

A-1105

Total Pages : 3

Roll No.

MSCIT-15/MCA-15

MSCIT/MCA

(System Software)

4th Semester Examination, 2024 (June)

Time : 2:00 Hrs.

Max. Marks : 70

Note :- This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. *Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.*

Section-A

(Long Answer Type Questions) 2×19=38

Note :- Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. Describe common code optimization techniques, such as constant folding, dead code elimination, and loop optimization. Provide examples for each.
2. Describe the difference between synthesized and inherited attributes in an SDD. Provide examples to illustrate each type.
3. Discuss the role of lexical analyzer in detail. Discuss the significance of tokens in lexical analysis.
4. Describe the Chomsky hierarchy and its significance in formal language theory.
5. Explain the following: Overlays, Lex and Yacc, Types of languages

Section–B

(Short Answer Type Questions) 4×8=32

Note :- Section ‘B’ contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. What is intermediate code in the context of a compiler ? Explain its role in the compilation process.
2. Discuss the advantages and disadvantages of using syntax trees in compilers.

3. Define Linkers and Loaders. Discuss the difference between static and dynamic linking.
4. Compare shift-reduce parsing with other bottom-up parsing techniques.
5. Consider the following grammar :

$S \rightarrow AB$

$A \rightarrow a \mid \epsilon$

$B \rightarrow b \mid \epsilon$

Construct the LL(1) parsing table for this grammar and use it to parse the input string 'ab'.

6. What is a token in the context of lexical analysis ? Explain its components with examples.
7. Describe the difference between deterministic finite automata (DFA) and non-deterministic finite automata (NFA). Provide examples of each.
8. Define System S/W. Discuss the classification of system s/w in detail.
