Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE IV - SEMESTER VII (NEW SYLLABUS) EXAMINATION- SUMMER - 2018

Subject Code: 2170701 Date:28/04/2018

Subject Name: Compiler 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.**

Q.1	**(a)**	Define cross compiler, token and handle.	**03**
	(b)	Draw transition diagram for relational operators.	**04**
	(c)	Explain phases of compiler with example.	**07**
Q.2	**(a)**	Explain panic mode recovery strategy.	**03**
	(b)	Write a short note on input buffering method.	**04**
	(c)	Explain subset construction method with example.	**07**
		OR	
	(c)	Draw DFA for the following regular expression using firstpos( ), lastpos ( ) and followpos ( ) functions. **(a | b) * a**	**07**
Q.3	**(a)**	What is operator grammar? Check the following grammar is operator or not. Justify your answer. E→ EOE E→ id O→ * | + | -	**03**
	(b)	Check the following grammar is left recursive or not. Justify your answer. If Left recursive then make grammar as non-left recursive. S→ (L) | a L→ L , S | S	**04**
	(c)	Construct CLR parsing table for the following grammar. S→ CC C→ cC | d	**07**
		OR	
Q.3	**(a)**	Consider the following grammar and construct the corresponding left most and right most derivations for the sentence abab. S→aSbS | bSaS | ε	**03**
	(b)	Find out FIRST and FOLLOW for the following grammar. S→ 1AB | ε A→ 1AC | 0C B→ 0S C→ 1	**04**
	(c)	Explain SLR parsing method with example.	**07**
Q.4	**(a)**	What is symbol table? For what purpose , compiler uses symbol table?	**03**
	(b)	Write a short note on activation record.	**04**
	(c)	Write syntax directed definition for simple desk calculator. Using this definition, draw annotated parse tree for 3*5+4 n.	**07**
		OR	

Q.4	**(a)**	Explain algebraic simplifications and flow of control optimization characteristics of peephole optimization.	**03**
	(b)	Explain Quadruples and Triples form of three address code with example.	**04**
	(c)	What is inherited attribute? Write syntax directed definition with inherited attributes for type declaration for list of identifiers.	**07**
Q.5	**(a)**	Draw a DAG for expression: a + a * (b – c) + (b – c) * d.	**03**
	(b)	Compare: Static v/s Dynamic Memory Allocation.	**04**
	(c)	Explain any three code optimization methods.	**07**
		OR	
Q.5	**(a)**	Write difference(s) between stack and heap memory allocation.	**03**
	(b)	Explain any two methods of parameter passing.	**04**
	(c)	Explain various issues in design of code generator.	**07**

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