BRAINWARE UNIVERSITY

Term End Examination 2021 - 22
Programme – Bachelor of Technology in Computer Science & Engineering
Course Name – Compiler Design
Course Code - PCC-CS601
(Semester VI)

Time allotted : 1 Hrs.25 Min. **Full Marks : 70**

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question) 1 x 70=70

Choose the correct alternative from the following :

(1) A grammar that produces more than one parse tree for some sentence is called as
a) Ambiguous b) Unambiguous
c) Regular d) All of these

(2) Lexical analysis is about breaking a sequence of characters into
a) Groups b) Packets
c) Lines d) Tokens

(3) _____ is the most general phase structured grammar.
a) Context sensitive b) Regular
c) Context free d) All of these

(4) Compiler should report the presence of _____ in the source program, in translation proces s.
a) Classes b) Objects
c) Errors d) Text

(5) How many parts of compiler are there?
a) 1 b) 2
c) 4 d) 8

(6) What is the action of parsing the source program into proper syntactic classes?
a) Lexical analysis b) Syntax analysis
c) General syntax analysis d) Interpretation analysis

(7) _____ is considered as a sequence of characters in a token.
a) Mexeme b) Lexeme
c) Pattern d) Texeme

(8) The regular expression 1*(01*01*)* denotes
a) set of all strings of 0's and 1's with even number of 0's b) set of all strings of 0's and 1's
c) set of all strings of 0's and 1's with odd number of 1's d) none of these

(9) If x is a terminal, then FIRST(x) is

a) ϵ b) {x}

c) x* d) none of these

(10) The set of all strings over $\sum$ = {a,b} in which all strings having bbbb as substring is

a) (a+b)* bbbb (a+b)* b) (a+b)* bb (a+b)*bb

c) bbb(a+b)* d) bb (a+b)*

(11) The set of all strings over $\sum$ ={a,b} in which a single a is followed by any number of b's a single b followed by any number of a's is

a) ab* + ba* b) ab*ba*

c) a*b + b*a d) none of these

(12) The following functions are used to convert NFA to DFA using subset construction method

a) ϵ-closure b) move

c) both a and b d) none of these

(13) The grammar E→E+E | a suffers

a) Left factoring b) Left recursion

c) Both a and b d) None of these

(14) Which of the following error will not be detected by the compiler?

a) Lexical error b) Syntactic error

c) Semantic error d) Logical error

(15) An annotated parse tree is

a) A parse tree with attribute values shown at the par se tree nodes b) A parse tree with values of only some attributes s hown at the parse tree nodes

c) A parse tree without attribute values d) None of these

(16) The left recursion produces

a) infinite loop b) ambiguity

c) no problem at all d) None of these

(17) Left factoring guarantees

a) Error free target code b) Cycle free parse tree

c) Not occurring of backtracking d) Correct LL(1) parse table

(18) A parse tree showing the values of attributes at each node is called in particular

a) Syntax tree b) Annotated parse tree

c) Syntax directed parse tree d) Direct acyclic graph

(19) Which of the following is the most powerful parser?

a) CLR b) LALR

c) SLR d) Operator precedence

(20) Three address code involves

a) Exactly three addresses b) At most three addresses

c) No unary operator d) None of these

(21) Compiler can check _____ error.

a) Logical b) Content

c) Content d) Syntax

(22) The regular expression representing the set of all strings over (x,y) ending with xx beginning wit h y is

a) xx(x+y)*y b) y(x+y)*xx

c) yy(x+y)*x d) y(xy)*xx

(23) S → AB , A → a , B → b To check whether the string "ab" is the language of the above gramma r (using shift-reduce parser) we need at least

a) 3 shift 3 reduces
b) 2 shift 3 reduces
c) 2 shift 2 reduces
d) 3 shift 2 reduces

(24) The intersection of a regular language and a context free language is
a) always a regular language
b) always a context free language
c) always a context sensitive language
d) None of these

(25) The following production of a regular grammar generates a language L. S → aS | bS |a | b The regular expression for L is
a) A+b
b) (a+b)*
c) (a+b)(a+b)*
d) (aa+bb)a*

(26) Which one is a lexer generator
a) ANTLR
b) DRASTAR
c) FLEX
d) All of these

(27) Given the language L={ab,aa,baa}, which of the following strings are in L? 1)abaabaaabaa 2)aaa abaaaa 3)baaaaabaaaab baaaaabaa
a) 1,2,3
b) 2,3,4
c) 1,2,4
d) 1,3,4

(28) Which of the following identity is true?
a) $\epsilon + RR^* = R^* = \epsilon + R^*R$
b) $(R1R2)^*R1 = R1(R2R1)^*$
c) $R^*R^* = R^*$
d) All of these

(29) The number of tokens in the following C statement is printf("Hello world");
a) 5
b) 6
c) 7
d) 8

(30) The grammar S → S +S | S * S | id is
a) ambiguous
b) unambiguous
c) not given sufficient information
d) None of these

(31) ϵ never contains in
a) FIRST
b) FOLLOW
c) Both a and b
d) None of these

(32) SR parser means
a) Stack reduce parser
b) Shift reduce parser
c) Shift right parser
d) None of these

(33) S → ϵ , FOLLOW(S) = ?
a) {$,$\epsilon$}
b) {$}
c) {ϵ}
d) None of these

(34) If L1 and L2 are regular languages is/are also regular language(s).
a) L1 + L2
b) L1 L2
c) L1
d) All of these

(35) A top down parser generates
a) leftmost derivation
b) rightmost derivation
c) leftmost derivation in reverse
d) rightmost derivation in reverse

(36) A basic block can be analyzed by
a) DAG
b) Flow graph
c) Graph with cycles
d) None of these

(37) The peep-hole optimization is
a) Strength Reduction
b) constant folding
c) A & B both
d) None of this

(38) Consider the program statement x=2 where x is a Boolean variable. Which stage of compilation c

an detect the error?

a) Lexical analysis
b) Syntax analysis
c) Semantic analysis
d) Code generation

(39) Which table is a permanent database that has an entry for each terminal symbol?

a) Reductions
b) Identifier table
c) Literal table
d) Terminal table

(40) Synthesized attribute can be easily simulated by a

a) LR grammar
b) LL grammar
c) Ambiguous grammar
d) None of these

(41) Which of the following class of statement usually produces no executable code when compiled?

a) Assignment statement
b) Structural statements
c) Input and output statements
d) Input and output statements

(42) Which of the following symbol table implementation has the minimum access time?

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

(43) The optimization which avoids test at every iteration is?

a) Loop unrolling
b) Loop jamming
c) Constant folding
d) None of the mentioned

(44) A language L from a grammar G = { VN, Σ, P, S} is?

a) Set of symbols over VN
b) Set of symbols over Σ
c) Set of symbols over P
d) Set of symbols over S

(45) What is the transitional function of a DFA?

a) Q X Σ→Q
b) Q X Σ→2Q
c) Q X Σ→2n
d) Q X Σ→Qn

(46) In a single pass assembler, most of the forward references can be avoided by putting the restricti on _____

a) On the number of strings/life reacts
b) Code segment to be defined after data segment
c) On unconditional rump
d) None of the mentioned

(47) What is the function of the syntax phase?

a) recognize the language and to cal the appropriate action routines that will generate the intermediate form or matrix for these constructs
b) Build a literal table and an identifier table
c) Build a uniform symbol table
d) Parse the source program into the basic eleme or tokens of the language

(48) If E be a shifting operation applied to a function f, such that E(f) = f (x +β), then?

a) E (αf+β g) = α E(f) +β E (g)
b) E (αf +β g) =. (α+ β) + E (f + g)
c) E (αf +β g) = α E (f+gβ)
d) E (αf +β g) = αβ E (f + g)

(49) Which of the following functions is performed by loader?

a) Allocate memory for the programs and resolve sy mbolic references between objects decks
b) Address dependent locations, such as address con stants, to correspond to the allocated space
c) Physically place the machine instructions and data into memory
d) All of the mentioned

(50) The root directory of a disk should be placed _____

a) At a fixed address in main memory
b) At a fixed location on the disk
c) Anywhere on the disk
d) None of the mentioned

(51) Which of these is not true about the Symbol Table?

a) All the labels of the instructions are symbols
b) Table has entry for symbol name address value
c) Perform the processing of the assembler directive
d) Created during pass 1

s

(52) Which of the following describes a handle (as applicable to LR-parsing) appropriately?

a) Position where next reduce or shift operation will occur

b) The next step has use of Non-terminal for reducti on

c) Used for reduction in a coming-up step along with a position in the sentential form where the next sh ift or reduce operation will occu

d) Used in the next step for reduction along with a p osition in the sentential form where the right hand side of the production may be found

(53) The grammar A → AA | (A) | ε is not suitable for predictive-parsing because the grammar is?

a) Ambiguous

b) Left recursive

c) Right recursive

d) An operator grammar

(54) A context free language is called ambiguous if _____

a) It has 2 or more left derivations for some termina l string w ε L (G)

b) It has 2 or more right derivations for some termin al string w ε L (G)

c) It has 2 or more left & right derivations for some t erminal string w ε L (G)

d) None of the mentioned

(55) The context free grammar S → SS | 0S1 | 1S0 | ε generates _____

a) Equal number of 0's and 1's

b) Unequal number of 0's and 1's

c) Number of 0's followed by any number of 1's

d) None of the mentioned

(56) Push down automata accepts which language?

a) Push down automata accepts which language?

b) Context free language

c) Recursive language

d) None of the mentioned

(57) A CFG is closed under _____

a) Union

b) Kleene star

c) Concatenation

d) All of the mentioned

(58) The production Grammar is {S->aSbb, S->abb} is?

a) type-3 grammar

b) type-2 grammar

c) type-1 grammar

d) type-0 grammar

(59) A simple two-pass assembler does which of the following in the first pass?

a) It allocates space for the literals

b) Calculates total length of the program

c) Symbol table is built for the symbols and their val ue

d) All of the mentioned

(60) A system program that set-up an executable program in the main memory ready for execution is?

a) Assembler

b) Linker

c) Loader

d) Text editor

(61) A compiler is a program that _____

a) Program is put into memory and executes it

b) Translation of assembly language into machine la nguage

c) Acceptance of a program written in a high level l anguage and produces an object program

d) None of the mentioned

(62) The computer language generally translated to pseudocode is _____

a) Assembly

b) Machine

c) Pascal

d) FORTRAN

(63) Generation of intermediate code based on a abstract machine model is useful in compilers becaus e _____

a) Implementation of lexical analysis and syntax ana lysis is made easier

b) Writing for intermediate code generation

c) Portability of the front end of the compiler

d) None of the mentioned

(64) Which type of grammar is it? S → abS S → a

a) Right Linear Grammar

b) Left Linear Grammar

c) Right & Left Linear Grammar

d) None of the mentioned

(65) Which of the following statements is false?

a) Left as well as right most derivations can be in Un ambiguous grammar

b) An LL (1) parser is a top-down parser

c) LALR is more powerful than SLR

d) Ambiguous grammar can't be LR (k)

(66) What is the idea of automation with a stack as auxiliary storage?

a) Finite automata

b) Push Down Automata

c) Deterministic Automata

d) None of the mentioned

(67) A context free language is called ambiguous if?

a) It has 2 or more than 2 left derivations for some te rminal string w ϵ L (G)

b) It has 2 or more than 2 right derivations for some terminal string w ϵ L (G)

c) It has 2 or more than 2 left and right derivations f or some terminal string w ϵ L (G)

d) None of the mentioned

(68) Which of the following identity is wrong?

a) R + R = R

b) (R*)* = R*

c) ƐR = Rε = R

d) ØR = RØ = RR*

(69) A Push Down Automata is if there is at most one transition applicable to each configuration?

a) Deterministic

b) Non deterministic

c) Finite

d) Non finite

(70) An intermediate code form is _____

a) Postfix notation

b) Syntax Trees

c) Three Address code

d) All of the mentioned