Course Code: 23CS6T01

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
**(AUTONOMOUS)**
***III - B.Tech II-Semester Regular Examinations (BR23), April/May - 2026***
**COMPILER DESIGN (CSE)**

Time: 3 hours Max. Marks: 70

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*Question Paper consists of Part-A and Part-B*
*Answer **ALL** the question in **Part-A andPart-B***

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PART–A (10X2 = 20M)

| | | Marks | CO | BL |
|---|---|---|---|---|
| 1. a) | What is Language Processor? | (2M) | CO1 | 2 |
| b) | Define Syntax analysis? | (2M) | CO1 | 2 |
| c) | What is backtracking? | (2M) | CO2 | 2 |
| d) | Differentiate LR(0),SLR(1),CLR(1) and LALR(1). | (2M) | CO2 | 2 |
| e) | Write the applications of Syntax Directed Translation. | (2M) | CO3 | 2 |
| f) | Define type checking. | (2M) | CO3 | 2 |
| g) | Write the principle sources of optimization | (2M) | CO4 | 2 |
| h) | What is flow graph? | (2M) | CO4 | 2 |
| i) | Define storage organization. | (2M) | CO5 | 2 |
| j) | Write a short note on procedure calls | (2M) | CO5 | 2 |

PART–B (5X10 = 50M)

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|---|---|---|---|---|
| 2a. | What is boot strapping in the context of compiler and explain how it helps in language independence and reducing development time. | (5M) | CO1 | 4 |
| b. | With a neat diagram ,explain the structure of compailer. | (5M) | | |
| | OR | | | |
| 3 a | What is input buffering in the context of lexical analysis and explain why we take pair of input buffers instead of single buffer in lexical analysis. | (5M) | CO1 | |
| b | Define Ambiguity? Explain left recursion and left factoring with examples. | (5M) | | |

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| 4a. | Construct the LR Parsing table for the following grammar: E→E + T \| T<br>T→T * F \| F<br>F → (E) \| id | (5M) | CO2 | 5 |
| b. | Construct the CLR parsing table for the following grammar:<br>S→CC<br>C→Cc<br>C→d | (5M) | | |

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|---|---|---|---|---|
| | (OR) | | | |
| 5a. | Construct predictive parsing table for the following grammar: S → (L) \| a<br>L → L,S \|S | (5M) | CO2 | 5 |
| b. | Construct a SLR parsing table for the following grammar:<br>E→E + T<br>E→ T<br>T→E * F<br>T→ F<br>F→(E )<br>F→id | (5M) | | |

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| 6a. | Explain the concept of Syntax Directed Definition. | (5M) | CO3 | 3 |
| b. | Give the translation scheme to convert infix expression to postfix .Make use of marker symbol. | (5M) | | |
| | (OR) | | | |
| 7a. | Write Quadruple , Triple and three address code for (a+b) * (a+b) – (a+b) * d | (5M) | CO3 | 3 |
| b. | Explain the concept of Backpatching. | (5M) | | |

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| 8a. | Explain briefly about the basic blocks of Optimization. | (5M) | CO4 | 3 |
| b. | Write a short note on Peephole Optimization. | (5M) | | |
| | (OR) | | | |
| 9a. | Explain briefly about Loop Optimization. | (5M) | CO4 | 3 |
| b. | Explain the concept of data flow analysis. | (5M) | | |

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| 10a. | Explain about the Register Allocation and Assignment. | (5M) | CO5 | 3 |
| b. | Explain the code generation Algorithm. | (5M) | | |
| | (OR) | | | |
| 11a. | What are object code forms? Explain. | (5M) | CO5 | 3 |
| b. | Explain the issues in the design of a code generator | (5M) | | |

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Head of the Dept.,
Department of CSE
BVCITS, Amalapuram