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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](https://www.youtube.com/watch?v=V19S3Mqfrzo&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=2&pp=iAQB) | |
| 03 | [What is Automata in TOC](https://www.youtube.com/watch?v=aoUEXRlvmxc&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=3&pp=iAQB) | |
| 04 | [Power of Sigma in TOC | Kleene Closure in TOC](https://www.youtube.com/watch?v=4Q2rE6R31GU&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=4&pp=iAQB) | |
| 05 | [What is Grammar in TOC](https://www.youtube.com/watch?v=5Jd54dxQ1_Q&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=5&pp=iAQB) | |
| 06 | [What is DFA in TOC with Example](https://www.youtube.com/watch?v=CiXJnosT0UE&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=6&pp=iAQB) | |
| 07 | [DFA Example – 1 | How to Construct DFA in TOC](https://www.youtube.com/watch?v=vsEKN2f22bE&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=7&pp=iAQB) | |
| 08 | [DFA Example – 2 | DFA of Language with All Strings End with ‘a’](https://www.youtube.com/watch?v=cEX7V3c2CWc&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=8&pp=iAQB) | |
| 09 | [DFA of Language with All Strings Starting with ‘a’ and Ending with ‘b’ | DFA Example](https://www.youtube.com/watch?v=v9IwDI0GtpE&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=9&pp=iAQB) | |
| 10 | [DFA of Language with All Strings Not Starting with ‘a’ Or Not Ending with ‘b’ | DFA Example](https://www.youtube.com/watch?v=gUeh54lmlik&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=10&pp=iAQB) | |
| 11 | [DFA of All Strings in Which 2nd Symbol is ‘0’ and 4th Symbol is ‘1’ | DFA Example 6](https://www.youtube.com/watch?v=p-nL8BfsJDc&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=11&pp=iAQB) | |
| 12 | [DFA of All Binary Strings Divisible by 3 | DFA Example 5](https://www.youtube.com/watch?v=DNDQdd4VLR4&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=12&pp=iAQB) | |
| 13 | [What is NFA in TOC | Non Deterministic Finite Automata](https://www.youtube.com/watch?v=Dli3czfNvlo&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=13&pp=iAQB) | |
| 14 | [DFA vs NFA in TOC with Examples](https://www.youtube.com/watch?v=4BDz876IJBc&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=14&pp=iAQB) | |
| 15 | [Design NFA of All Binary Strings in Which 2nd Last Bit is 1 | NFA Designing](https://www.youtube.com/watch?v=UbK0dxMwPeQ&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=15&pp=iAQB) | |
| 16 | [Convert NFA to DFA with Example | How to Convert NFA to DFA](https://www.youtube.com/watch?v=LEigAZN6RdY&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=16&pp=iAQB) | |
| 17 | [DFA for Even a and Event b | Even a Odd b | Odd a and Event b | Odd a Odd b | TOC](https://www.youtube.com/watch?v=WKPeYsuBpm4&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=17&pp=iAQB) | |
| 18 | [Eliminate Epsilon | Conversion from Elimination NFA to NFA](https://www.youtube.com/watch?v=K2qy4af98ys&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=18&pp=iAQB) | |
| 19 | [Limitations of DFA and Applications of DFA in TOC](https://www.youtube.com/watch?v=kp-QI06n6gM&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=19&pp=iAQB) | |
| 20 | [Moore Machine in TOC with Example | What is Moore Machine](https://www.youtube.com/watch?v=_88FzOc9GzA&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=20&pp=iAQB) | |
| 21 | [Mealy Machine in TOC | Formal Definition | Mealy Machine](https://www.youtube.com/watch?v=kikut5SJVTE&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=21&pp=iAQB) | |
| 22 | [Difference Between Mealy and Moore Machine in](https://www.youtube.com/watch?v=JM_xEXqYUgI&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=22&pp=iAQB) | |
| 23 | [Moore to Mealy Conversion with Example | TOC](https://www.youtube.com/watch?v=MsYkgGHR93s&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=23&pp=iAQB) | |
| 24 | [Mealy to Moore Conversion with Example | TOC](https://www.youtube.com/watch?v=_gazATZF0R8&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=24&pp=iAQB) | |
| 25 | [Epsilon NFA | NFA Formal Definition](https://www.youtube.com/watch?v=ZCzOfjmp7Bw&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=25&pp=iAQB) | |
| 26 | [Minimization of DFA with Example | TOC](https://www.youtube.com/watch?v=A7eKj_GXam0&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=26&pp=iAQB) | |
| 27 | [Regular Expressions in TOC with Examples | Formal Definition](https://www.youtube.com/watch?v=rjG5LwbqAp4&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=27&pp=iAQB) | |
| 28 | [Regular Expressions for Finite Languages Example 1 | TOC](https://www.youtube.com/watch?v=QddGS_Revb4&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=28&pp=iAQB) | |
| 29 | [Regular Expressions for Infinite Language Example 2 | TOC](https://www.youtube.com/watch?v=BGBZF8isXZc&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=29&pp=iAQB) | |
| 30 | [Question on Regular Expression | TOC](https://www.youtube.com/watch?v=XrPxNI1qQdY&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=30&pp=iAQB) | |
| 31 | [Pumping Lemma for Regular Language in TOC with Example](https://www.youtube.com/watch?v=WdmbZnUesRw&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=31&pp=iAQB) | |
| 32 | [Closure Properties of Regular Languages in TOC](https://www.youtube.com/watch?v=2k8r4HGdxBw&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=32&pp=iAQB) | |
| 33 | [Reversal Operation in TOC | How Regular Languages Closured Under Reversal](https://www.youtube.com/watch?v=Rz3AGScgtMs&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=33&pp=iAQB) | |
| 34 | [Quotient Operation in TOC with Example | Closure Properties](https://www.youtube.com/watch?v=U2N1_O-CFts&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=34&pp=iAQB) | |
| 35 | [INIT Operation I TOC](https://www.youtube.com/watch?v=V8fejrQkfzw&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=35&pp=iAQB) | |
| 36 | [Regular Languages Not Closed Under Infinite Union | TOC](https://www.youtube.com/watch?v=tJTp4mfyTQ8&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=36&pp=iAQB) | |
| 37 | [Closure Properties of Various Languages in TOC](https://www.youtube.com/watch?v=whJio_5kehM&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=37&pp=iAQB) | |
| 38 | [Languages, Automata, Grammars in TOC | Comparison Between Tem](https://www.youtube.com/watch?v=EoQUZrdlnic&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=38&pp=iAQB) | |
| 39 | [Question on DCFL and CFL in TOC](https://www.youtube.com/watch?v=PbufibPLiYQ&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=39&pp=iAQB) | |
| 40 | [Question on Decidability and Closure Property | TOC](https://www.youtube.com/watch?v=VcKBVdoumQw&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=40&pp=iAQB) | |
| 41 | [Homomorphism in Regular Languages | Closure Properties | TOC](https://www.youtube.com/watch?v=Q-HAP2Ade8I&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=43&pp=iAQB) | |
| 42 | [Inverse Homomorphism in Regular Languages | Closure Properties in TOC](https://www.youtube.com/watch?v=vah_mUPXBbc&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=44&pp=iAQB) | |
| 43 | [Decidability and Undesirability Table in TOC for All Languages](https://www.youtube.com/watch?v=FvqG9RQWIQc&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=45&pp=iAQB) | |
| 44 | [CFL and CFG Introduction and Syllabus Discussion](https://www.youtube.com/watch?v=78K913GS8U4&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=46&pp=iAQB) | |
| 45 | [What is context Free Grammar in TOC | Formal Definition](https://www.youtube.com/watch?v=SlSA9vEXCm4&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=47&pp=iAQB) | |
| 46 | [Convert Context Free Language to Context Free Grammar with Example | TOC](https://www.youtube.com/watch?v=eDAOxyZkl68&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=48&pp=iAQB) | |
| 47 | [Left Most and Right Most Derivation in CFG | TOC](https://www.youtube.com/watch?v=kFJaUtkn9wo&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=49&pp=iAQB) | |
| 48 | [What is Pushdown Automata in TOC | Definition and Explanation](https://www.youtube.com/watch?v=7lcwlNNCP1E&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=50&pp=iAQB) | |
| 49 | [Design PDA for 0^n|^2n CFL Language](https://www.youtube.com/watch?v=fc7wLWiDNBM&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=51&pp=iAQB) | |
| 50 | [Design PDA for {w | na(w) = nb(w)| CFL Langauge | Pushdown Automata](https://www.youtube.com/watch?v=0OgKbFx3mH0&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=52&pp=iAQB) | |
| 51 | [Closure Properties of CFL (Context Free Languages) with Explanations](https://www.youtube.com/watch?v=0KsU-gavbE4&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=53&pp=iAQB) | |
| 52 | [Remove Null Production from CFG (Context Free Grammar) with Examples](https://www.youtube.com/watch?v=glVl5IGf8LI&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=54&pp=iAQB) | |
| 53 | [Remove Unit Production from CFG (Context Free Grammar)](https://www.youtube.com/watch?v=BLt4pJRBZdA&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=55&pp=iAQB) | |
| 54 | [Introduction to Turing Machine and Its Definition | TOC](https://www.youtube.com/watch?v=LE_7krgRGt8&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=56&pp=iAQB) | |
| 55 | [What is LBA (Linear Bounded Automata) | TOC](https://www.youtube.com/watch?v=741ccLNycnA&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=57&pp=iAQB) | |
| 56 | [Turing Machine for a^nb^n | Design Turing Machine](https://www.youtube.com/watch?v=QuMscaeIRCo&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=58&pp=iAQB) | |
| 57 | [Turing Machine for a^nb^nc^n | Design Turing Machine](https://www.youtube.com/watch?v=ast_i508wmk&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=59&pp=iAQB) | |
| 58 | [Recursive vs Recursive Enumerable Languages | TOC](https://www.youtube.com/watch?v=oCBi3g0N358&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=60&pp=iAQB) | |
| 59 | [Turing Machine for 1’s Complement | Transition Table and Diagram](https://www.youtube.com/watch?v=1z7l6UkSjxk&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=61&pp=iAQB) | |
| 60 | [Modifications in Turing Machine](https://www.youtube.com/watch?v=gm3ootzBNDw&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=62&pp=iAQB) | |
| 61 | [CYK Algorithm | Membership Algorithm in CFG | TOC](https://www.youtube.com/watch?v=xRMn6HK84io&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=63&pp=iAQB) | |
| 62 | [CNF vs GNF | Chornsky vs Greibach Normal Form | CFG in TOC](https://www.youtube.com/watch?v=iL6YrS_f1YM&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=64&pp=iAQB) | |
| 63 | [Derivation Tree, Parse Tree with Example in TOC and Compiler Design](https://www.youtube.com/watch?v=nUVmsW68K0Y&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=65&pp=iAQB) | |
| 64 | [Recursive vs Non-Recursive CFG with Examples | Classification of CFG](https://www.youtube.com/watch?v=Yw8MbMhstZg&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=66&pp=iAQB) | |
| 65 | [Ambiguous vs Unambiguous Grammar with Examples | Conversion Ambiguous to Unambiguous](https://www.youtube.com/watch?v=Ov1N3UJEe28&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=67&pp=iAQB) | |
| 66 | [Conversion form Epsilon NFA to DFA with Example | Eliminate Epsilon Moves](https://www.youtube.com/watch?v=h4v7x0IMhtI&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=68&pp=iAQB) | |
| 67 | [Equivalence of DFA with Examples](https://www.youtube.com/watch?v=44-dJ0kF2Uk&list=PLxCzCOWd7aiFM9Lj5G9G_76adtyb4ef7i&index=69&pp=iAQB) | |