Important Topics in Theory of Computation (BCS503)

MODULE	SL. NO.	TOPIC	Marks
1	1	Central Concept of Automata Theory.	6 - 9
	2	Conversion of NFA to DFA.	7 - 10
	3	Structural representation of Fine Automata.	5 - 6
	4	Conversion of ϵ - NFA to DFA.	7 - 10
	5	Applications of Automata Theory.	5 - 6
2	1	Definition of Regular Expression & its applications.	5 - 6
	2	Minimization of DFA.	7 - 10
	3	State Elimination Method.	7 - 10
	4	Proving whether language is regular or not	5 - 71
3	1	Define ambiguous grammar & prove ambiguity.	6 - 8
	2	Writing LMD, RMD, and Parse tree.	6 - 8
	3	Converting CFG into PDA.	5 - 6
	4	Representation of PDA.	5 - 7
	5*	Writing PDA for grammar & ID for a string.	7 - 10
4	1	Eliminating ϵ - production, unit production & useless symbol.	5 - 7
	2	Converting grammar into CNF.	8 - 10
	3	Proving whether language is context-free or not.	5 - 6
5	1	Define the Turing machine & explain its principle.	5 - 7
	2	Explain the variants of the Turing Machine	6 - 9
	3	Explain the programming techniques for the construction of TM.	6 - 8
	4+	Writing TM for grammar & ID for a string	7 - 10

*** Probable questions for PDA**

1. Write a PDA for L = $\{a^n b^n \mid n \geq 1\}$. → in place of a & b it can be 0 & 1.
2. Write a PDA for palindrome (even or odd or both). or L = $\{WW^R \mid W \in \{a, b\} / \{0, 1\}\}$
3. Write a PDA that accepts balanced parenthesis.

➔ For each question, ID for some given string or you have to take a string.

+ Probable questions for TM

1. Write a TM for L = $\{a^n b^n c^n \mid n \geq 1\}$. → in place of a, b, & c it can be 0, 1, & 2.
2. Write a TM for palindrome (even or odd or both). or L = $\{WW^R \mid W \in \{a, b\} / \{0, 1\}\}$

➔ For each question, ID for some given string or you have to take a string.

Note: This document highlights the important topics that need to be studied. Studying the highlighted topics will help you pass the subject.

Link for Study Material: **https://shorturl.at/UZhok**

---- ALL THE BEST ----

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