M.Sc DEGREE EXAMINATION,APRIL 2019
I Year I Semester
Theory Of Computation

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Define the states of Finite automata.
2. What are Non deterministic finite automata?
3. State any two Boolean operations under closure of regular language.
4. What is homomorphism?
5. Define Context free grammar.
6. What are the factors involved in an expression?
7. What are pumping lemma for Context free language?
8. What is a parse tree?
9. When do you call a language 'L' recursive?
10. Define Turing Machine.
11. State any two conventions in common for Context free grammar.
12. What is closure property?

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. With an example explain about deductive proofs.
14. Write a regular expression to convert DFA's by eliminating states.
15. Discuss the ideas about inference, derivations and parse tress.
16. Write the applications of Pumping Lemma for Context free language.
17. Discuss about the Rice's theorem and properties of Recursively enumerable.
18. Write the necessary steps for building mutual induction.
19. Differentiate P and NP problem.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. How does process strings using DFA?
21. Discuss about testing equivalence of states.
22. Explain the languages of a Push down automata.
23. How does the complexity varies for conversion among CFG and PDA?
24. Explain the undecidabality in Post correspondence problem.

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