

Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII EXAMINATION – WINTER 2025

Subject Code:3170701

Date:15-11-2025

Subject Name:Compiler Design

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

	Marks
Q.1 (a) Define (1) Compiler (2) Assembler (3) Linker	03
(b) Discuss about one pass and two pass compilers	04
(c) Explain different phases of compiler. For an expression given below, write output of all phases of a compiler. Assume a, b and c of type float. $a = b + c * 60$	07
Q.2 (a) Give difference between compiler and interpreter	03
(b) Explain left factoring with suitable example	04
(c) Explain recursive decent parser with suitable example.	07
OR	
(c) Draw DFA for the following regular expression without construction of NFA. $(1 0)^* 1 (1 0)^{\#}$	07
Q.3 (a) Explain context free grammar with suitable examples	03
(b) Explain ambiguity and derivation with suitable examples	04
(c) Explain operator precedence parser with suitable example	07
OR	
Q.3 (a) Explain backtracking with example	03
(b) Explain Syntax-Directed Definitions (SDD) with suitable example	04
(c) Check that following grammar is LL (1) or not $E \rightarrow E+T \mid T$ $T \rightarrow T * F \mid F$ $F \rightarrow (E) \mid id$	07
Q.4 (a) Discuss symbol table management	03
(b) Explain syntax tree and postfix notation with example	04
(c) Explain various error recovery strategies in detail	07
OR	
Q.4 (a) Explain peephole optimization with example	03
(b) Discuss activation records	04
(c) Explain three address code with suitable example	07
Q.5 (a) Explain dead code elimination with example	03
(b) Explain synthesized attribute and inherited attribute	04
(c) Analyze various design issues of a code generator	07

OR

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| Q.5 | (a) | Discuss blocks and flow graphs | 03 |
| | (b) | Explain code-scheduling constraints | 04 |
| | (c) | Explain various storage allocation strategies in detail | 07 |
