

BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - V Computer Science & Business Systems : WINTER: 2025
SUBJECT: COMPILER DESIGN

Day : Wednesday
Date : 10/12/2025

W-24167-2025

Time : 02:30 PM-05:30 PM
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Assume suitable data **WHEREVER** necessary.
- 4) Draw neat diagrams **WHEREVER** necessary.

Q.1 Explain the lexical analysis process. How does a lexical analyzer operate, and what output does it produce? (10)

OR

Q.1 What are regular expressions? Describe their connection to finite automata with examples. (10)

Q.2 Define the FIRST and FOLLOW. Explain with example? (10)

OR

Q.2 Discuss methods for eliminating left recursion and performing left factoring, with examples. (10)

Q.3 What does ambiguity in grammar mean? How does LR parsing manage grammatical ambiguity? (10)

OR

Q.3 Describe how tools like YACC or Bison are used in generating LALR(1) parsers. (10)

Q.4 Explain the structure and role of a symbol table. How are symbols handled within it? (10)

OR

Q.4 Discuss runtime environment concepts: procedure activation, parameter passing, and memory allocation. (10)

Q.5 Explain techniques for both local and global code optimization, providing examples. (10)

OR

Q.5 Discuss peep-hole optimization and various loop optimization strategies. (10)

Q.6 Discuss about - Register Allocation & Target Code Generation. (10)

OR

Q.6 Provide an overview of type systems and explain how features of object-oriented programming are compiled. (10)
