COMPILER DESIGN

Solutions

1. For which of the following reasons, a compiler is preferable to an interpreter?

(a) It can generate stand-alone programs that often take less time for execution
(b) It is much helpful in the initial stages of program development
(c) Debugging can be faster and easier
(d) It needs less computer resources

Solution: Option (a)

2. In a context-free grammar

(a) ε can't be the right-hand side of any production

(b) terminal symbols can't be present in the left-hand side of any production

(c) the number of grammar symbols in the left-hand side is not
greater than the number of grammar symbols in the right-hand side

(d) all of the above

Solution: Option (b)

3. The cost of developing a compiler is proportional to the

(a) complexity of the source language
(b) complexity of the architecture of the target machine
(c) flexibility of the available instruction set
(d) all of the above

Solution: Option (d)

4. An optimizing compiler

(a) is optimized to occupy less space
(b) is optimized to take less time for execution

(c) optimizes the code

(d) none of the above

Solution: Option (c)

5. Which of the following grammars are not phase-structured?

(a) regular   (b) context-free

(c) context-sensitive   (d) none of the above

Solution: Option (d)

6. Cross-compiler is a compiler

(a) which is written in a language that is different from the source language

(b) that generates object code for its last machine

(c) which is written in a language that is same as the source language

(d) that runs on one machine but produces object code for another machine

Solution: Option (d)

7. For which of the following reasons, an interpreter is preferred to a compiler?

(a) It takes less time to execute

(b) It is much helpful in the initial stages of program development

(c) Debugging can be faster and easier

(d) It needs less computer resources

Solution: Option (b) & (c)

8. If w is a string of terminal and A, B are two non-terminals, then which of the following are right-linear grammars?

(a) A → Bw   (b) A → Bw|w

(c) A → wB|w   (d) None of the above

Solution: Option (c)

9. CSG can be recognized by

(a) push-down automata

(b) 2-way linear bounded automata

(c) finite state automata

(d) none of the above

Solution: Option (b)

10. A top-down parser generates

(a) left-most derivation

(b) right-most derivation

(c) right-most derivation in reverse

(d) left-most derivation in reverse

Solution: Option (a)

11. Which of the following is the most general phase-structured grammar?

(a) regular

(b) context-free

(c) context-sensitive

(d) none of the above

Solution: Option (c)

12. An ideal compiler should

(a) be smaller in size

(b) be written in a high level language

(c) produce object code that is smaller in size and executes faster

(d) all of the above

Solution: Option (d)

13. Whether a given pattern constitutes a token or not

(a) depends on the source language

(b) depends on the target language

(c) depends on the compiler

(d) none of the above comment is true

Solution: Option (a)

14. In a compiler, grouping of characters into tokens is done by the

(a) scanner   (b) parser

(c) code generator   (d) code optimizer

Solution: Option (a)

15. A grammar will be meaningless of the

(a) terminal set and non-terminal set are not disjoint
(b) left hand side of a productions is a single terminal
(c) left hand side of a production has no non-terminal
(d) all of the above

Solution: Option (d)

16. Incremental-compiler is a compiler

(a) which is written in a language that is different from the source language
(b) that generates object code for its host machine
(c) which is written in a language that is same as the source language
(d) that allows a modified position of a program to be compiled

Solution: Option (d)

17. In a context-sensitive grammar,

(a) ε can't be the right-hand side of any production

(b) number of grammar symbols on the left-hand side of a production
   can't be greater than the number of non-terminals on the right-hand side

(c) number of grammar symbols on the left-hand side of a production can't
   be greater than the number of grammar symbols on the right-hand side

(d) all of the above

Solution: Option (d)

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18. If a is a terminal and S, A, B are three non-terminals, then which of the following are regular grammars?

(a) S → ε, A → aS|b

(b) A → aB|a, B → bA|b

(c) A → Ba|Bab

(d) A → abB|aB

Solution: Option (b)

19. Choose the correct statements:

(a) Sentence of a grammar is a sequential form without any terminals

(b) Sentence of a grammar should be derivable from the start state

(c) Sentence of a grammar should be frontier of a derivation tree, in which the root node has the start state as the label

(d) (a) above is incorrect

Solution: Option (d)

20. Representing the syntax by a grammar is advantageous because

(a) it is concise

(b) it is accurate

(c) automation becomes easy

(d) all of the above

Solution: Option (d)

21. CFG can be recognized by a

(a) push-down automata

(b) finite state automata

(c) 2-way linear bounded automata

(d) statement (b) incorrect

Solution: Option (d)