EXAMEN 2018 - aceleasi intrebari, schimbate 1-2

1. Bytecode-ul reprezinta

a. Structura de tip LIFO

b. Memorie globala aferenta unui proces

c. Vector de octeti ce contin coduri aferente operatiilor si operanzilor

d. Vector cu valori temporare aferente operanzilor

e. Nici una din afirmatiile de mai sus

2. Care din urmatoarele elemente reprezinta etape in procesele de analiza si sinteza derulate de catre un compilator?

a. Analiza lexicala

b. Analiza semantica

c. Generare cod intermediar

d. Gestiunea tabelelor de simboluri

e. Tratarea erorilor

a. A+B+D+E

**b. A+B+C+D+E**

c. D+E

d. A+B+C

e. C+D+E

3. Precizati forma poloneza postfixata pentru expresia a\*b+3\*c\*(d-e)

a. ab\*3c\*de-\*+

b. ab\*+3cde-\*\*

c. ab3cde-\*\*\*+

d. ab\*3cde-\*\*+

e. ab\*+3c\*de-\*

4. Definirea unui automat finit presupune considerarea urmatoarelor elemente:

a. Alfabet finit

b. Multimea starilor finale

c. Multime finite de stari

d. Starea initiala a automatului finit

e. Functia de tranzactie

a. A+B+C

b. B+C+D+E

c. D+E

d. A+B+D

e. A+B+C+D+E

5. Care din urmatoarele afirmatii cu privire la tabela de simboluri este falsa?

a. Pentru fiecare nume simbolic exista mai multe intrari in tabela

b. Stocata fizic sub forma de tabela unica sau tabele distincte

c. Prezinta diverse forme de organizare in vederea optimizarii operatiilor implementate in tabela

d. Stocheaza toate informatiile cu privire la numele simbolice

e. Tabela de dispersie reprezinta o forma de organizare a tabelei de simboluri

6. Precizati care dintre urmatoarele elemente reprezinta rezultatul etapei de analiza sintactica:

a. Secventa tokeni lexicali

b. Arborele de analiza sintactica

c. Forma interna a programului

d. Analizatorul sintactic

e. Tabela de simboluri

7. Care dintre urmatoarele afirmatii cu privire la conceptual INGINERIE SOFTWARE este adevarata?

a. Abordare sistematica, disciplinata, cuantificabila pentru dezvoltarea, utilizarea si mentenanta software;

b. Reconstruirea intr-o noua forma a unui sistem software.

c. Modificarea unui sistem software prin adaugarea de noi functionalitati si corectarea de erori

d. Concept echivalent cu termenul INGINERIE INVERSA

e. Nici una din afirmatiile de mai sus

8. Metoda chaining de evitare a coliziunilor intr-o tabela de dispersie presupune:

a. Cautarea primei pozitii disponibile in vederea inserarii unui element

b. Atasarea unei liste simple la o intrare in tabela de dispersie

c. Utilizarea unui pas diferit de valoarea 1 pentru regasirea unei pozitii libere

d. Impartirea tabelei de dispersie in 2 zone: primara, respective secundara

e. Aplicarea in cascada a unor functii hash.

9. 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

10. Care dintre urmatoarele elemente se constituie forme de reprezentare a codului intermediar?

a. Forma poloneza postfixata

b. Arbore atribuit

c. Cod cu trei adrese

a. A+B

b. B+C

c. A+B+C

d. A

e. A+C

11. Care dintre urmatoarele afirmatii cu privire la construirea tabelului de analiza pentru analizorul sintactic LL(1) este falsa?

a. Considerarea elementelor multimii FOLLOW;

b. Includere pe coloane a simbolurilor terminale si a celui special ($)

c. Includerea pe liniile tabelului a simbolurilor terminale neterminale si a celui special ($)

d. Includerea pe coloane a simbolurilor neterminale

e. Considerarea elementelor multimii FIRST

12. Forma interna a programului ca rezultat al analizei lexicale a programului sursa reprezinta:

a. Lista tokenilor lexicali identificati in programul sursa

**b. Secventa de perechi (cod token, pozitie/adresa in tabela de simboluri)**

c. Clase de tokeni lexicali: identificatori, constante, cuvinte rezervate, operatori, separatori

d. Multime de automate finite

e. Limbaj de descriere a limbajului de programare

13. Analizoarele sintactice LR(k)

a. Reduc secventa de intrare la simbolul de start

b. Realizeaza o analiza sintactica descendenta

c. Realizeaza o analiza recursiva a secventei de intrare

d. Accepta ca tranzactii posibile doar deplasarea si acceptarea

e. Nici una din afirmatiile de mai sus

14. Analiza semantica are ca rezultat

a. Arborele de analiza sintactica

b. Gramatici de atribute

c. Forma intermediara reprezentata ca arbore atributat

d. Arborele de sintaxa abstracta

e. Codul obiect

15. Care dintre urmatoarele afirmatii reprezinta caracteristici ale Java Virtual Machine?

a. JVM executa bytecode

b. JVM este o masina stack-based

c. Alocarea unei stive JVM pentru fiecare thread

d. Toate afirmatiile de mai sus

e. Nici una din afirmatiile de mai sus nu este corecta

16. Precizati care dintre urmatoarele caracteristici trebuie asigurate pentru tabela de simboluri

**a.** Frexibilitate privind numele simbolice si extinderea tabelei

**b.** Acceptarea intrarilor duplicate

**c.** Timp de cautare redus

**d.**  Mentenanta tabela de simboluri

**e.**  Stergere eficienta a numelor simbolice din tabela

a. A+C+E

b. A+B+C+D+E

c. A+B+D

d. B+E

e. B+C+D

17. Se considera secventa de cvadruple aferenta expresiei a\*b+3\*c\*(d-e)

|  |  |  |  |
| --- | --- | --- | --- |
| Op | Arg1 | Arg2 | Rez |
| \* | a | b | T1 |
| \* | 3 | c | T2 |
| - | d | e | T3 |
| \* | T2 | T3 | T4 |
|  |  |  |  |

Precizati care dintre urmatoarele cvadruple trebuie sa completeze ultima linie din secventa de mai sus astfel incat expresia sa fie determinate correct:

a. + b T4 T5

b. + T3 T4 T5

c. + T1 T5 T4

d. + T4 T1 T5

e. + T1 T4 T5

18. Se considera secventa de triplete aferenta expresiei a\*b-3\*c\*(d+e)

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

Precizati care dintre urmatoarele triplete trebuie sa completeze liana 2 din secventa de mai sus astfel incat expresia sa fie determinata correct:

a. (2) \* 3 c

b. (2) \* 3 (1)

c. (2) \* (1) c

d. (2) \* c 3

e. (2) \* c (1)

19. Precizati care dintre urmatoarele tehnici sunt aplicate in vederea optimizarii codului intermediar

a. Calcule la compilare

b. Calcule redundante

c. Eliminare cod inaccesibil

d. Optimizare cicluri

a. A+D

b. A+B+D

c. A+C+D

d. C+D

e. B+C+D

20. O stiva Java Virtual Machine la nivel abstract nu contine?

a. Thread-uri

b. Variabile locale

c. Invocarea metodelor

d. Frame-uri

e. Rezultate partiale

Din poze:

21. 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-\*+

22. 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

23. 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

24. An abstract JVM stack does not contain

a. Threads

b. Local variables

c. Method invoking

d. Partial results

e. Frames

25. 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

26. 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

27. 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

28. 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

29. 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

30. 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

31. 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

32. 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

33. 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

34. 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

35. 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

36. 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

37. 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

38. 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 ($)

39. 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

40.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

41.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;

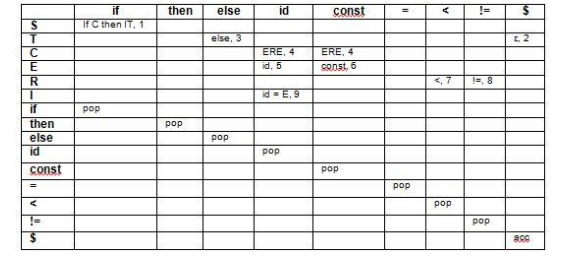
D. Flexibility regarding the symbol names and extension of the table, Acceptance of the

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;

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



What is the non-terminal which contains one single item ε?

A.E

B.R

C.C

**D.T**

E.S

43.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

44. 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;**