Version (A)

Name:	Section:

Answer the following Three questions:

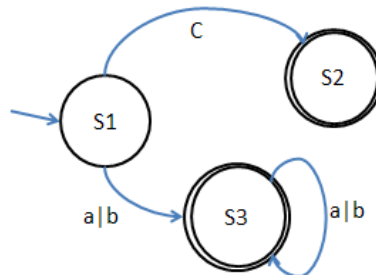| Question 1:	Marks: 3

What is the language recognized by the following FSA over the alphabet $\Sigma = \{0, 1\}$
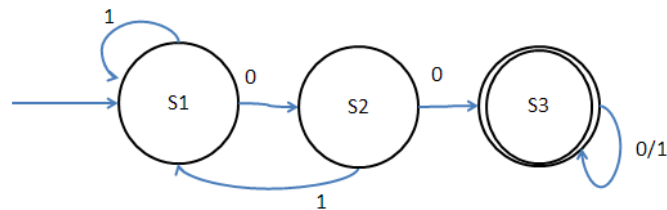
The language accepted by the FSA is the set of strings of 0's and 1's which contain the sequence of '00' and have at least two 0's.

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 → NP VP
NP → Dt N
VP → V NP
V → sings | eats
N → cat | song | canary
DT → the

The parsing of the sentence:

```
                    S
            NP              VP
        DT      N       V    NP
                                DT      N
       The    song    eats   the     cat
```
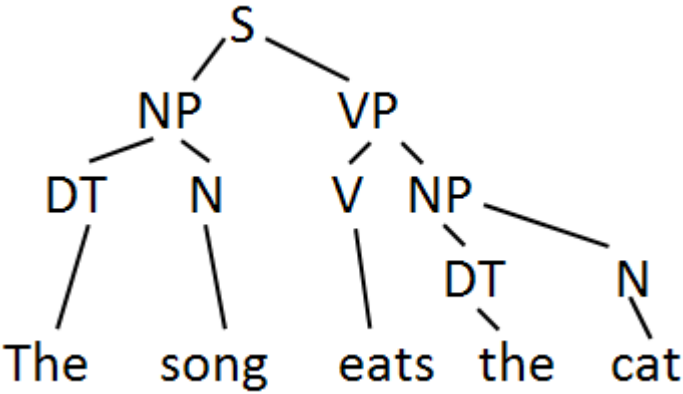
The sentence is valid

With Best Regards,

Dr. Dina Khattab