CS & IT ENGINEERING

Theory of Computation

Finite Automata : DPP 01
DISCUSSION Notes

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Basics Of TOC

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

A. 4

B. 20

C. 100

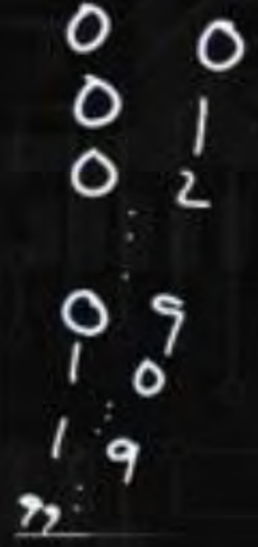
D. 2

$|\Sigma| = 10$

$|\Sigma| = n$

k length

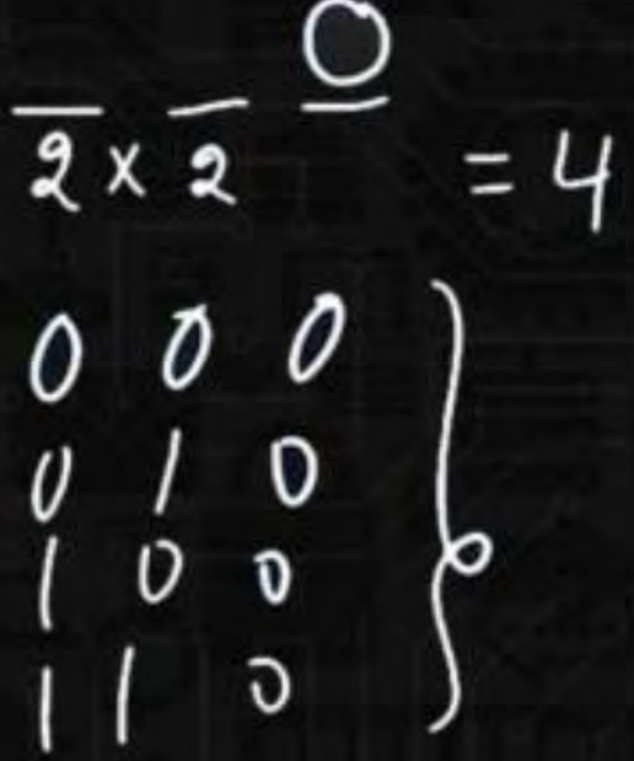
$10 \times 10 = 100$



Q.2 Consider a binary alphabet $(\Sigma) = \{0, 1\}$
How many 3 length strings are possible, the third symbol of the string must be 0?

[MCQ]

A. 4 ✓
B. 8
C. 3
D. 5



Q.3 Consider the following strings and their respective lengths:

[MSQ]

$|w_1| = p$

$|w_2| = q$

$|w_3| = r$

Then, which of the following is/ are correct?

A. The length of the string $w_1 \cdot w_2 = pq$

B. The length of the string $w_1 \cdot w_2 \cdot w_3 = p + q + r$

C. The length of the string $w_1 \cdot w_2 \cdot w_3 = pqr$

D. The length of the string $w_1 \cdot w_3 = p + r$

Q.4 Which of the following is correct about Regular Grammar? [MCQ]

A. Every Regular grammar is Left Linear Grammar.

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

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

D. If grammar is regular then it must be ~~either~~ left linear or right linear.

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

[MSQ]

A. $\Sigma = \{a, b, ab\}$ Not alphabet

B. $\Sigma = \{1, 2, 3, 4, \ldots\}$ Not Alphabet

C. $\Sigma = \{\}$ Not alphabet

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? [MCQ]

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

B. $(w\,w^R)^R = w \cdot w w^R$ Incorrect

C. $(w\,x\,w^R)^R = w \cdot x \cdot w^R$ Incorrect

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

$abc\,cba \neq cba\,abc$

$((abc)^R)^R = abc$

$(abc \cdot cba)^R = abc \cdot abc\,cba$

abc if cba

abc if cba

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

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

B. $(w\,w^R)^R = w \cdot ww^R$

C. $(w\,x\,w^R)^R = w \cdot x \cdot w^R$

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

10 length:

All 10 symbols are distinct

$$\frac{n(n+1)}{2} + 1$$

$$\frac{10(11)}{2} + 1 = 56$$

Q.8 Consider following statements:

[NAT]

S_1: Every prefix or suffix is a substring.

S_2: 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 $(n + 1)$.

Number of correct statements are 3.

$= 3 \parallel$


THANK YOU GW
SOLDIERS !