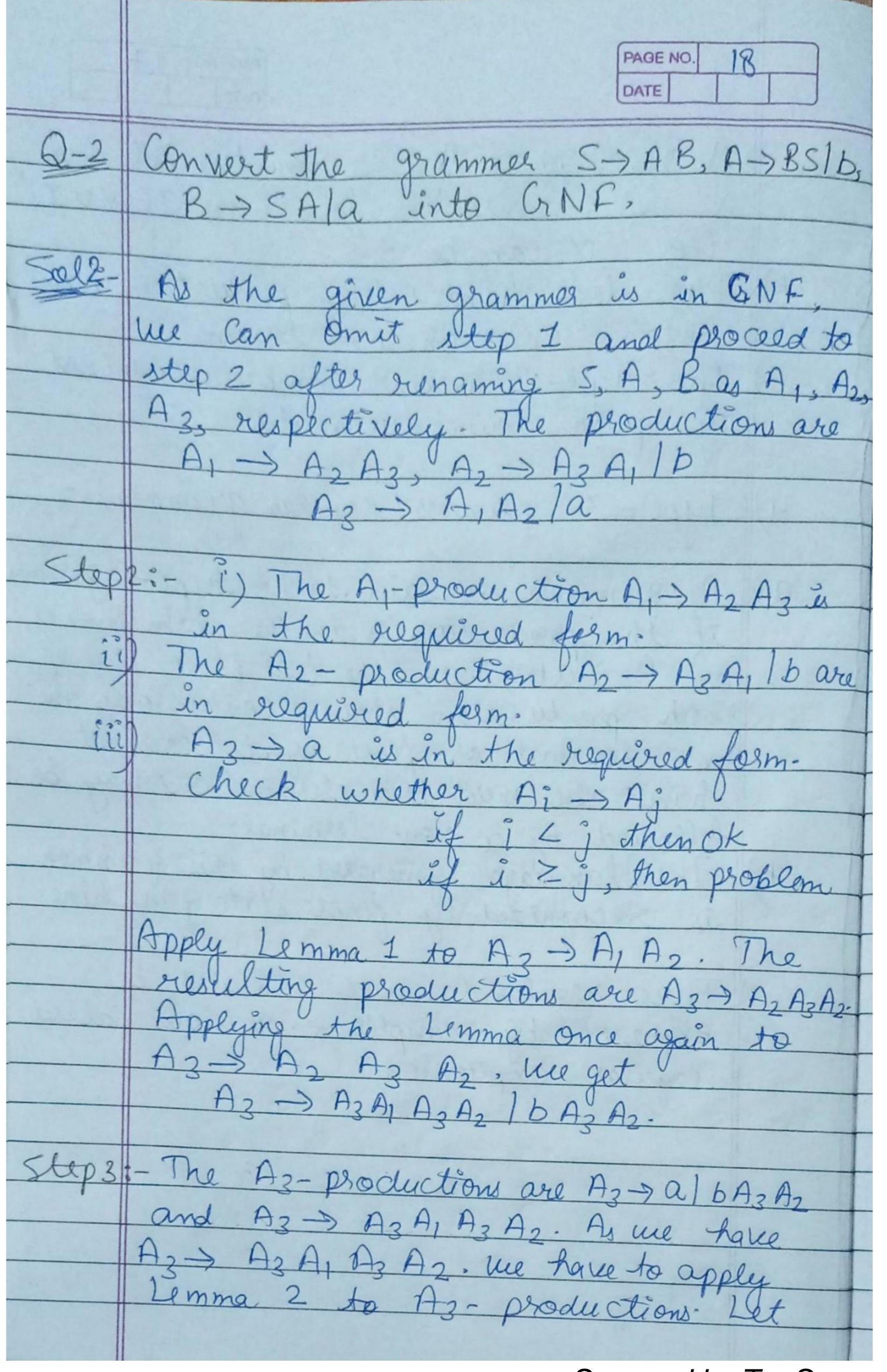
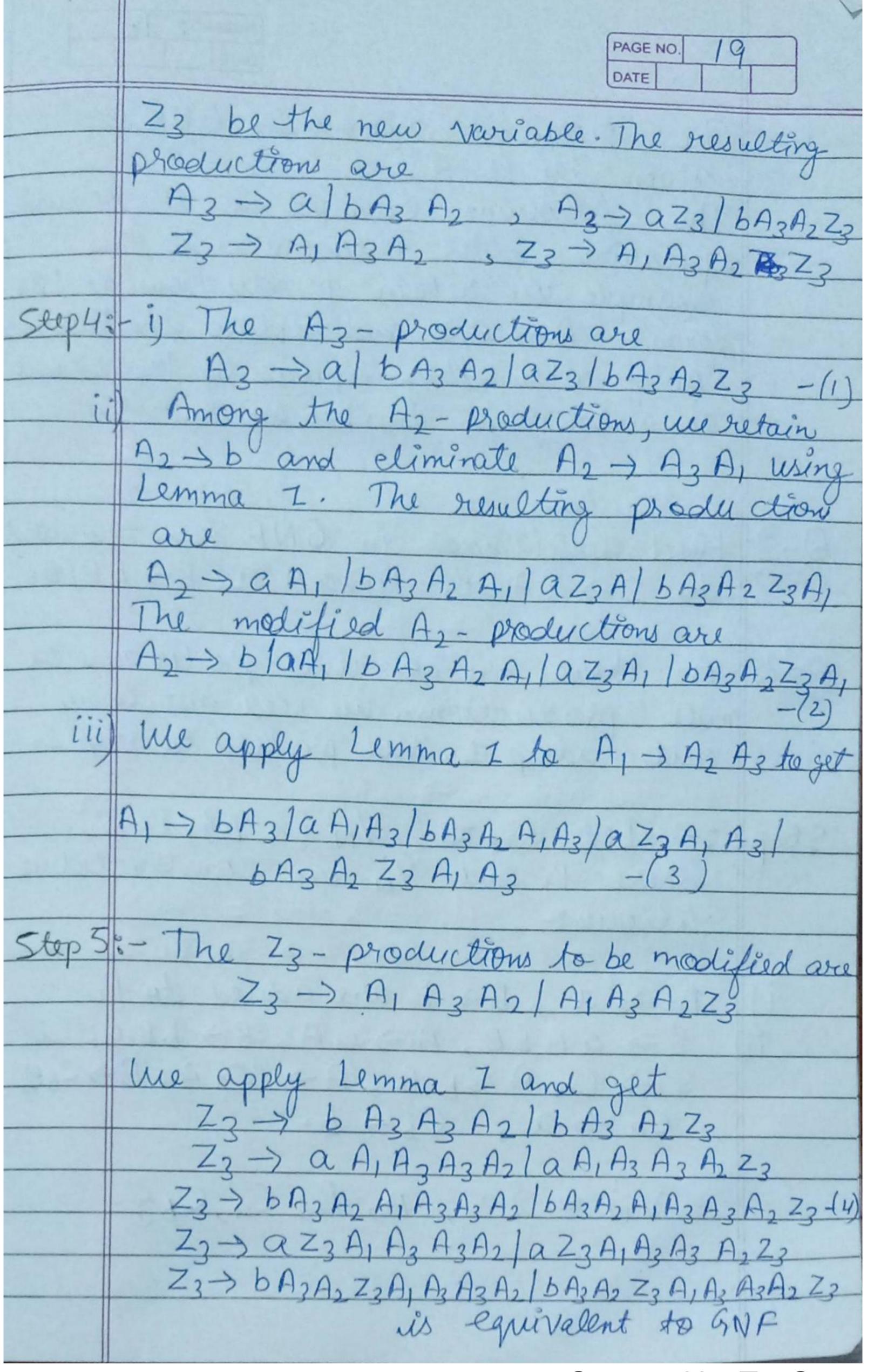
PAGE NO. 20 06 22 Assignment - 3 Explain chomsky classification Languages. Ans 1 Chonisky classification of Languages: In the definition of a grammer (VN, E, P, S), VN and & are the sets of symbols and SEVN. So if we want to dessify grammers, ule have to do it only by Considering the form of productions. homsky classified the grammers into four types in terms of productions. I Type - O grammer (Unrestricted grammer): ype - O grammer are Coustructed with no estrictions on replacement rule, except that a non-terminal. A non-terminal must applar in the string on the left side. The languages generated is called recursive enumerable language. Thus, a type - 0 grammer is: An alphabet & of terminal symbols. An alphabet & of non-terminals, including a start symbol.

PAGE NO. A set of production rule (X -) B, where I and B are from (EUV)*, 'a' Contains at least one non-terminal and there is no restriction on B! the type- o grammer is recognized by De - L grammer (Context sensitive grammer): grammer is said to be type-1 grammer Context sensitive grammer if it follows the following Conditions: Each production in the form X > B, and length of 'x' is less than or equal to length of Bi.e., there are non empty production, those in which right side is empty string C. ii) Each production of the form x; Aaz->
X; Baz, with with B + E. The tusing machine can be constructed to recognize the Context-sensitive language generated by Context-sensitive grammer (CSG). 3) Type-2 grammer (Context Erre grammer):-A grammer is said to be type 2 grammer, if the production is in the form of

PAGE NO. is a sentential form i.e., a E(VUT)* The left hand side of production must contain only one non-terminal.

The type-2 grammer can be recognized by push down automata. Type - 3 grammer (Regular grammer):grammer is said to be type-3 grammer the production is in the form A > a A -) aB, i.e., the left hand side of each production should contain only one non-terminal or first symbol on right hand side must be a desmiral and may be followed by a non-terminal. is recognized by finite state & machine. These regular languages can also be Expressed by simpler expressions called regular expression.





PAGE NO. DATE he diegutred grammer in GNF is following example uses the Remark ppearing after Theorem 1. In this example me retain productions of the form A-) ax and replace the terminals only when they appear as the second Or subsequent Symbol on R. H.S. a grammer in GNF form equivalent S -> a A b B, A -> a A/a, B -> b B/b. 13: + As there are no unit productions or null productions, we reed not carry out step I. we proceed to step 2. Stepf: - let Gy = (VN {a, b3, Ph, S), where Prand Vivare Constructed as follous:-A -> a, B -> b are added to Pi. S > a A b B, A > a A, B > b B. yield S -> Ca A Cb B, A-> CaA, B-> CbB, Ca > a, Cp > b. VN = ES, A, B, Ca, Cb9

