Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2015

Subject Code: 160706 Date:18/05/2015

Subject Name: System Programming

Time:10.30AM-01.00PM 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)**	Differentiate passes and phases of complier. Explain in brief syntax analysis phase.	**07**
	(b)	What is need and importance of intermediate code? Create quadruple and Triple for following statement. a= (a+b)*(c-d)	**07**
Q.2	**(a)**	Draw Optimized DFA for following regular expression. (1*)*0(0/1)*#	**07**
	(b)	Construct LL(1) parsing table for following grammar. E → TE' E' → +TE' | Є T → FT' T' → *FT' | Є F → (E) | id	**07**
		OR	
	(b)	Construct operator precedence parser for following grammar : E → E+E | E*E | id	**07**
Q.3	**(a)**	Explain in brief design of a Single Pass Assembler.	**07**
	(b)	Explain and show usage by giving examples of advanced assembler Directives.	**07**
		OR	
Q.3	**(a)**	Differentiate one pass and two pass assembler. Explain how forward references are handled in two pass assembler.	**07**
	(b)	Explain and compare two variants of the intermediate code generated from multi pass assembler.	**07**
Q.4	**(a)**	Compare and Contrast the following (i) macro call and function call (ii) macro preprocessor and macro assembler.	**07**
	(b)	Explain macro expansion process with example.	**07**
		OR	
Q.4	**(a)**	Explain in brief the design of a macro preprocessor.	**07**
	(b)	Explain self relocating programs and overlay structured programs.	**07**
Q.5	**(a)**	Explain in brief design of an absolute Loader.	**07**

(b) Write Regular expression and DFA for valid exponential number. **07**

OR

Q.5 **(a)** Explain in brief design of a Linker. **07**

(b) Define the following with example: **07**

(i) Left recursive grammar

(ii) Symbol Table

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