

Reg. No. :

(6 pages)

Code No.: 6542

Sub. Code: ZCSM 14

M.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021

First Semester

Computer Science - Core

COMPILER DESIGN

(For those who joined in July 2021 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Compiler should report the presence of _____ in the source program during translation process.
(a) Classes (b) Objects
(c) Errors (d) Text
2. _____ is the output of lexical analyzer?
(a) A parse tree (b) A list of tokens
(c) Intermediate code (d) None

3. How many types of parsers used for grammars?
- (a) 4 (b) 3
(c) 5 (d) 6
4. Procedure calls and returns are usually managed by a run-time stack called the _____
- (a) activation record (b) frame
(c) Calling Sequences (d) control stack
5. Static checking includes _____, which ensures that operators are applied to compatible operands.
- (a) Parser
(b) common subexpressions
(c) syntax trees
(d) type checking
6. In three-address code, how many operator on the right side of an instruction?
- (a) most one (b) most three
(c) most four (d) most two

7. The abbreviation of RISC is _____
- (a) Reduced Instruction Set Computer
 - (b) Reduced Instruction Static Computer
 - (c) Reduced Instruction Set Controller
 - (d) Reduced Information Set Computer
8. Partition a sequence of three address instruction into _____
- (a) Bits
 - (b) Bytes
 - (c) Basic blocks
 - (d) Both (a) and (b)
9. The transformation of replacing an expensive operation, such as multiplication, by a cheaper one, such as addition, is known as _____
- (a) induction variable
 - (b) relationship
 - (c) loop-invariant
 - (d) strength reduction
10. _____ for basic blocks containing several statements can be constructed by composing the functions corresponding to individual statements.
- (a) data-flow values
 - (b) Monotonicity
 - (c) Nondistributivity
 - (d) Transfer functions

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Write short notes on Transition diagram?

Or

- (b) Discuss the structure of Lex program?

12. (a) Distinguish between Lexical analysis and Syntactic Analysis?

Or

- (b) How to construct LR parsing table?

13. (a) Explain the variants of Syntax tree.

Or

- (b) Describe about addressing array element?
Give an example.

14. (a) Write short notes on DAG representation of basic blocks.

Or

- (b) Write about Peephole Optimization?

15. (a) Illustrate the terms of data-flow analysis scheme?

Or

- (b) Mention the various types of redundancy?

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Explain the structure of Compiler with neat diagram?

Or

- (b) Explain about Optimization of DFA-Based Pattern Matchers?

17. (a) Determine the working mechanism of Top-Down Parsing?

Or

- (b) Define Context-Free Grammar? Discuss the Conventional notation and derivation of Context-Free Grammar?

18. (a) Explain the working mechanism of Three-Address code?

Or

- (b) Interpret on Back patching? How to construct the Flow-of-Control Statements?

19. (a) Illustrate about the issues in the design of a code generation?

Or

- (b) Explain in detailed about basic blocks and flow graphs?

20. (a) Define Constant Propagation? Explain the various types of constant propagation?

Or

- (b) Summarize the Loops in Flow-Graphs with an example?
