CS & IT ENGINEERING



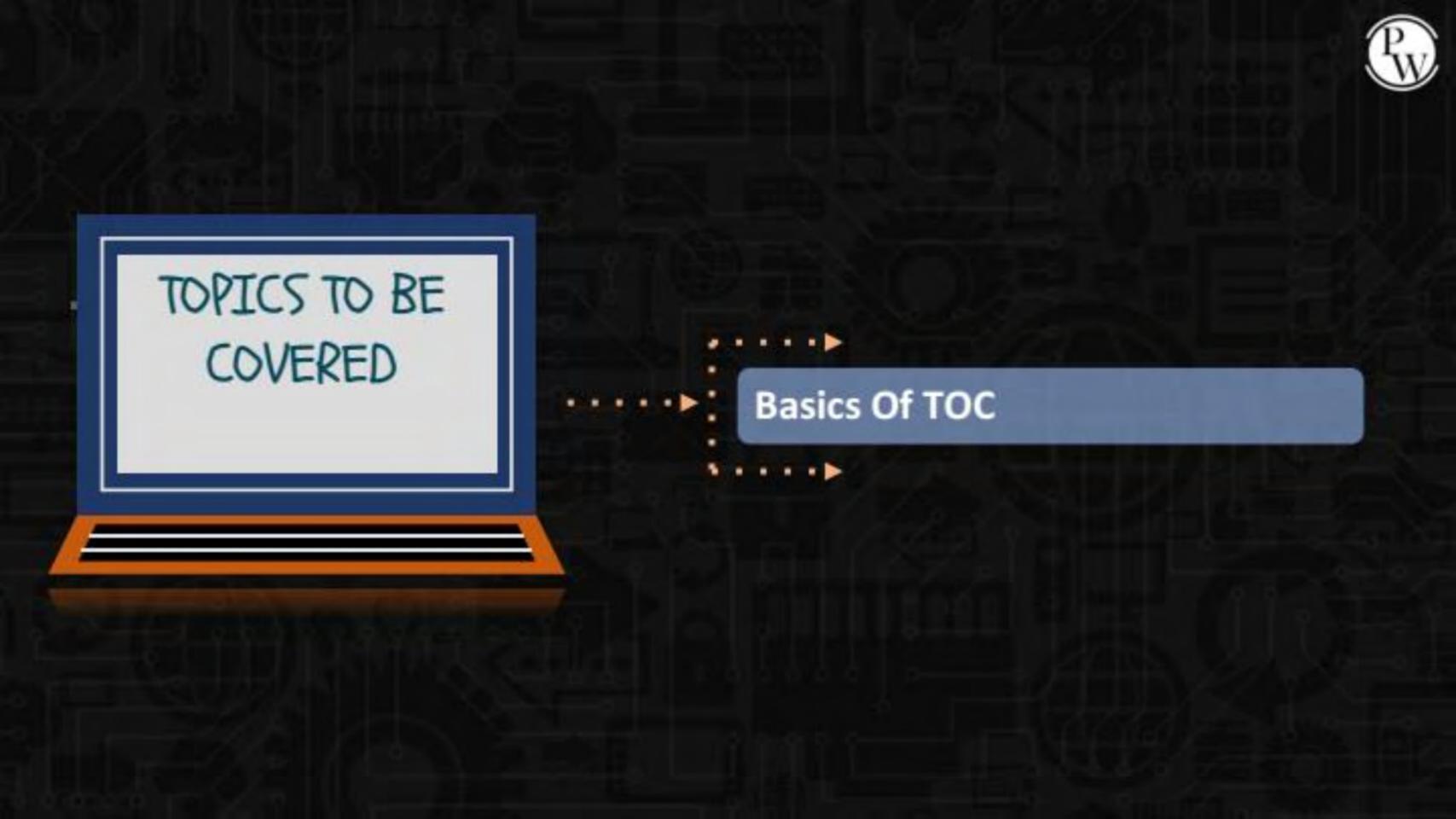
Theory of Computation

Regular Languages: DPP 01

DISCUSSION Notes



Mallesham Devasane Sir





Consider decimal alphabet $\Sigma = \{0, 1, 2, ...9\}$, then how many two length strings are possible? [MCQ]



12 = n



Consider a binary alphabet $(\Sigma) = \{0, 1\}$ How many 3 length strings are possible, the third symbol of the string must be 0? [MCQ]



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A. 4
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- B. 8
- **c.** 3
- D. 5

Consider the following strings and their respective lengths:



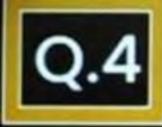
[MSQ]

$$|\mathbf{w}_1| = \mathbf{p}$$

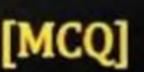
 $|\mathbf{w}_2| = \mathbf{q}$
 $|\mathbf{w}_3| = \mathbf{r}$

Then, which of the following is/are correct?

- A. The length of the string $w_1 \cdot w_2 = 1$
- B. The length of the string $w_1 \cdot w_2 \cdot w_3 = p + q + r$
- The length of the string $w_1 \cdot w_2 \cdot w_3 = pqr \chi$
- The length of the string $w_1 \cdot w_3 = p + r$



Which of the following is correct about Regular Grammar?







Every Regular grammar is Left Linear Grammar.



Every Right Linear grammar may/may not be Regular Grammar.

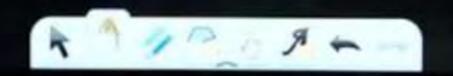


If grammar is regular then it must be left linear as well as right linear.



If grammar is regular then it must be extent left linear or right linear.





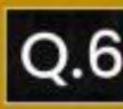


Q.5 Which of the following is / are not an alphabet?



$$\Sigma = \{\underline{a}, \underline{b}, \underline{ab}\}$$
 Not alphabel

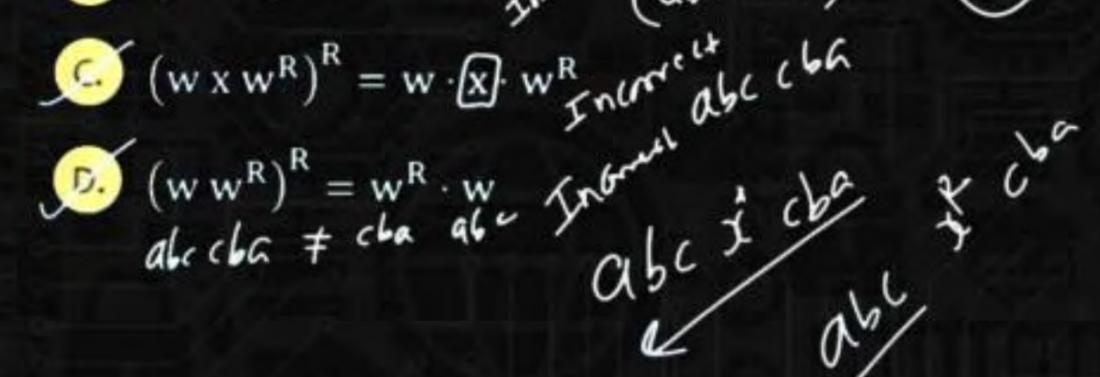
D.
$$\Sigma = \{ \in \}$$
 Alphabet.



Q.6 If w is a string and w_R is reversal of the string then which of the following is incorrect?



A.
$$(w^R)^R = w \operatorname{correct}^R \left((abc)^R \right)^R - abc$$



Q.7 For 10 length strings, Total number of maximum substrings possible are ____.



A. $(w^R)^R = w$

$$(w w^R)^R = w \cdot w w^R$$

$$(\mathbf{w} \times \mathbf{w}^{R})^{R} = \mathbf{w} \cdot \mathbf{x} \cdot \mathbf{w}^{R}$$

D.
$$(w w^R)^R = w^R \cdot w$$

All 10 symbols are distinct

Consider following statements:

S₁: Every prefix or suffix is a substring.

S₂: Total number of prefixes are same as total number of suffixes in a string.

 S_3 : Total number of suffixes for n length string is (n + 1).



[NAT]



