Exercise 1 [4 pts]

1- What is the pumping lemma?

2. There is extens steps on Colors (maps)

3. For any storry well and (w) > 10

4. Excite was big 2

5. Such Time? we says (in more)

1. If well => W'EL

2- How the pumping Lemma is used to prove that a language is non regular?

1 - assume The opposits L is Regular

2 - The pumping lemma Shall hald for L

3 - Using Printing lemma To obtain Continued into

At Les in by the crisis serger

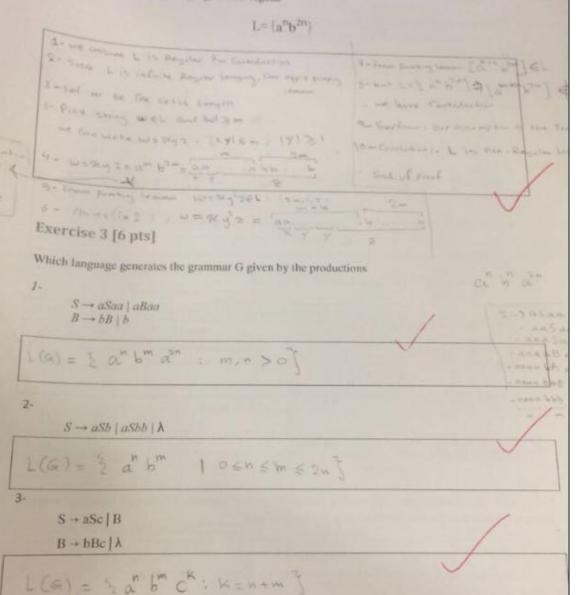
e- Imany stay with and but I me

Consider Warning

C- From purchasy remon wary 264, 100,12

d-but we found w' - sug 2 \$ 1 , 1 d 1 = we have constitution.

21 - L is non-regular language



Exercise 4 [6pts]

Construct context free grammars to accept the following funguages.

a- $\{w \mid w \text{ starts and ends with the same symbol}\}$ $\Sigma = \{0, 1\}$

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b- $\{w \mid |w| \text{ is odd}\} \Sigma = \{0, 1\}$

S - OR | 1A| 0 | 1

 $c\cdot \ L(G)=\left\{\left|a^{n}\right|b^{m}\right.c^{m}\left|d^{2n}\right|\left|n\geq0,m>0\right\}\left|\Sigma=\left\{a,b\right\}\right\rangle,\,c\in\mathbb{R}^{n}\right\}$

A - A bAC | bc

Exercise 5 [2 pt]

Construct a regular expression representing a language, over the alphabet {a, b, c}, in which for every string w it holds that the number of a's in w is a multiple of 3.

(b+0)* (a(b+0))3)

((6+c) " a (6+c)" a (6+c)"