Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – SUMMER • 2014

Subject Code: 170701 Date: 22-05-2014

Subject Name: Compiler Design

Time: 02:30 pm - 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.**

Q.1	**(a)**	What is the pass of a compiler? Explain how the single and multi-pass compilers work.	**07**
	(b)	Draw Deterministic Finite Automata for : 1. (0+1)*101(0+1)* 2. 10(0+1)*1	**07**
Q.2	**(a)**	List out phases of a compiles. Write a brief not on Lexical Analyzer.	**06**
	(b)	Implement the following grammar using Table Driven parser and check whether it is LL(1) or not. S -> aBDh, B -> cC, C -> bC / ^, D -> EF, E -> g / ^, F-> f / ^	**08**
		OR	
	(b)	Implement the following grammar using Recursive Descent Parser. S -> Aa | bAc | bBa, A -> d, B -> d	**08**
Q.3	**(a)**	What is bottom-up parsing? Discuss Shift Reduce parsing technique in brief. What is a handle?	**08**
	(b)	Write a syntax directed definition of a simple desk calculator and draw an annotated parse tree for 4*3 + 2*5 n.	**06**
		OR	
Q.3	**(a)**	Define an Operator Precedence Grammar. Also write down the rules to find relationship between each pair of terminal symbols.	**08**
	(b)	Convert the following into quadruple, triple and indirect triple forms : -(a+b)*(c-d).	**06**
Q.4	**(a)**	Construct SLR parsing table for the following grammar : E->E+T E->T T->T*F T->F F->(E) F->a	**10**
	(b)	Differentiate Synthesized and Inherited attributes.	**04**
		OR	
Q.4	**(a)**	Error Recovery strategies of compiler.	**07**
	(b)	What is the use of a symbol table? How the identifiers are stored in the symbol table?	**07**
Q.5	**(a)**	Write a note on peephole optimization.	**07**
	(b)	Write a note on static and dynamic memory allocation. What do you mean by dangling reference?	**07**
		OR	
Q.5	**(a)**	What is an activation record? Explain how they are used to access various local and global variables.	**07**
	(b)	Write a brief note on input buffering techniques.	**07**

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