NOVEMBER 2022 **57704/CS31A**
MC41B

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer any TEN questions.

1. What are Permutations?
2. What are Connectives?
3. Define the term – Tautology in Truth table.
4. What is Finite Automata?
5. Mention the application of Finite Automata.
6. What are Regular expressions?
7. What is Context Free Grammar?
8. What is ambiguity in CFG?
9. Define the term – Pushdown Automata.
10. What is Non-CFL?
11. Define the term – Turing Machine.
12. What are Context-sensitive languages?

PART B — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

13. Discuss on Pigeonhole principle.

14. Describe about Statements and Connectives.

15. Write short notes on Regular expressions and Regular languages.

16. Explain the Finite Automata with Output.

17. Discuss on Unambiguous CFG and Algebraic expressions.

18. Describe about the Intersections and Complements of CFL.

19. Explain the Turing machine as Language acceptor.

PART C — ($4 \times 10 = 40$ marks)

Answer any FOUR questions.

20. Explain the fundamentals of Recurrence Relations.

21. Describe the importance of Truth table and the various kinds of operation performed in it.

22. Discuss on the procedure in conversion from NFA to DFA using example.

23. Explain the functioning of Backus-Naur Form and Chomsky's Normal Form.

24. Describe about the Equivalence of CFG and PDA, and the conversion process.

25. Discuss on the Turning Machine that compute Partial function, Non-deterministic and Universal Turing machines.