

**B.TECH. DEGREE EXAMINATION, MAY 2015****Fourth Semester**

Branch : Computer Science and Engineering/Information Technology

CS 010 406 /IT 010 404—THEORY OF COMPUTATION (CS/IT)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions.**Each question carries 3 marks.*

1. Define Diagonalization principle.
2. What are the components of Finite automation model ?
3. Write down the applications of PDA ?
4. What are the various representation of TM ?
5. What does mean TSP ?

(5 × 3 = 15 marks)

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

6. Write down the difference between computable and Non-computable functions.
7. List out the applications of finite automata.
8. Give examples of languages handled by PDA.
9. Give examples of total recursive functions.
10. Write notes on Tractable problems.

(5 × 5 = 25 marks)

Part C*Answer all questions.**Each question carries 12 marks.*

11. Explain in detail Primitive and Partial recursive functions.

Or

12. Define Pigeonhole principle and prove.

Turn over

13. Conversion of NFA to DFA.

Or

14. What is Moore and Mealy machine, with an example ?

15. Conversion of PDA into CFL.

Or

16. Write notes on Chomsky Normal form and Greibach Normal form.

17. Briefly explain the different types of Turing machines.

Or

18. State and explain Rice theorem.

19. Explain in detail any two application of P and NP-complete problems.

Or

20. Explain in detail about NP Hard problems with an example.

(5 × 12 = 60 marks)

