VIT
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

School of Computer Science and Engineering

Fall Semester 2024-25

CAT I

SLOT: C1

Programme Name & Branch: B.Tech

Course Name & Code: BCSE307L – Compiler Design

Class Number (s): VL2024250101542, VL2024250101548, VL2024250101555, VL2024250101587, VL2024250101605, VL2024250101612, VL2024250101623, VL2024250101633, VL2024250101641, VL2024250101651, VL2024250101660, VL2024250101669, VL2024250101673, VL2024250101676, VL2024250101684, VL2024250101725, VL2024250101734, VL2024250101740, VL2024250101746, VL2024250107999

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Exam Duration: 90 Min. **Maximum Marks: 50**

ANSWER ALL THE QUESTIONS

Q. No.	Question	Max Marks

1.	Show the output of each compiler phase for the following source program. Assume c is an integer and d is a float type of variables. Use BRGE (Branch greater than or equal to) and goto mnemonics wherever it is required.
	if(x>=y)
	{
	x = c *d ;
	}
		10

2.	Write the regular expression for C++ language identifier and convert it into deterministic finite automata using direct method. Consider C++ language identifier start with underscore (_) or letter (L) followed by zero or more occurrence of underscore (_) or letter (L) or digit (D).	10
3.	a) Construct a finite automata for the given language L = {w ∈ (0+1)* | w has no pair of consecutive zeros} and check the given strings w1=1011010 and w2=111001 are accepted by the finite automata or not. b) Write regular definition for identifiers in C language. Assume a valid identifier must follow the given below set of rules. • An identifier can include letters (a-z or A-Z), and digits (0-9). • An identifier cannot include special characters except the '_' underscore. • Spaces are not allowed while naming an identifier. • An identifier can only begin with an underscore or letters.	5+5
4.	Consider the given Grammar G = (V,T,P,S) where S→ACB|cbB|Ba, A→da|BC, B→g|ε, C→h|ε are the production rules. Is the given grammar is suitable for LL(1) parser construction? Justify your answer with explanation. Construct LL(1) predictive parsing table for the given grammar. Illustrate the LL(1) string parsing procedure for the given string w=dag.	10
5.	a) Consider the given Grammar G=(V,T,P,S) where S→aABb, A→aAc|c|ε, B→d| ε are the production rules and a string w=aaccdb. Show all possible handles and handle pruning process of shift reduce parser. b) Compare and contrast operator relation table and operator function table with a suitable example.	5+5

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