Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2022

Subject Code:2170701 Date:01/06/2022

Subject Name:Complier Design

Time:02:30 PM TO 05:00 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 following terms. i) Pattern ii) Lexeme iii) Token	**03**
	(b)	List Cousins of Compiler. Explain any one in detail.	**04**
	(c)	Explain phases of compilers with suitable example.	**07**
Q.2	**(a)**	Draw transition diagram of Relational Operators.	**03**
	(b)	Consider the following grammar to construct leftmost and right most derivation for the sentence abab. S→aSbS | bSaS | ε	**04**
	(c)	Construct a DFA for (a|b)*abb using Firstpos, Lastpos and Followpos.	**07**
		OR	
	(c)	Short note on input buffering techniques.	**07**
Q.3	**(a)**	Perform the Left factoring of following Grammar. S → iEtS S→iEtSeS S→a E→ b	**03**
	(b)	Discuss Brut Force Parsing with following grammar. S→ aAd/aB A → b/c B → ccd/ddc Input : accd	**04**
	(c)	Construct SLR parsing table for E→ E+T | T T→ T*F | F F→ (E) | id	**07**
		OR	
Q.3	**(a)**	Remove left recursion from given grammar. A→ Ax | a, B→By | b, C→Cz | ε	**03**
	(b)	Find First & Follow for S→ AaAb | BbBa A→ ε B→ ε	**04**
	(c)	Check weather the grammar is LL(1) or not? Justify S→ iEtS | iEtSeS |a E→ b	**07**
Q.4	**(a)**	List and Explain Parameter Passing Methods.	**03**

	(b)	Discuss Shift- Reduce and Reduce-Reduce Conflicts for LR Parsers.	**04**
	(c)	Give SDD for Simple Desk Calculator and Discuss S Attributed Definition.	**07**
		OR	
Q.4	**(a)**	Differentiate Static Vs Dynamic Memory Allocation.	**03**
	(b)	Explain Activation Record in brief.	**04**
	(c)	Give the SDT that converts infix to postfix expression for the following grammar and generate the annotated parse tree for input string "9-5+2". E→ E+T |E-T E→ T T→ 0|1|…|9	**07**
Q.5	**(a)**	Short note on Control Stack.	**03**
	(b)	List and Explain (any one) Symbol Table Data Structures.	**04**
	(c)	Short note on Peephole Optimization Techniques.	**07**
		OR	
Q.5	**(a)**	Draw DAG for i=i*5	**03**
	(b)	Explain Three Address Codes with an example.	**04**
	(c)	Write the generic issues in the design of code generators.	**07**

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