

Scheme of Valuation/Answer Key			
(Scheme of evaluation (marks in brackets) and answers of problems/key)			
APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY			
SIXTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2019			
Course Code: CS304			
Course Name: COMPILER DESIGN			
Max. Marks: 100			Duration: 3 Hours
PART A			
		<i>Answer all questions, each carries 3 marks.</i>	Marks
1		Explain.	(3)
2		1*(0/01)* or any other regular expression that donot contain the substring 011	(3)
3		Construct more than one leftmost derivation or right most derivation or more than one parse trees -2 marks,the grammar is ambiguous-1 mark	(3)
4		RDP- 1mark, Problems- 2marks	(3)
PART B			
		<i>Answer any two full questions, each carries 9 marks.</i>	
5	a)	Phases of a compiler diagram -2 marks, explanation- 3 marks	(5)
	b)	FIRST -2 marks FOLLOW- 2marks FIRST (S)={a} FIRST (A)={b} FIRST (B)={d} FOLLOW(S)={\$} FOLLOW(A)= {b, d} FOLLOW(B)={e}	(4)
6	a)	Construction of Recursive descent parser	(5)
	b)	Transition diagram/ re and code for identifier	(4)
7	a)	Left recursion+ eg- 2 marks Steps- 3 marks	(5)
	b)	Any 4- 4 marks	(4)
PART C			

<i>Answer all questions, each carries 3 marks.</i>			
8		Shift reduce parser- 4 actions	(3)
9		Explain	(3)
10		Definition annotated parse tree definition-1 mark, example -2 mark	(3)
11		S attributed definition-1.5 marks, L-attributed definition -1.5 marks	(3)
PART D			
<i>Answer any two full questions, each carries 9 marks.</i>			
12	a)	Augmented grammar+ LR(0) items – 4 marks	(4)
	b)	Explain	(5)
13	a)	LR(1) items -3 marks, LALR table-3 marks	(6)
	b)	Give the possible cases and translation	(3)
14	a)	Syntax directed definition of a desk calculator	(5)
	b)	Explain (1+3)	(4)
PART E			
<i>Answer any four full questions, each carries 10 marks.</i>			
15	a)	Storage organization - 2 marks Static allocation -2 marks, stack allocation -3marks , Heap allocation- 3marks	(10)
16	a)	Syntax directed translation of assignment statement-10 marks	(10)
17	a)	Explain each (3+3+4)	(10)
18	a)	Principal sources of optimization	(10)
19	a)	Explain any three optimization techniques applied on basic blocks like local common-sub expression elimination, dead code elimination, use of algebraic identities etc.	
	b)	Loop optimization with example	(5)
20	a)	Issues in the design of code generation	(5)
	b)	Code generation algorithm	(5)

