B **F1031** **Pages: 2**

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SIXTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), MAY 2019

Course Code: CS304

Course Name: COMPILER DESIGN

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries3 marks. Marks

1		Describe input buffering scheme in lexical analyzer.	(3)
2		Construct a regular expression to denote a language L over ∑= {0,1} accepting all strings of 0's and 1's that do not contain substring 011	(3)
3		Consider the context free grammar S->aSbS | bSaS | € Check whether the grammar is ambiguous or not	(3)
4		What is Recursive Descent parsing? List the problems faced in designing such a parser.	(3)

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PART B

Answer any two full questions, each carries9 marks.

5	a)	Explain the different phases in the design of a compiler.	(5)
	b)	Find the FIRST and FOLLOW of the non-terminals in the grammar S->aABe A->Abc|b B->d	(4)
6	a)	Design a recursive descent parser for the grammar E->E + T | T T->T*F | F F->(E) | id	(5)
	b)	Develop a lexical analyzer for the token identifier.	(4)
7	a)	What is left recursive grammar? Give an example. What are the steps in removing left recursion?	(5)
	b)	Explain any four compiler writing tools	(4)

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PART C

Answer all questions, each carries3 marks.

8		Explain the main actions in a shift reduce parser	(3)
9		What are different parsing conflicts in SLR parsing table?	(3)
10		What are annotated parse trees? Give examples.	(3)
11		What are L-attributed definitions and S-attributed definitions in a syntax directed translation scheme?	(3)

PART D

Answer any two full questions, each carries9 marks.

12	a)	Find the LR(0) items for the grammar S->SS | a| €.	(4)
	b)	Explain bottom- up evaluation of s-attributed definitions.	(5)
13	a)	Derive LALR (1) parsing algorithm for following grammar S→AS/b A→SA/a	(6)
	b)	Design a type checker for simple arithmetic operations.	(3)
14	a)	Explain the syntax directed definition of a simple desk calculator.	(5)
		Explain operator grammar and operator precedence parsing	(4)

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PART E

Answer any four full questions, each carries10 marks.

15	a)	Explain storage organization and storage allocation strategies	(10)
16	a)	Explain intermediate code generation of an assignment statement	(10)
17	a)	Explain quadruples, triples and dags with an example each.	(10)
18	a)	Explain the principal sources of optimization	(10)
19	a)	Explain optimization of basic blocks	(5)
	b)	With suitable examples explain loop optimization.	(5)
20	a)	Explain issues in design of a code generator	(5)
	b)	Explain simple code generation algorithm	(5)

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