

D 111124

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Name.....

Reg. No.....

**THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)
EXAMINATION, NOVEMBER 2024**

(CBCSS)

Computer Science

CSS 3C 13—PRINCIPLES OF COMPILERS

(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

Section A (Short Answer)*Answer any **four** questions.**Each question carries 2 weightage.*

1. Differentiate between compiler and interpreter.
2. What is a DAG ?
3. List the phases of a compiler.
4. Explain derivation with an example.
5. What is a-heap in memory management ?
6. What do you mean by Live Variable Analysis ?
7. Explain memory hierarchy.

(4 × 2 = 8 weightage)

Section B (Short Essay)*Answer any **four** questions.**Each question carries 3 weightage.*

8. Summarize the principal sources of optimization.
9. Convert the following regular expression into its equivalent NFA and identify the strings accepted
: $(a + b)^* bba (a + b)^*$.
10. Explain the role of Lexical Analyzer.
11. Outline the intermediate code generation for BREAK CONTINUE statements.

Turn over

12. Compare static and dynamic memory allocation.
13. Summarize the issues in code generation.
14. Explain activation trees and records.

(4 × 3 = 12 weightage)

Section C (Essay)

Answer any two questions.

Each question carries 5 weightage.

15. Summarize the basics of LR parsing algorithm. Demonstrate the construction of SLR parsing table with an example.
16. Discuss in detail Region based analysis.
17. Discuss the following with examples : DAG, quadruples and triples. Explain intermediate code generation for function and operator overloading
18. Discuss the steps in predictive parsing. Construct predictive parsing table for the grammar :

$E \rightarrow TE'$; $E' \rightarrow + TE' | \epsilon$; $T' \rightarrow FT'$; $T' \rightarrow FT' | \epsilon$; $F \rightarrow (E) | id$

(2 × 5 = 10 weightage)