**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

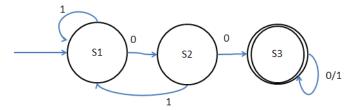
## Version (A)

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

Question 1: Marks: 3

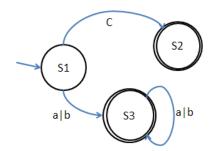
What is the language recognized by the following FSA over the alphabet  $\Sigma = \{0, 1\}$ 



The language accepted by the FSA is the set of strings of 0's and 1's which contain the sequence of '00' and have at least two 0's.

Question 2: Marks: 3

Draw a graph for FSA over the alphabet  $\Sigma=\{a, b, c\}$  that represents the regular expression:  $(a|b)^+|c$ 



Question 3: Marks: 4

Given the following CFG, State if the sentence "The song eats the cat" is valid or not.

**N**: {S, NP, VP, DT, N, V}

**S**: {S}

Σ: {canary, cat, song, sings, eats, the}

P:

 $S \rightarrow NP VP$ 

 $NP \rightarrow Dt N$ 

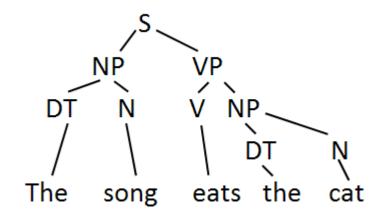
 $VP \rightarrow V NP$ 

V → sings | eats

 $N \rightarrow cat \mid song \mid canary$ 

 $DT \rightarrow the$ 

## The parsing of the sentence:



The sentence is valid

With Best Regards,

Dr. Dina Khattab

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