## **Faculty of Computer & Information Sciences**

**Ain Shams University Course Code:** HUM 113

**Course Name:** Computational Linguistics

**Exam:** (MidTerm ) 16/11/2017 **Year:** (1st term) 1st undergraduate



Instructors: Dr. Dina Khattab Offering Dept: Humanities Academic year: 2017-2018 Duration: 50 Minutes Total Grade: 10 Marks

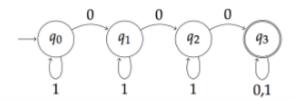
## Version (D)

Name:	Section:
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## Answer the following Three questions:

Question 1: Marks: 3

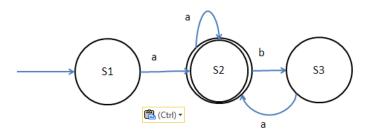
What is the language recognized by the following FSA over the alphabet  $\Sigma = \{0, 1\}$ 



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<sup>†</sup>(ba<sup>†</sup>)\*

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:

 $S \rightarrow Aux NP VP$ 

 $NP \rightarrow Det NOM$ 

NOM → Noun | Noun NOM

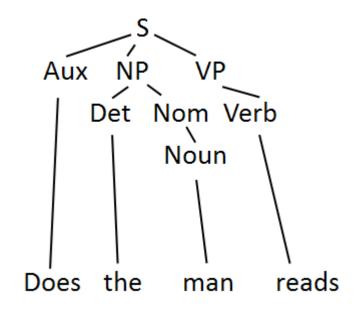
VP → Verb | Verb NP

Det  $\rightarrow$  a | the

Noun → book | flight | meal | man | fish

Verb → includes | reads

Aux → Does



With Best Regards,

Dr. Dina Khattab

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