Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII • EXAMINATION – WINTER 2013

Subject Code: 170701   **Date: 26-11-2013**
Subject Name: Compiler Design
Time: 10.30 am - 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.**

Q.1	**(a)**	Draw structure of Compiler. Also explain Analysis Phase in brief.	**07**
	(b)	Draw Deterministic Finite Automata for the binary strings ending with 10.	**04**
	(c)	Write down the algorithm for left factoring.	**03**
Q.2	**(a)**	Write a brief note on input buffering techniques to Lexical Analyzer.	**07**
	(b)	Write down C program for Recursive Descend Parser for :	**07**

S → ABC   B→ 1B | ∧
A→ 0A1 | ∧   C→ 1C0 | ∧

OR

Q.2	**(a)**	Explain Shift-Reduce parsing with suitable example.	**07**
	(b)	Draw parsing table for Table Driven Parser for the given grammar. Is the grammar LL(1)?	**07**

A→ AaB | x   B→ BCb | Cy   C→ Cc | ∧

Q.3	**(a)**	What is Inherited attribute? Explain with suitable example.	**06**
	(b)	Write down steps to set precedence relationship for Operator Precedence Grammar. Design precedence table for:	**08**

E → E+ T | T   T → T * F | F   F → a

OR

Q.3	**(a)**	Explain how panic mode recovery can be implemented.	**07**
	(b)	What is the difference between parse tree and syntax tree? Write appropriate grammar and draw parse as well as syntax tree for a*(a-a^a)	**07**
Q.4	**(a)**	Write SLR parsing table for : S → T T → CC C → cC C → d	**08**
	(b)	Explain Stack Allocation and Activation Record Organization in brief.	**06**

OR

Q.4	**(a)**	Write a note on Peephole Optimization.	**08**
	(b)	Explain quadruple, triple and indirect triple with suitable example	**06**
Q.5	**(a)**	Explain the roles of linker, loader and preprocessor.	**08**
	(b)	Differentiate: static v/s dynamic memory allocations.	**03**
	(c)	Write down the regular expression for the binary strings with even length.	**03**

OR

Q.5	**(a)**	Discuss generic issues in the design of code generation.	**07**
	(b)	Write down the algorithm for partitioning of basic blocks.	**07**

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