Register No : _____

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Fifth Semester

Computer Science and Engineering

CS3501- Compiler Design

Regulations - 2021

Duration : 3 Hrs ***Maximum : 100 Marks***

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	List the phases of compiler.	RE	1	2
2.	Outline the role of lexical analyzer.	UN	1	2
3.	Define context-free grammars.	RE	2	2
4.	Compare SLR and LALR Parser.	UN	2	2
5.	How to construct a syntax tree?	RE	3	2
6.	Explain three address code.	UN	3	2
7.	Infer storage allocation strategies.	UN	4	2
8.	Identify the issues in the design of a code generator.	AP	4	2
9.	How to extend a DAG?	RE	5	2
10.	What is Peep-hole optimization?	RE	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

Q.No			*Questions*	*BLT*	*CO*	*Marks*
11.	a	i	What are the phases of compiler? Explain the phases in detail. Write down the output of each phase for the expression a: =b+c*60.	UN	1	9
		ii	Write short notes on LEX Tool.	UN	1	4
			Or			
	b	i	Discuss the issues involved in designing lexical analyzer.	UN	1	9
		ii	Write an algorithm to convert NFA to DFA.	UN	1	4
12.	a		Explain LR parsing algorithm with an example.	AP	2	13
			Or			
	b		Construct SLR parsing table for the following grammar: G: E->E+T | T, T->T*F | F, F->(E) | id.	AP	2	13
13.	a		What is a syntax tree? Describe construction of syntax tree for the expression a+b−c×d.	AP	3	13
			Or			

	b	Apply type checking with necessary example.	AP	3	13
14.	a	Choose the storage allocation strategies for run time environment.	AP	4	13
		Or			
	b	Identify the issues in the design of a code generator.	AP	4	13
15.	a	Explain principal sources of optimization with example.	UN	5	13
		Or			
	b	Explain global data flow analysis with necessary equations.	UN	5	13

PART – C (Marks 1*15 = 15)

Q.No			*Questions*	*BLT*	*CO*	*Marks*
16.	a	i	Consider the following grammar G: S->XaY|Y X->bY|c Y->X Discuss the various steps involved in the construction of SLR parsing.	AN	2	10
		ii	Construct the SLR parsing table for the above grammar.	AN	2	5
			Or			
	b	i	Conversion of regular expression (a/b)*abb to NFA.	AN	1	10
		ii	Write short notes on recognition of tokens.	AN	1	5