Code No.: AD504PC | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
III–B.TECH–I–Semester End Examinations (Supply)–December - 2024
AUTOMATA AND COMPILER DESIGN
(AI&DS)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks.

PART-A **(20 Marks)**

1. a)	Give the formal definition of NFA with eplsilon.	[2M]
b)	What are finite automata with output? Give examples.	[2M]
c)	List out the algebraic laws of regular expression.	[2M]
d)	Differentiate tokens, patterns, and lexeme with examples.	[2M]
e)	What is a parse tree?	[2M]
f)	Write a short note on S-attributed grammar.	[2M]
g)	What is the purpose of flow graph?	[2M]
h)	Define scope and life time of variable.	[2M]
i)	Write about the importance of last phase of the compiler?	[2M]
j)	What is the Role of peephole optimization in compilation process?	[2M]

PART-B **(50 Marks)**

2.	Explain the procedure of converting NFA with epsilon to NFA.	[10M]
	OR	
3.	Illustrate conversion of Moore machine to Mealy machine with an example.	[10M]
4.	Explain about Specification of Tokens and Recognition of Tokens.	[10M]
	OR	
5.	Describe briefly different phases of compiler.	[10M]
6.	Illustrate Left factoring and Left Recursion with examples.	[10M]
	OR	
7.	Construct Predictive Parse Table for the grammar E->E+T/T,T->T*F/F,F->(E)|id and parse the string id+id*id.	[10M]
8.	Describe the representation of 3-address code with examples.	[10M]
	OR	
9.	Write down the translation procedure for control statement.	[10M]
10.	Explain optimization techniques on Basic Blocks with simple examples.	[10M]
	OR	
11.	Construct the DAG for following statement. a+b*c+d+b*c.	[10M]

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