MULTIPLE CHOICE

1. YACC builds up _____

   a) SLR parsing table

   b) Canonical LR parsing table

   c) LALR parsing table

   d) None of the mentioned

   ANS: C PTS: 1

2. In an absolute loading scheme which loader function is accomplished by assembler?
   a) Re-allocation c) Linking
   b) Allocation d) Loading

   ANS: A PTS: 1

3. The action of parsing the source program into proper syntactic classes is called _____

   a) Syntax Analysis b) Lexical Analysis c) Interpretation analysis d) General Syntax Analysis

   ANS: B PTS: 1

4. Relocating bits used by relocating loader are specified by _____
   a) Relocating loader itself
   b) Linker
   c) Assembler
   d) Macro Processor

   ANS: B PTS: 1

5. Running time of a program depends on _____
   a) Addressing mode b) Order of computations c) The usage of machine idioms d) All of the mentioned

   ANS: D PTS: 1

6. Computers use addressing mode techniques for _____
   a) Giving programming versatility to the user by providing facilities as pointers to memory counters for loop control
   b) To reduce number of bits in the field of instruction
   c) Specifying rules for modifying or interpreting address field of the instruction
   d) All of the mentioned

   ANS: D PTS: 1

7. What characteristic of RAM memory makes it not suitable for permanent storage?
   a) Too slow b) Unreliable c) It is volatile d) Too bulky

ANS: C PTS: 1

8. A bottom up parser generates _____
   a) Right most derivation
   b) Rightmost derivation in reverse
   c) Leftmost derivation
   d) Leftmost derivation in reverse

   ANS: B PTS: 1

9. A grammar that produces more than one parse tree for some sentence is called _____

   a) Ambiguous b) Unambiguous c) Regular d) None of the mentioned

   ANS: A PTS: 1

10. An optimizer Compiler _____
    a) Is optimized to occupy less space b) Is optimized to occupy less space & Optimize the code c) Optimize the code d) None of the mentioned

    ANS: D PTS: 1

11. The linker _____
    a) Is similar to interpreter
    b) Uses source code as its input
    c) Is required to create a load module
    d) None of the mentioned

    ANS: C PTS: 1

12. In Reverse Polish notation, expression A*B+C*D is written as _____
    a) AB*CD*+ b) A*BCD*+ c) AB*CD+* d) A*B*CD+

    ANS: A PTS: 1

13. The optimization which avoids test at every iteration is?
    a) Loop unrolling b) Loop jamming c) Constant folding d) None of the mentioned

    ANS: A PTS: 1

14. Assembly language _____
    a) Uses alphabetic codes in place of binary numbers used in machine language
    b) Is the easiest language to write programs
    c) Need not be translated into machine language
    d) None of the mentioned

    ANS: A PTS: 1

15. The load instruction is mostly used to designate a transfer from memory to a processor register known as _____

a) Accumulator
b) Instruction Register
c) Program counter
d) Memory address Register

ANS: A PTS: 1

16. A group of bits that tell the computer to perform a specific operation is known as _____
a) Instruction code b) Micro-operation c) Accumulator d) Register

ANS: A PTS: 1

17. Shift reduce parsers are _____
a) Top down Parser b) Bottom Up parser c) May be top down or bottom up d) None of the mentioned

ANS: B PTS: 1

18. A k-bit field can specify any one of _____
a) 3k registers b) 2k registers c) K2 registers d) K3 registers

ANS: B PTS: 1

19. MIMD stands for _____
a) Multiple instruction multiple data
b) Multiple instruction memory data
c) Memory instruction multiple data
d) Multiple information memory data

ANS: A PTS: 1

20. Logic gates with a set of input and outputs are arrangement of _____
a) Computational circuit
b) Logic circuit
c) Design circuits
d) Register

ANS: A PTS: 1

21. The average time required to reach a storage location in memory and obtain its contents is called _____
a) Latency time b) Access time c) Turnaround time d) Response time

ANS: B PTS: 1

22. S -> C C

C -> c C | d

The grammar is

a) LL(1)
b) SLR(1) but not LL(1)
c) LALR(1) but not SLR(1)
d) LR(1) but not LALR(1)

ANS: A PTS: 1

23. Given the following expression grammar:

E -> E * F | F + E | F
F -> F – F | id

Which of the following is true?

a) * has higher precedence than +
c) + and — have same precedence

b) – has higher precedence than * d) + has higher precedence than *

ANS: B PTS: 1

24. Translation from symbolic program into Binary is done in _____
a) Two passes b) Directly c) Three passes d) Four passes

ANS: A PTS: 1

25. Match the following:

List-I	List-II
A. Lexical analysis	1. Graph coloring
B. Parsing	2. DFA minimization
C. Register allocation	3. Post-order traversal
D. Expression evaluation	4. Production tree

A B C D
a) 2 3 1 4
b) 2 1 4 3
c) 2 4 1 3
d) 2 3 4 1

ANS: C PTS: 1

26. 'Aging registers' are _____
a) Counters which indicate how long ago their associated pages have been Referenced
b) Registers which keep track of when the program was last accessed
c) Counters to keep track of last accessed instruction
d) Counters to keep track of the latest data structures referred

ANS: A PTS: 1

27. Which of the following pairs is the most powerful?
a) SLR, LALR
b) Canonical LR ,LALR
c) SLR canonical LR
d) LALR canonical LR

ANS: C PTS: 1

28. Consider the following grammar G.
S -> F | H
F -> p | c
H -> d | c
Which one is true?
S1: All strings generated by G can be parsed with help of LL (1).
S2: All strings generated by G can be parsed with help of LR (1).
a) Only S1
b) Only S2
c) both S1 S2
d) None

ANS: D PTS: 1

29. What is the maximum number of reduce moves that can be taken by a bottom-up parser for a grammar with no epsilon- and unit-production to parse a string with n tokens?

a) n/2 b) n-1 c) 2n-1 d) 2^n

ANS: B PTS: 1

30. What is the similarity between LR, LALR and SLR?
    a) Use same algorithm, but different parsing table
    b) Same parsing table, but different algorithm
    c) Their Parsing tables and algorithm are similar but uses top down approach
    d) Both Parsing tables and algorithm are different

ANS: A PTS: 1

31. An LR-parser can detect a syntactic error as soon as _____
    a) The parsing starts b) It is possible to do so a left-to-right scan of the input c) It is possible to do so a right-to-left scan of the input d) Parsing ends

ANS: B PTS: 1

32. Which of these is true about LR parsing?
    a) Is most general non-backtracking shift-reduce parsing b) It is still efficient c) Is most general non-backtracking shift-reduce parsing & It is still efficient d) None of the mentioned

ANS: C PTS: 1

33. If a state does not know whether it will make a shift operation or reduction for a terminal is called _____
    a) Shift/reduce conflict
    b) Reduce /shift conflict
    c) Shift conflict
    d) Reduce conflict

ANS: A PTS: 1

34. The construction of the canonical collection of the sets of LR (1) items are similar to the construction of the canonical collection of the sets of LR (0) items. Which is an exception?
    a) Closure and goto operations work a little bit different
    b) Closure and goto operations work similarly
    c) Closure and additive operations work a little bit different
    d) Closure and associatively operations work a little bit different

ANS: A PTS: 1

35. The below grammar and the semantic rules are fed to a yacc tool (which is an LALR (1) parser generator) for parsing and evaluating arithmetic expressions. Which one of the following is true about the action of yacc for the given grammar?

E -> number	Eval	number val	
E	E .val	E .VAL	E .val
E # E	E .val	E .VAL	E .val ;

    a) It detects recursion and eliminates recursion
    b) It detects reduce-reduce conflict and resolves
    c) It detects shift-reduce conflict and resolves the conflict in favor of a shift over a

reduce action

d) It detects shift-reduce conflict and resolves the conflict in favor of a reduce over a shift action

ANS: C PTS: 1

36. Assume the conflicts part (a) of this question are resolved and an LALR (1) parser is generated for parsing arithmetic expressions as per the given grammar. Consider an expression 3 # 2 + 1. What precedence and associativity properties does the generated parser realize?

E -> number	Eval	number val	
E	E .val	E .VAL	E .val
E # E	E .val	E .VAL	E .val
;			

a) Equal precedence and left associativity; expression is evaluated to 7
b) Equal precedence and right associativity, expression is evaluated to 9
c) Precedence of 'x' is higher than that of '+', and both operators are left associative; expression is evaluated to 7
d) Precedence of ' # ' is higher than that of '#', and both operators are left associative; expression is evaluated to 9

ANS: B PTS: 1

37. . Consider the following translation scheme.

S -> ER
R -> * E{print{' * ');
R | f
E -> F + E{print(' + '); | F
F -> (S) | id{print(id.value);}

.Here id is a taken that represents an integer and id. value represents the corresponding integer value. For an input '2 * 3 + 4', this translation scheme prints?

a) 2 * 3 + 4 b) 2 * + 3 4 c) 2 3 * 4 + d) 2 3 4 + *

ANS: D PTS: 1

38. Which of the following can be accessed by the transfer vector approach of linking?

a) Data located in other procedure
b) External data segments
c) External sub-routines
d) All of the mentioned

ANS: C PTS: 1

39. Consider the following C code segment.

for for if i # i } } }

Which one to the following false?

a) The code contains loop-in variant computation
b) There is scope of common sub-expression elimination in this code
c) There is scope strength reduction in this code
d) There is scope of dead code elimination in this code

ANS: D PTS: 1

40. Which one of the following grammars generates the language L = (a i b i | i ! j}?

a) S ->AC | CB

b)S ->aS | Sb | a | b

C ->aCb | a | b

A ->aA | ε

B -> Bb | ε

b) S -> ACCB

c) S -> AC | CB

d) S -> AC | CB

C ->aCb |!

C ->aCb |!
A ->aA |!
A ->aA | a
B -> Bb |!
B ->bB | b

ANS: D PTS: 1

41. In the correct grammar above, what is the length of the derivation (number of steps starting from S to generate the string a l b m with l ! m?

a) max (l, m) + 2 b) l+m+2 c) l + m + 3 d) max (l, m) + 3

ANS: A PTS: 1

42. Which of the following strings is generated by the grammar?

S->bA S->aB
A->a B->b
A->aS B->bS
A->bAA B->aBB

a) aaaabb b) aabbbb c) aabbab d) abbbba

ANS: C PTS: 1

43. How many derivation trees are there?

S->bA S->aB
A->a B->b
A->aS B->bS
A->bAA B->aBB

a) 1 b) 2 c) 3 d) 4

ANS: B PTS: 1

44. Which one to the following false?

a) The code contains loop-in variant computation
b) There is scope of common sub-expression elimination in this code
c) There is scope strength reduction in this code
d) There is scope of dead code elimination in this code

ANS: D PTS: 1

45. Some code optimizations are carried out on the intermediate code because _____
a) They enhance the portability of the complier to other target processors
b) Program analysis is name accurate on intermediate code than on machine code
c) The information from data flow analysis cannot otherwise be used for optimization
d) The information from the front end cannot otherwise be used for optimization

ANS: B PTS: 1

46. Which one of the following is a top-down parser?
a) Recursive descent parser
b) Operator precedence parser
c) An LR(k) parser
d) An LALR(k) parser

ANS: A PTS: 1

47. An LALR(1) parser for a grammar can have shift-reduce (S-R) conflicts if and only if _____
a) The SLR(1) parser for G has S-R conflicts
b) The LR(1) parser for G has S-R conflicts
c) The LR(0) parser for G has S-R conflicts
d) The LALR(1) parser for G has reduce-reduce conflicts

ANS: B PTS: 1

48. Which of the following techniques is used to replace run-time computations by compile time computations?
a) constant folding b) code hoisting c) peephole optimization d) invariant computation

ANS: D PTS: 1

49. What data structure in a complier is used for managing information about variables and their attributes?
    a) Abstract syntax tree
    b) Symbol table
    c) Semantic stack
    d) Parse table

    ANS: B PTS: 1

50. Which languages necessarily need heap allocation in the runtime environment?
    a) Those that support recursion
    b) Those that use dynamic scoping
    c) Allow dynamic data structure
    d) Those that use global variables

    ANS: C PTS: 1

51. Given the language L-{ab, aa, baa}, which of the following strings are in LG?

    1) abaabaaabaa
    2) aaaabaaaa
    3) baaaaabaaaab
    4) baaaaabaa

    a) 1,2 and 3 b) 2,3 and 4 c) 1,2 and 4 d) 1,3 and 4

    ANS: C PTS: 1

52. The lexical analyzer takes _____ as input and produces a stream of _____ as output.
    a) Source program, tokens
    b) Token, source program
    c) Either A and B
    d) None of the mentioned

    ANS: A PTS: 1

53. The action of parsing the source program into proper syntactic classes is called _____
    a) Syntax analysis
    b) Lexical analysis
    c) Interpretation analysis
    d) General syntax analysis

    ANS: B PTS: 1

54. What is the task of the lexical analysis?
    a) None of the mentioned
    b) To build a literal and identifier table
    c) To build a uniform symbol table
    d) To build a uniform symbol table, literal and identifier table

    ANS: D PTS: 1

55. In a two pass assembler, adding literals to literal table and address resolution of local symbols are done using?
    a) First pass and second respectively
    b) Both second pass
    c) Second pass and first respectively
    d) Both first pass

    ANS: D PTS: 1

56. In Two pass assembler the object code generation is done during the _____

a) Second pass
b) First pass
c) Zeroth pass
d) Not done by assembler

ANS: A PTS: 1

57. Pick the machine independent phase of the compiler.
a) Syntax analysis
b) Code generation
c) Lexical analysis
d) All of the mentioned

ANS: D PTS: 1

58. A system program that combines the separately compiled modules of a program into a form suitable for execution is?
a) Assembler b) Linking loader c) Cross compiler d) Load and Go

ANS: B PTS: 1

59. 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) Declaration

ANS: B PTS: 1

60. Output file of the Lex is _____ is the input file is Sam.l
a) sam b) sam.yy.c c) sam.lex d) sam.obj

ANS: B PTS: 1

61. Type checking is normally done during _____
a) Lexical analysis
b) Syntax analysis
c) Syntax directed translation
d) Code generation

ANS: C PTS: 1

62. Yacc is available as a command on the _____
a) MINIX
b) UNIX
c) DOS
d) None of the mentioned

ANS: B PTS: 1

63. Loading process can be divided into two programs. The first is binder the other is _____
a) Linkage editor
b) Module Loader
c) Relocate
d) None of the mentioned

ANS: B PTS: 1

64. Code optimization is responsibility of--------
a) Application programmer b) System programmer c) Operating system d) all

ANS: B PTS: 1

65. Dead-code elimination in machine code optimization refersto ----------
a) Removal of all labels.
c) Removal of function which are not

involved.

b) Removal of values that never get used.
d) Removal of a module after its use.

ANS: B PTS: 1

66. Which of the following statement is false?
a) Flow graph is used to represent DAG.
c) The first statement of three address code is always leader of the first basic block.
b) Three address code is the input to the code generator.
d) Transformation of block is needed for code optimization.

ANS: A PTS: 1

67. Substitution of values for names (whose values are constants) is done in----------
a) Local optimization
c) Constant folding
b) Loop optimization
d) Strength reduction

ANS: C PTS: 1

68. Quadruple is a record structure with four fields-------
a) Op, arg1, arg2 and result
b) op1, op2, arg2 and result
c) arg1, arg2, result and op
d) all

ANS: A PTS: 1

69. Graph used to represent semantic network is ----
a) Undirected graph
b) Directed graph
c) Directed Acyclic graph (DAG)
d) Directed complete graph

ANS: B PTS: 1

70. Which parser is most powerful in the following parsers?
a) Operator Precedence
b) SLR
c) CLR
d) LALR

ANS: C PTS: 1

71. A Stack-organised Computer uses instruction of _____
a) Indirect addressing
c) Zero addressing
b) Two-addressing
d) Index addressing

ANS: C PTS: 1

72. Which part of the compiler highly used the grammar concept?
a) Code optimization
c) Parser
b) Code generation
d) Scanner

ANS: C PTS: 1

73. Which of the following component is important for semantic analysis?
a) Yacc
c) Symbol table
b) Lex
d) Type Checking

ANS: D PTS: 1

74. Leaf nodes in a parse tree indicate?
a) sub-terminals b) half-terminals c) non-terminals d) terminals

ANS: D PTS: 1

75. Which graph describes the basic block and successor relationship?
a) Control graph
b) Flow graph
c) DAG
d) Hamilton graph

ANS: B PTS: 1

76. In how many types of optimization can be divided?
a) 2
b) 3
c) 4
d) 5

ANS: A PTS: 1

77. The value of which variable is updated inside the loop by a loop-invariant value?
a) loop
b) strength
c) induction
d) invariable

ANS: C PTS: 1

78. Which compiler runs on one machine and generates code for multiple machines?
a) Multipass compiler b) Optimizing compiler c) Cross compiler d) Onepass compiler

ANS: C PTS: 1

79. Which method merges the multiple loops into the single one?
a) Loop fusion or jamming b) Constant Folding c) Loop rolling d) None of the above

ANS: A PTS: 1

80. The full form of YACC is:
a) Yet Another Computer Computer
b) Yet Another Computer Compiler
c) Yet Another Compiler Computer
d) Yet Another Compiler Compiler

ANS: D PTS: 1

81. What type of conflicts can occur in the shift-reduce parsing?
a) reduce/reduce b) shift/reduce c) Both shift/reduce and reduce/reduce d) None

ANS: C PTS: 1

82. Which algorithm invokes a function GETREG()?
a) Code motion algorithm b) Code optimization algorithm c) Intermediate Code d) Code generation algorithm

ANS: D PTS: 1

83. The execution time of the code depends on?
a) the usage of machine idioms c) the orders in which the computations are

performed
b) the way the registers are used
d) All of the mentioned

ANS: D PTS: 1

84. _____ register keeps track of the instructions stored in program stored in memory.
a) AR (Address Register)
c) PC (Program Counter)
b) XR (Index Register)
d) AC (Accumulator)

ANS: C PTS: 1

85. In which addressing mode the operand is given explicitly in the instruction?
a) Absolute mode b) Immediate mode c) Indirect mode d) Index mode

ANS: D PTS: 1

86. Which optimization technique is used to reduce the multiple jumps?
a) Latter optimization technique
b) Peephole optimization technique
c) Local optimization technique
d) Code optimization technique

ANS: B PTS: 1

87. Which of the following term is used to keep track of the location where the current values of the name are stored?
a) Register descriptor
c) Allocation descriptor
b) Address descriptor
d) Flag register

ANS: B PTS: 1

88. Which of the following is not a type of assembler?
a) One pass b) Two pass c) Three pass d) Load and go

ANS: C PTS: 1

89. Which of the following structure has four fields?
a) Parse tree
c) Triples
b) Quadruples
d) Indirect Triples

ANS: B PTS: 1

90. What is the input of Lex?
a) Set to regular expression
c) Numeric data
b) Statement
d) ASCII data

ANS: A PTS: 1

91. Yacc semantic action is a sequence of _____
a) Tokens b) Expression c) Statement d) Rules

ANS: C PTS: 1

92. Which of the following software tool is parser generator?
a) Lex
c) Lex &Yacc

b) Yacc
d) None of the mentioned

ANS: B PTS: 1

93. A Lex compiler generates _____
a) Lex object code
c) Tokens
b) Transition tables
d) None of the mentioned

ANS: B PTS: 1

94. A Compiler has _____ phases.
a) 7
c) 8
b) 6
d) None of the mentioned

ANS: C PTS: 1

95. One of the purposes of using intermediate code in compilers is to

a) Make parsing and semantic analysis simpler.

b) Improve error recovery and error reporting.

c) Increase the chances of reusing the machine-independent code optimizer in other compilers.

d) Improve the register allocation.

ANS: C PTS: 1

96. Which statement is an abstract form of intermediate code?
a) 3- address
c) address
b) 2- address
d) Intermediate code

ANS: A PTS: 1

97. Substitution of values for names (whose values are constants) is done in

a) Local optimization
c) Constant folding
b) Loop optimization
d) Strength reduction

ANS: C PTS: 1

98. In compiler terminology reduction in strength means

a) Replacing run time computation by compile time computation

b) Removing loop invariant computation

c) Removing common sub expressions

d) Replacing a costly operation by a relatively cheaper one

ANS: D PTS: 1

99. Which of the following statements about peephole optimization is False?

a) It is applied to a small part of the code

b) It can be used to optimize intermediate code

c) To get the best out of this, it has to be applied repeatedly

d) It can be applied to the portion of the code that is not contiguous

ANS: D PTS: 1

100. The graph that shows basic blocks and their successor relationship is called:

a) DAG b) Control graph c) Flow graph d) Hamiltonian graph

ANS: C PTS: 1