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| Theory of Computation And Automata | |
| **SOURCE: 01** | **Theory of Computation (GATE EXAM)** | |
| 01 | [Syllabus of Theory of Computation (TOC)](https://www.youtube.com/watch?v=XslI8h7cGDs&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=1&pp=iAQB) | |
| 02 | Introduction to TOC | What is Language in TOC with Example | |
| 03 | What is Automata in TOC | |
| 04 | Power of Sigma in TOC | Kleene Closure in TOC | |
| 05 | What is Grammar in TOC | |
| 06 | What is DFA in TOC with Example | |
| 07 | DFA Example – 1 | How to Construct DFA in TOC | |
| 08 | DFA Example – 2 | DFA of Language with All Strings End with ‘a’ | |
| 09 | DFA of Language with All Strings Starting with ‘a’ and Ending with ‘b’ | DFA Example | |
| 10 | DFA of Language with All Strings Not Starting with ‘a’ Or Not Ending with ‘b’ | DFA Example | |
| 11 | DFA of All Strings in Which 2nd Symbol is ‘0’ and 4th Symbol is ‘1’ | DFA Example 6 | |
| 12 | DFA of All Binary Strings Divisible by 3 | DFA Example 5 | |
| 13 | What is NFA in TOC | Non Deterministic Finite Automata | |
| 14 | DFA vs NFA in TOC with Examples | |
| 15 | Design NFA of All Binary Strings in Which 2nd Last Bit is 1 | NFA Designing | |
| 16 | Convert NFA to DFA with Example | How to Convert NFA to DFA | |
| 17 | DFA for Even a and Event b | Even a Odd b | Odd a and Event b | Odd a Odd b | TOC | |
| 18 | Eliminate Epsilon | Conversion from Elimination NFA to NFA | |
| 19 | Limitations of DFA and Applications of DFA in TOC | |
| 20 | Moore Machine in TOC with Example | What is Moore Machine | |
| 21 | Mealy Machine in TOC | Formal Definition | Mealy Machine | |
| 22 | Difference Between Mealy and Moore Machine in | |
| 23 | Moore to Mealy Conversion with Example | TOC | |
| 24 | Mealy to Moore Conversion with Example | TOC | |
| 25 | Epsilon NFA | NFA Formal Definition | |
| 26 | Minimization of DFA with Example | TOC | |
| 27 | Regular Expressions in TOC with Examples | Formal Definition | |
| 28 | Regular Expressions for Finite Languages Example 1 | TOC | |
| 29 | Regular Expressions for Infinite Language Example 2 | TOC | |
| 30 | Important Question on Regular Expression | TOC | |
| 31 | Pumping Lemma for Regular Language in TOC with Example | |
| 32 | Closure Properties of Regular Languages in TOC | |
| 33 | Reversal Operation in TOC | How Regular Languages Closured Under Reversal | |
| 34 | Quotient Operation in TOC with Example | Closure Properties | |
| 35 | INIT Operation I TOC | |
| 36 | Regular Languages Not Closed Under Infinite Union | TOC | |
| 37 | Closure Properties of Various Languages in TOC | |
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| 40 | Question on Decidability and Closure Property | TOC | |
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| 43 | Decidability and Undesirability Table in TOC for All Languages | |
| 44 | CFL and CFG Introduction and Syllabus Discussion | |
| 45 | What is context Free Grammar in TOC | Formal Definition | |
| 46 | Convert Context Free Language to Context Free Grammar with Example | TOC | |
| 47 | Left Most and Right Most Derivation in CFG | TOC | |
| 48 | What is Pushdown Automata in TOC | Definition and Explanation | |
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| 50 | Design PDA for {w | na(w) = nb(w)| CFL Langauge | Pushdown Automata | |
| 51 | Closure Properties of CFL (Context Free Languages) with Explanations | |
| 52 | Remove Null Production from CFG (Context Free Grammar) with Examples | |
| 53 | Remove Unit Production from CFG (Context Free Grammar) | |
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| 55 | What is LBA (Linear Bounded Automata) | TOC | |
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| 57 | Turing Machine for a^nb^nc^n | Design Turing Machine | |
| 58 | Recursive vs Recursive Enumerable Languages | TOC | |
| 59 | Turing Machine for 1’s Complement | Transition Table and Diagram | |
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| 62 | CNF vs GNF | Chornsky vs Greibach Normal Form | CFG in TOC | |
| 63 | Derivation Tree, Parse Tree with Example in TOC and Compiler Design | |
| 64 | Recursive vs Non-Recursive CFG with Examples | Classification of CFG | |
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| 66 | Conversion form Epsilon NFA to DFA with Example | Eliminate Epsilon Moves | |
| 67 | Equivalence of DFA with Examples | |