Theory of Automata Quiz Date: 25/10/2021

Name: Roll Number:

Q: Write CFG for the given language Also write first 10 string for the given language in canonical order?

$L = \{a^i b^j c^k d^n \mid i=0, j=k, n=2i\}$

(1) $S \rightarrow aBSBd \mid \Lambda$

$B \rightarrow XY$

$X \rightarrow bXc \mid \Lambda$

$Y \rightarrow cY \mid \Lambda$

(2) $S \rightarrow BSA \mid \Lambda$

$B \rightarrow \Lambda \mid aBd$

$A \rightarrow \Lambda \mid cc \mid bAcc$

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L = Number of 'a' occurs twice as number of 'b'

$\Rightarrow S_0 \rightarrow S_1aab \mid aS_1ab \mid aaS_1b \mid aabS_1 \mid S_1aba \mid aS_1ba \mid abS_1a \mid abaS_1 \mid S_1baa \mid bS_1aa \mid baS_1a \mid baaS_1$

$S_1 \rightarrow S_0 \mid \varepsilon$

$\Rightarrow S_1 \rightarrow aabS_0$

$S_2 \rightarrow abaS_0$

$S_3 \rightarrow baaS_0$

$S_0 \rightarrow S_0S_0 \mid S_1 \mid S_2 \mid S_3 \mid \Lambda$

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L = number of a's occurrence is not equal to the number of b's occurrence

$S \rightarrow A \mid B$

$A \rightarrow CXC \mid AA$

$B \rightarrow CYC \mid BB$

$X \rightarrow aX \mid a$

$Y \rightarrow bY \mid b$

$C \rightarrow aCb \mid bCa \mid CC \mid \varepsilon$

Theory of Automata

Name:
Q: Write CFG for the given language Also w...
L = number of a's

Quiz

aaS1

Theory of Automata

Quiz

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Q: Write CFG for the given language Also write first 10 string for the given language in canonical order?

$L = \{a^i b^j c^j d^k ; i>=0 ; j>=2i+k\}$

(1)

$S \rightarrow ABC \mid \Lambda$

$A \rightarrow aS \mid \Lambda$

$B \rightarrow bSc \mid \Lambda$

$C \rightarrow dS \mid \Lambda$

(2) $L = L_1 L_2 L_3$

$L_1 = aL_1 bbcc \mid \Lambda$

$L_2 = bL_2 c \mid \Lambda$

$L_3 = bcL_3 d \mid \Lambda$