Code No.: B31126450 **Date: 07.01.2023**

CVR COLLEGE OF ENGINEERING

UGC Autonomous Institution - Affiliated to JNTUH

R18

B Tech III Year I Sem Regular & Supplementary Examinations Jan- 2023(2020, 2019 & 2018 Batches)
Subject: Automata and Compiler Design
Branch: IT & CSIT

Time: 3 hours **Max. Marks: 70**

Note:
1. Please verify the regulation of question paper and subject name.
2. Question Paper Consists of Part-A and Part B.
3. Assume required data, if not given in the question.

PART – A **(10x2 = 20 Marks)**
(Answer ALL Questions)

1	Define regular expression and give an example?	BL1(CO1)
2	Compare NFA with DFA.	BL4(CO1)
3	How do we eliminate ambiguity from a grammar?	BL2(CO2)
4	What is context free grammar and give an example?	BL1(CO2)
5	Write a note on polymorphic functions	BL1(CO3)
6	List the Chomsky hierarchy of languages.	BL2(CO3)
7	Identify the importance of intermediate code generation in the design of compiler.	BL3(CO4)
8	List the advantages of dynamic storage allocation in the design of compilation.	BL2(CO4)
9	Define basic block.	BL1(CO5)
10	Illustrate any two important features of data flow analysis.	BL2(CO5)

PART – B
(Answer ALL Questions) **(5X10 = 50 Marks)**

11	Demonstrate the steps involved for creating lexical analyzer with LEX.	BL2(CO1)
	[OR]	
12	Explain the different phases of a compiler, showing the output of each phase, using the example of the following statement position=initial+rate*60	BL2(CO1)
13	Construct SLR parsing table for the following grammar, S→Aa/bAc/dc/bda A→d.	BL5(CO2)
	[OR]	
14	Construct SLR parsing table for the following grammar E→E+T/T, T→TF/F, F→F*/a/b.	BL5(CO2)
15	Analyze the algorithm for translating an S-attributed grammar along with bottom-up parsing with suitable example.	BL4(CO3)

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[OR]

16		Construct the syntax directed translation to convert an infix expression to a postfix expression.	BL3(CO3)
17		Examine the contents of a symbol table and symbol table organization techniques.	BL4(CO4)

[OR]

18		Discover the various storage allocation strategies used in the design of compilation.	BL4(CO4)
19		Analyze different principal sources of optimization technique with suitable examples.	BL4(CO5)

[OR]

20	a)	Discuss reducible and non-reducible flow graphs with two suitable examples.	BL2(CO5)
	b)	Explain the algorithm for construction of DAG with example.	BL2 [5+5]

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