1. In cadrul algoritmului pentru implementarea analizorului sintactic descendent cu reveniri, tranzitia AVANS se realizeaza atunci cand:
a. Varful stivei de intrare este neterminal
b. Simbolul terminal din varful stivei de intrare si simbolul current din secventa de intrare sunt diferite
c. Algoritmul iese din starea de revenire
d. Varful stivei de intrare coincide cu simbolul current din secventa de intrare
e. Refacerea partii dreapta a unei productii care nu a fost bine selectata

Din poze:

2. Specify the postfixed expression for a*b+3*c*(d-e):
a. Ab*+3cde-**
b. Ab*3cde-**+
c. Ab*+3c*de-*
d. Ab3cde-***+
e. Ab*3c*de-*+

3. The semantic analysis has as result:
a. Syntactic analysis tree
b. Intermediate form as attributed tree
c. Object code
d. Abstract syntax tree
e. Attribute grammars

4. A Java bytecode file is identified by JVM on:
a. The extension of the bytecode file (.class)
b. Value stored by major_version field of class file structure
c. Value stored by this_class field of class file structure
d. Value 0xCAFEBABE stored in magic field of class file structure
e. The access flags that denote the access permissions to class or interface

5. An abstract JVM stack does not contain
a. Threads
b. Local variables
c. Method invoking
d. Partial results
e. Frames

6. Syntactic analyzers LR(k):
a. Accept only reducing and accepting possible transitions
b. Accept only moving and accepting as possible transitions
c. Reduce the input sequence to the start symbol
d. Make a recursive analysis of the input sequence
e. Make a descendent syntactic analysis

7. The bytecode is:

a. Byte array containing codes of the operations and operands

b. A programming language

c. A LIFO structure

d. An array containing temporary values of the operands

e. The total memory of a process

8. Which of the following elements is stages of the analysis and synthesis of processes carried out by a compiler?

a. Generating intermediary code, Management of symbol tables and Treating errors

b. Lexical analysis, Semantic analysis, Management of symbol table and Treating errors

c. Lexical analysis, Semantic analysis, Generating intermediary code, Management of symbol table and Treating errors

d. Management of symbol table and Treating errors

e. Lexical analysis, Semantic analysis and Generating intermediary code

9. Which of the following statements are characteristics of the JVM?

a. JVM is stack-based machine and Allocation of a JVM stack for each thread;

b. JVM is stack-based machine

c. Allocation of a JVM stack for each thread

d. JVM executes bytecode, JVM is stack-based machine and Allocation of a JVM stack for each thread

e. JVM executes bytecode and JVM is stack-based machine

10. It considers the following quadruples for the expression a*b+3*c*(d-e):

Op	Arg1	Arg2	rez
*	A	B	T1
*	3	C	T2
-	D	E	T3
*	T2	T3	T4

Specify which of the following quadruplets must complete the last row in above table such as the expression to have a correct evaluation:

a. + T1 T5 T4

b. + T1 T4 T5

c. + T4 T1 T5

d. + T3 T4 T5

e. + b T4 T5

11. Which of the following statements regarding the symbol table is false?

a. A symbol table stores information regarding the symbol names

b. A symbol table has different organization ways to optimize the implemented options

c. There is more entries in the symbol table for each symbol name

d. A symbol table is physically stored as one or more tables
e. The hash table is a type of organization for symbol table

12. Specify which of the following elements is the result of the syntactic analysis stage:
a. The symbol table
b. The syntactic analysis tree
c. The internal form of the program
d. The lexical tokens sequence
e. The syntactic analyzer

13. Definition of a finite automata requires the following elements:
a. A finite alphabet, The set of final statuses and The initial status of the finite automata
b. A finite alphabet, The set of final statuses and The set of finite statuses
c. The set of final statuses, The set of finite statuses, The initial status of the finite automata and The transition function
d. A finite alphabet, The set of final statuses, The set of finite statuses, The initial status of the finite automata and The transition function
e. The initial status of the finite automata and The transition function

14. The chaining method to avoid collisions in a hash table implies:
a. Splitting the hash table in two parts; the primary part and a secondary part
b. Searching the first available position to insert an element
c. Attaching a simple linked list to an entry in the hash table
d. Using an index with a value other than 1 to find a free position
e. Cascade applying of hash functions

15. Specify which of the following statements regarding a *.com file is false
a. The size is not grater than 64KB
b. It has an organizing format for the binary code
c. It has the PSP structure attached at run-time
d. Execution is made from the 1st byte
e. It is an image of the application in the memory

16. It considers the following sequence of triplets for the expression a*b-3*c*(d+e):

Nr	Op	Arg1	Arg2
(1)	*	a	b
(3)	+	d	e
(4)	*	(2)	(3)
(5)	-	(1)	(4)

Specify which of the following triplets must complete the 2nd row in above table such as the expression to have a correct evaluation:
a. (2) * c (1)
b. (2) * (1) c
c. (2) * 3 (1)
d. (2) * c 3

e. (2) * 3 c

17. Which of the following elements are representation forms for the intermediate code?
a. Attributed tree and Code with three addresses
b. Postfixed form
c. Postfixed form, Attributed tree and Code with three addresses
d. Postfixed form and Code with three addresses
e. Postfixed form and Attributed tree

18. Specify which of the following techniques are applied to optimize the intermediate code:
a. Calculations at compile-time, Elimination of unattainable code and Cycle optimizations
b. Calculations at compile-time, Redundant calculations and Elimination of unattainable code
c. Calculations at compile-time, Redundant calculations and Cycle optimizations
d. Redundant calculations, Elimination of unattainable code and Cycle optimizations
e. Calculations at compile-time and Cycle optimizations

19. Which of the following statements regarding the building of the analysis table for syntactic analyzer LL(1) is false?
a. Inserting in table columns the terminal symbols and special symbol ($)
b. Inserting in table columns the non-terminal symbols
c. The set FIRST must be considered
d. The set FOLLOW must be considered
e. Inserting in table rows the terminal, non-terminal and special symbol ($)

20. The internal form of the program as result of lexical analysis is given by:
a. The lexical tokens list identified in the source program
b. A pair sequence (token code, position/address in symbol table)
c. Set of finite automata
d. Lexical tokens classes: identifiers, constants, key words, operators, separators
e. Descriptive language of the programming language

21.The output of an interpreter is:
A. Object code
B. Direct execution of the input code
C. Bytecode
D. Code translated in another high-level programming language
E. Executable binary code

22.Specify which of the following characteristics must be covered by a symbol table:
A. Acceptance of the duplicate entries, Reduced search time and Maintenance of the symbol table;
B. Flexibility regarding the symbol names and extension of the table, Acceptance of the duplicate entries, Reduced search time, Maintenance of the symbol table and Efficient deletion of the symbol names in the symbol table;
C. Acceptance of the duplicate entries and Efficient deletion of the symbol names in the symbol table;
D. Flexibility regarding the symbol names and extension of the table, Acceptance of the duplicate entries and Maintenance of the symbol table;
E. Flexibility regarding the symbol names and extension of the table, Reduced search time and Efficient deletion of the symbol names in the symbol table;

23.The following analysis table is considered LL(1):

	if	then	else	id	const	=	<	!=	$
S	If C then IT, 1								
T			else, 3						ε, 2
C				ERE, 4	ERE, 4				
E				id, 5	const, 6				
R							<, 7	!=, 8	
I				id = E, 9					
if	pop								
then		pop							
else			pop						
id				pop					
const					pop				
=						pop			
<							pop		
!=								pop	
$									acc

What is the non-terminal which contains one single item ε?
A.E
B.R
C.C
D.T
E.S

24.The folowing expression in reverse Polish notation
3 a = 4 b = 2 c = 3 d = a b + c d + *
is evaluated as:
A. 35
B. 12
C. 42
D. 17
E. 13

25. Which of the following statements regarding the concept of SOFTWARE ENGINEERING is true?
A. Modifying a software system by adding new functionalities and correction of errors;
B. Concept equivalent to REVERSE ENGINEERING;
C. Later modification of the software system;
D. Re-building a software system in a new form;
E. Systematic, disciplined approach, quantifiable for software development, usage and maintenance;