N S

TOC-Acon-5

Broblem 1:

L be a language over la,b}

Given grammar &

1. s→aSa

 $2. S \rightarrow 6$

Right-Linear Gramman: X > 27 } X,464 4 26 Et

Left linear Gramman: $X \rightarrow Y = X, Y \in Y \in X \in X^{\dagger}$ $X \rightarrow Z$

So, by considering the above two grammars, we can say that the given grammar is neither stight linear grammar 187 left linear grammar. So, it is not linear. O

language generated by given grammar is?

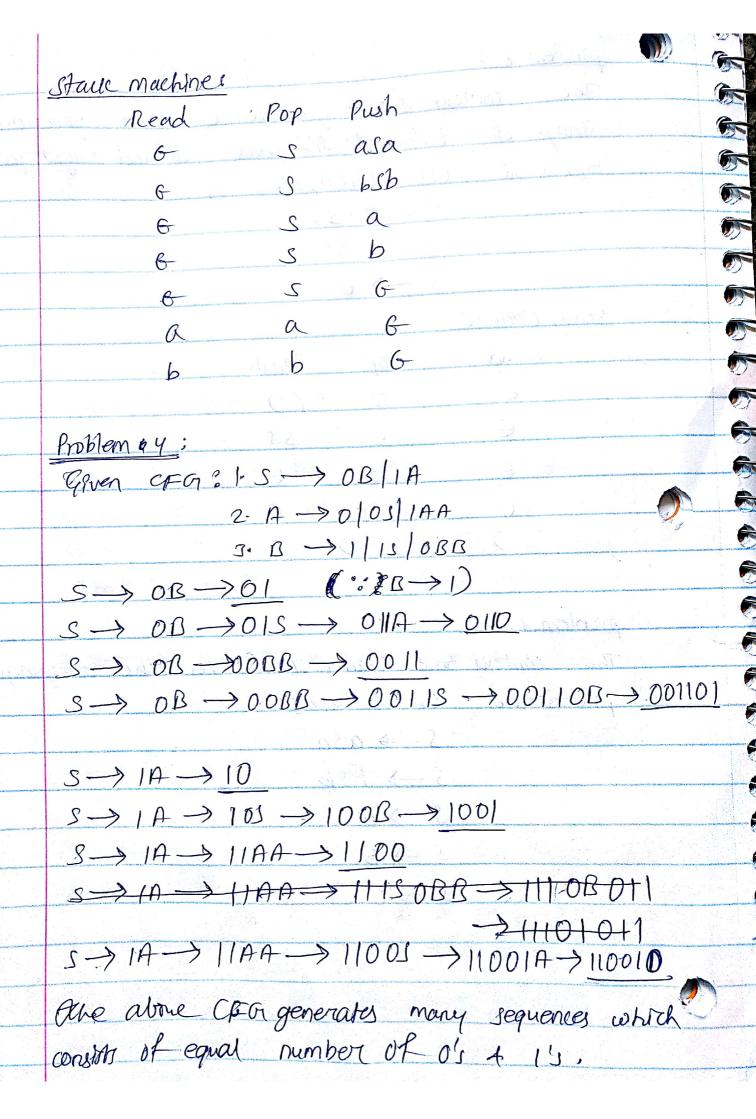
L = { 8, aa, aaaa, ----}

s>a6a>aa s≥aasaa>aa6aa>aaaa So,it is grenerating a Asings toim even number of a's.

Other above language can also be prepresented as S o aT Right linear Grammar. T o aS for S o for F is linear. O

Hence, All languages generated by non-linear grammour need not be non-linear.

problem 2: The content-free gramman of that generales all Strings of balanced left and balanced sught paranthesis eg., (),(()), (()), ch_ is $S \longrightarrow (S)$ $S \rightarrow SS$ Stack Machine: Read Pop Push problem ?? The content free grammary or for the language of palindromes over La, by. $S \rightarrow aSa$ $S \rightarrow bSb$ 10015- 2016- 6016- 416-3 > 6115- WILL 6-1416 CIEMBOUR CONDINGENIE



problem 5 c Given CFC1 ? 1. S \rightarrow 6 | 05 | 1T 2. T \rightarrow 0T | 1S S \rightarrow 01 \rightarrow 01 0T \rightarrow

 $S \rightarrow OI \rightarrow OIT \rightarrow OIOI \rightarrow OIOI \rightarrow OIOI$ $S \rightarrow IT \rightarrow IOT \rightarrow IOIS \rightarrow IOI$

 $T \rightarrow 0T \rightarrow 01S \rightarrow 610S \rightarrow 010$ $T \rightarrow 1S \rightarrow 10S \rightarrow 101T \rightarrow 1011S \rightarrow 101$

The given cfor generates a sequences of things which contains even number of is and any number of ob.