous
C. Regular
D. None of these

Question 35: *The phases of a compiler includes*

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

Time period: 60 minutes
This is a close book exam. You are not allowed to bring reference materials.