COMPILER DESIGN

SOLUTIONS

1. A given grammar is said to be ambiguous if

(a) two or more productions have the same non-terminal on the left hand side
(b) a derivation tree has more than one associated sentence
(c) there is a sentence with more than one derivation tree corresponding to it
(d) parenthesis are not present in the grammar

Solution: Option (c)

2. The main difference between a DFSA and NDFSA is

(a) in DFSA, ε transition may be present
(b) in NDFSA, ε transitions may be present
(c) in DFSA, from any given state, there can't be any alphabet leading to two different states
(d) in NDFSA, from any given state, there can't be any alphabet leading to two different states.

Solution: Option (b) & (c)

3. Choose the correct statements.

(a) Topological sort can be used to obtain an evaluation order of a dependency graph

(b) Evaluation order for a dependency graph dictates the order in which the semantic rules are done

(c) code generation depends on the order in which the semantic actions are performed

(d) only (a) and (c) are correct

Solution: Option (b) & (c)

4. A syntax tree

(a) is another name for a parse tree
(b) is a condensed form of parse tree
(c) should not have keywords as leaves
(d) none of the above

Solution: Option (b) & (c)

5. Two finished state machines are said to be equivalent if they

(a) have the same number of states
(b) have the same number of edge
(c) have the same number of states and edges
(d) recognize the same set of tokens

Solution: Option (d)

6. For which of the following situations, inherited attribute is a natural choice?

(a) Evaluation of arithmetic expression
(b) Keeping track of variable declaration
(c) Checking for the correct use of L-values and R-values
(d) All of the above

Solution: Option (b) & (c)

7. If two finite state machines M and N are isomorphic then M can be transformed to N by re-labeling

(a) the states alone
(b) the edges alone
(c) both the states and edges
(d) none of the above

Solution: Option (a)

8. In a syntax directed translation scheme, if the value of an attribute of a node is a function of the values of the attributes of its children, then it is called a

(a) synthesized attribute
(b) inherited attribute
(c) canonical attribute
(d) none of the above

Solution: Option (a)

9. Which of the following is not an intermediate code form?

(a) Postfix notation
(b) Syntax trees

(c) Three address codes (d) Quadruples

Solution: Option (d)

10. The best wat to compare the different implementations of a symbol table is to compare the time required to

(a) add a new name (b) make an inquiry
(c) add a new name and make inquiry (d) none of the above

Solution: Option (c)

11. Which of the following symbol table implementations makes efficient use of memory?

(a) List (b) Search tree
(c) Hash tree (d) Self-organizing list

Solution: Option (a)

12. Syntax directed translation scheme is desirable because

(a) it is based on the syntax
(b) its description is independent of any implementation
(c) it is easy to modify
(d) only (a) and (c) are correct

Solution: Option (a), (b) & (c)

13. Three address code involves

(a) exactly 3 addresses (b) at the most 3 addresses
(c) no unary operator (d) none of the above

Solution: Option (b)

14. An ideal compiler should

(a) detect errors (b) detect and report errors

(c) detect, report and correct errors (d) none of the above

Solution: Option (c)

15. Access time of the symbol table will be logarithmic, if it is implemented by a

(a) linear list (b) search tree
(c) hash table (d) none of the above

Solution: Option (c)

16. Which of the following is not a source of errors?

(a) Faulty design specification (b) Faulty algorithm
(c) Compiler themselves (d) None of the above

Solution: Option (d)

17. Three address codes can be implemented by

(a) indirect triples (b) direct triples
(c) quadruples (d) none of the above

Solution: Option (b) & (c)

18. Symbol table can be used for

(a) checking type compatibility (b) suppressing duplicate error messages
(c) storage allocation (d) all of the above

Solution: Option (d)

19. Which of the following symbol table implementations is based on the property of locality of reference?

(a) Linear list (b) Search tree
(c) Hash table (d) Self-organization list

Solution: Option (d)

20. Hamming distance is a

(a) theoretical way of measuring errors

(b) technique for assigning codes to a set of items known to occur with a given probability

(c) technique for optimizing the intermediate code

(d) none of the above

Solution: Option (a)