



Version (D)

Name:

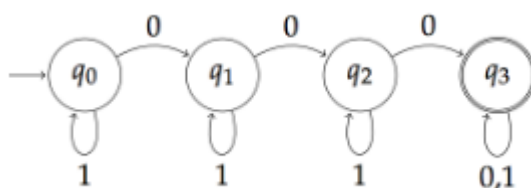
Section:

Answer the following Three questions:

Question 1:

Marks: 3

What is the language recognized by the following FSA over the alphabet $\Sigma = \{0, 1\}$

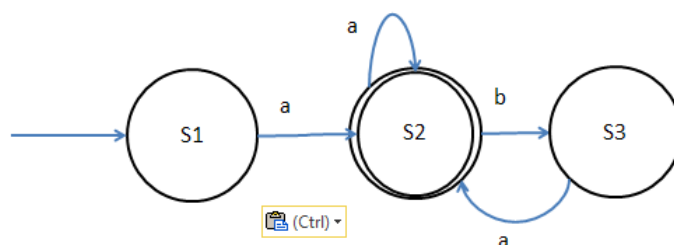


The language accepted by the FSA is the set of strings of 0's and 1's which must contain at least 3 0's

Question 2:

Marks: 3

Write down the regular expression representing the following FSA over the alphabet $\Sigma = \{a, b\}$



$a^+(ba^+)^*$

Question 3:

Marks: 4

Given the following CFG, derive a valid sentence by drawing its parse tree.

N : {S, NP, NOM, VP, Det, Noun, Verb, Aux}

Σ : {a, the, man, book, flight, meal, fish, includes, reads, does}

S : {S}

P :

$S \rightarrow \text{Aux NP VP}$

$\text{NP} \rightarrow \text{Det NOM}$

$\text{NOM} \rightarrow \text{Noun} \mid \text{Noun NOM}$

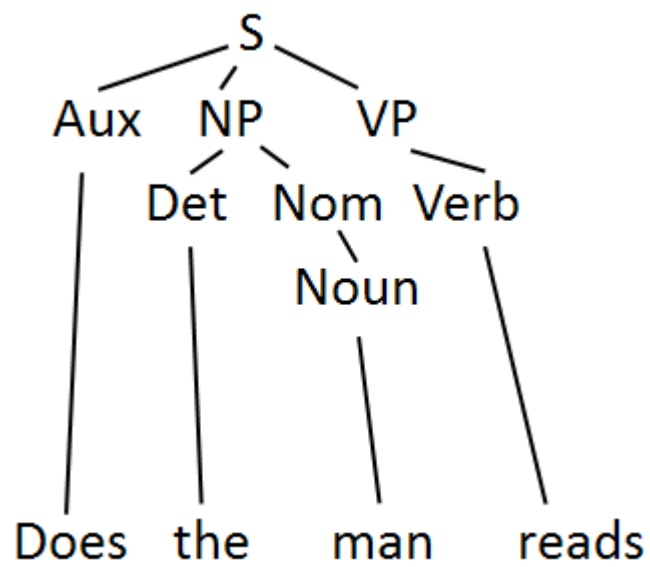
$\text{VP} \rightarrow \text{Verb} \mid \text{Verb NP}$

$\text{Det} \rightarrow a \mid \text{the}$

$\text{Noun} \rightarrow \text{book} \mid \text{flight} \mid \text{meal} \mid \text{man} \mid \text{fish}$

$\text{Verb} \rightarrow \text{includes} \mid \text{reads}$

$\text{Aux} \rightarrow \text{Does}$



With Best Regards,

Dr. Dina Khattab

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