

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2024
(Regular/Improvement/Supplementary)
COMPUTER SCIENCE
FCSS3C13-PRINCIPLES OF COMPILERS

Time: 3 Hours**Maximum Weightage: 30****Section A: Short answer questions. Answer any *four* questions. Each carries *two* weightage.**

1. Compare Interpreter and Compiler.
2. What are the commonly used input buffering methods?
3. Illustrating an example, explain ambiguous grammar.
4. What is handle pruning?
5. Write a brief note on three address code.
6. Define activation tree.
7. What do you mean by live variable analysis?

(4 × 2 = 8 weightage)

Section B: Short essay questions. Answer any *four* questions. Each carries *three* weightage.

8. How a regular expression is converted into NFA? Explain with example.
9. Explain various error recovery strategies.
10. Compare and contrast top-down and bottom-up parsing.
11. Write a note on DAG representation with suitable example.
12. Explain the factors affecting code generation.
13. Describe activation tree call during the execution of quick sort algorithm.
14. Explain the role of lexical analyzer in the compilation process.

(4 × 3 = 12 weightage)

Section C: Essay questions. Answer any *two* questions. Each carries *five* weightage.

15. Give an overview of various phases of a compiler.
16. What are type expressions? Explain the importance of type checking in compilation.
17. Construct an LL(1) parsing table for the given grammar.
$$S \rightarrow aS/Ab, A \rightarrow XYZ/\epsilon, X \rightarrow cS/\epsilon, Y \rightarrow dS/\epsilon, Z \rightarrow eS$$
18. What are the subdivisions of runtime memory? Explain in detail.

(2 × 5 = 10 weightage)