

SECTION C — ($3 \times 10 = 30$)

Answer any THREE questions.

16. Discuss about the input buffering scheme in lexical analyser.
17. Find LALR for the given grammar and parse the sentence $(a+b) * E \rightarrow E + T | T$.
 $T \rightarrow T * F | F, F \rightarrow (E) | id$.
18. How would you convert the following into intermediate code.
 - (a) Assignment statements.
 - (b) Case statements
19. Discuss the various issues in code generation with examples.
20. Write global common sub expression elimination algorithm with an example.

S.No. 7254

P 20 MCA 14

(For candidates admitted from 2020–2021 batch)

M.C.A. DEGREE EXAMINATION, NOVEMBER 2023.

Computer Applications

COMPLIER DESIGN

Time : Three hours

Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$)

Answer ALL questions.

1. Differentiate analysis and synthesis phase.
2. Define the following :
 - (a) Preprocessor
 - (b) Assembler
 - (c) Loader and Linker
3. What is phrase level error recovery?
4. Write down the necessary algorithms for FIRST and FOLLOW.
5. Define DAG. Give an example.

6. Define back patching.
7. What are the types of three address statements?
8. Define loop unrolling with an example.
9. Define Peephole Optimization.
10. What is machine dependent code optimization?

SECTION B — (5 × 5 = 25)

Answer ALL questions, choosing either (a) or (b).

11. (a) What are the different phases of compiler?
Explain the phases in detail.

Or

- (b) Write a short note on compiler construction tools.
12. (a) Construct predictive parser for the following grammar.

$S \rightarrow (L)/a$

$L \rightarrow L, S/S$ and parse any input string.

Or

- (b) Construct an operator precedence table for the given grammar

$S \rightarrow L = R/R$

$L \rightarrow *R/id$

$R \rightarrow L$ and construct operator precedence function table from the parsing table.

13. (a) Write three codes for $x := A[y, z]$ with detail explanation.

Or

- (b) Write a note on the specification on simple type checker.

14. (a) Explain the peephole optimization in detail.

Or

- (b) Explain the sequence of stack allocation process for a function call.

15. (a) What is an activation record? Explain how it is related with run time storage organization.

Or

- (b) What is the purpose of code optimization? Explain in detail about loop Optimization with example.