

Roll No.

Total No. of Pages : 02

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B.Tech. (I.T) (Sem.-5)
FORMAL LANGUAGE & AUTOMATA THEORY

Subject Code : BTIT501/18

M.Code : 78256

Date of Examination : 12-06-2024

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a. What do you mean by Grammer?
- b. Explain any two characteristics of Finite Automata.
- c. List the Components of Regular Expressions.
- d. How different the NFA and DFA?
- e. What is Equivalence with Finite Automata?
- f. What is Ambiguity in CFG?
- g. What is Context Sensitive Grammer?
- h. What is Turing Machine?
- i. What do you mean by Number problem?
- j. Describe the Cook-Levin Theorem.

SECTION-B

2. Explain in brief the Context Free Grammers and Languages.
3. What are the various functions of Church-Turing Thesis?
4. Discuss about the Classes NP and co-NP.
5. Explain about Reduction between Languages and Rice's theorem.
6. What are the capabilities of Polynomial time many-one reduction?

SECTION-C

7. Define Regular expression. Explain Non-deterministic Finite Automata (NFA) and equivalence with DFA.
8. What are Context Free Grammers? Explain Non-Deterministic Pushdown Automata (PDA) and equivalence with CFG.
9. What is Tactability? Explain NP completeness of Propositional satisfiability with other variants.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.