24U349S (Pages: 2) Name: .....

Reg.No: .....

THIRD SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2025

(CBCSS - UG)

CC19UBCA3C03 - THEORY OF COMPUTATION

(Computer Application - Complementary Course)

(2019 to 2023 Admissions - Supplementary/Improvement)

Time : 2.00 Hours Maximum : 60 Marks

Credit : 3

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 2 marks.

1. Define Function.
2. Define circuit.
3. Define right cancellations.
4. Write an example of grammar.
5. Define Recursive sets.
6. Design a DFA all strings ending in 00.
7. Define transition systems.
8. Design a NFA all strings has substring 11.
9. Define Moore Machine.
10. Define trap state.
11. Define regular set.
12. Define rightmost derivation.

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer ***all*** questions. Each question carries 5 marks.

13. Prove that √7 is irrational using proof by contradiction.
14. Explain construction of a dfa for a given regular grammar with example.
15. Explain equivalence of two finite automata with example.
16. Design PDA for {ai bj ck | i+j=k i, j, k>=1}.
17. Explain acceptance by PDA with example.

18. Explain top down parsing with example.

19. Explain acceptance by turing machine with example.

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any ***one*** question. The question carries 10 marks.

20. Show that the grammar is ambiguous/not ambigous with an example.

21. Explain simplification of CFG with example.

(1 × 10 = 10 Marks)

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