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

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
III–B.TECH–I–Semester End Examinations (Regular) - January- 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)	Define what is alphabet.	[2M]
b)	Write the formal definition of Deterministic Finite Automata.	[2M]
c)	List out different phases of Compiler.	[2M]
d)	What is the purpose of lexical analyzer in compiler design?	[2M]
e)	Define Context Free Grammar.	[2M]
f)	What are the advantages of Top Down Parser?	[2M]
g)	Write a short note on Flow graph.	[2M]
h)	What is Dynamic storage allocation?	[2M]
i)	What is common sub-expression ? Give an Example.	[2M]
j)	What are the uses of DAG?	[2M]

PART-B **(50 Marks)**

2. Explain the procedure of converting Moore to Mealy machine with an example. [10M]

OR

3. Illustrate the conversion procedure of NFA to DFA. [10M]

4. Explain equivalence of NFA and regular expression with example. [10M]

OR

5. Write about input buffering and recognition of tokens. [10M]

6. Write the comparison among SLR Parser, LALR parser and Canonical LR Parser. [10M]

OR

7. Write the short note on: [10M]
   i. Abstract syntax tree.
   ii. Polish notation.
   iii. Three address code.

8. Describe briefly about storage allocation strategies. [10M]

OR

9. What is code optimization? Explain in detail about peep-hole Optimization. [10M]

10. What are the properties of code generation phase and also discuss the Design Issues of this phase. [10M]

OR

11. Describe about register allocation and assignment. [10M]

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