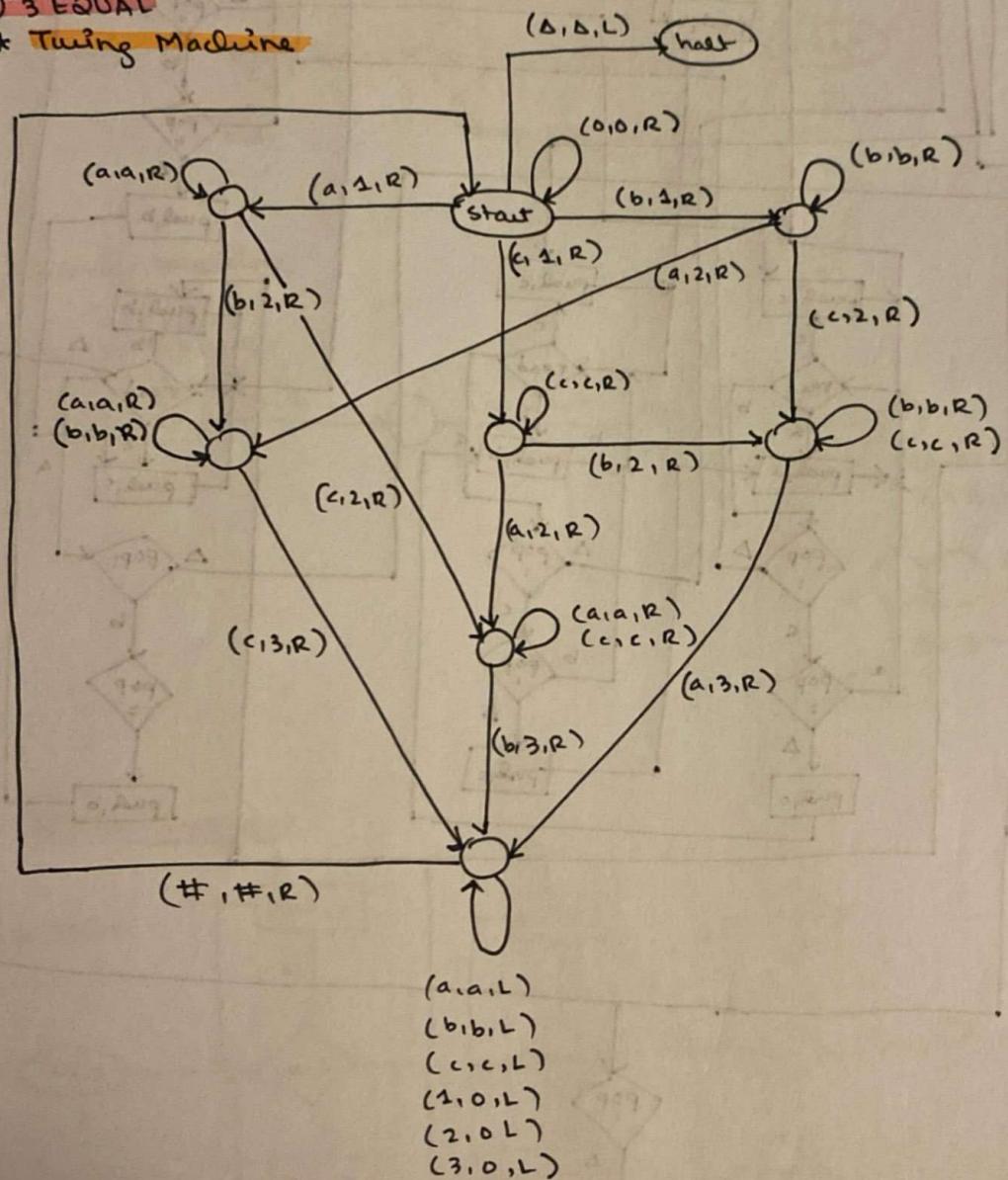


CS - 3005 : Theory of Automata
Assignment #04

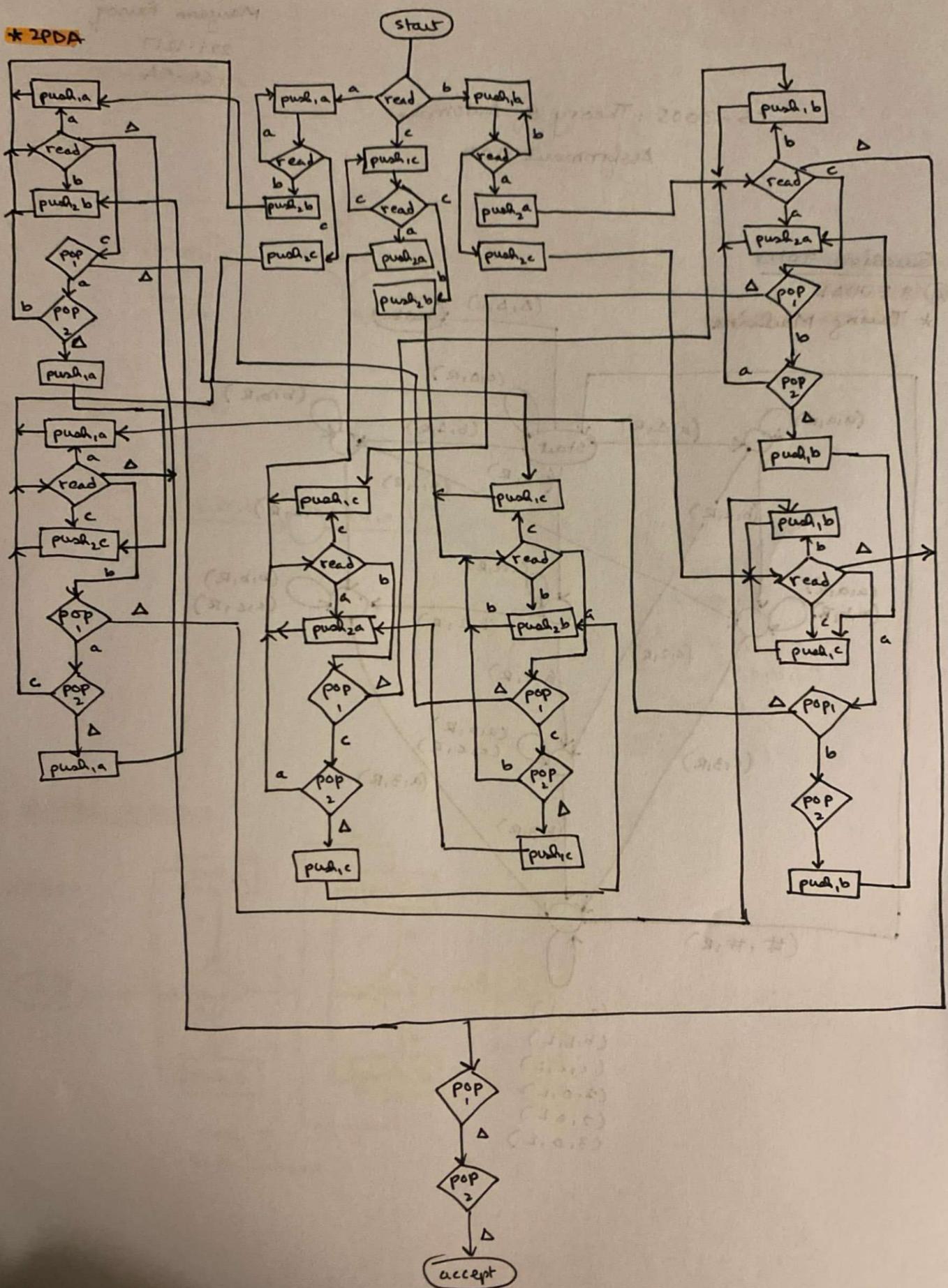
Question #01:

@ 3 EQUAL

* Turing Machine

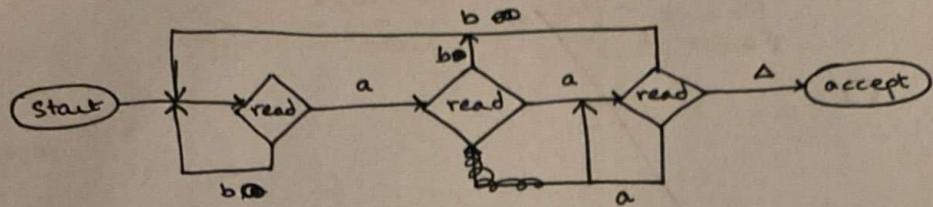


* 2PDA

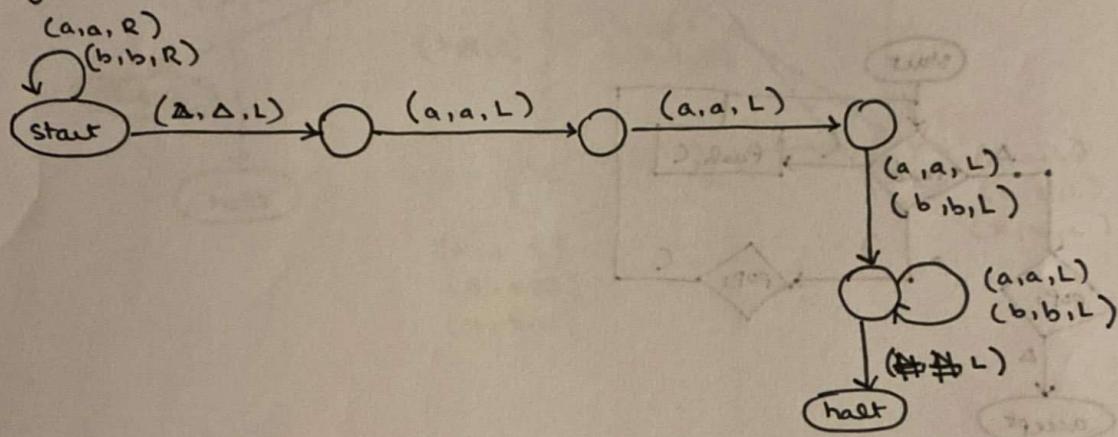


(b) End with double a's

* 2PDA :

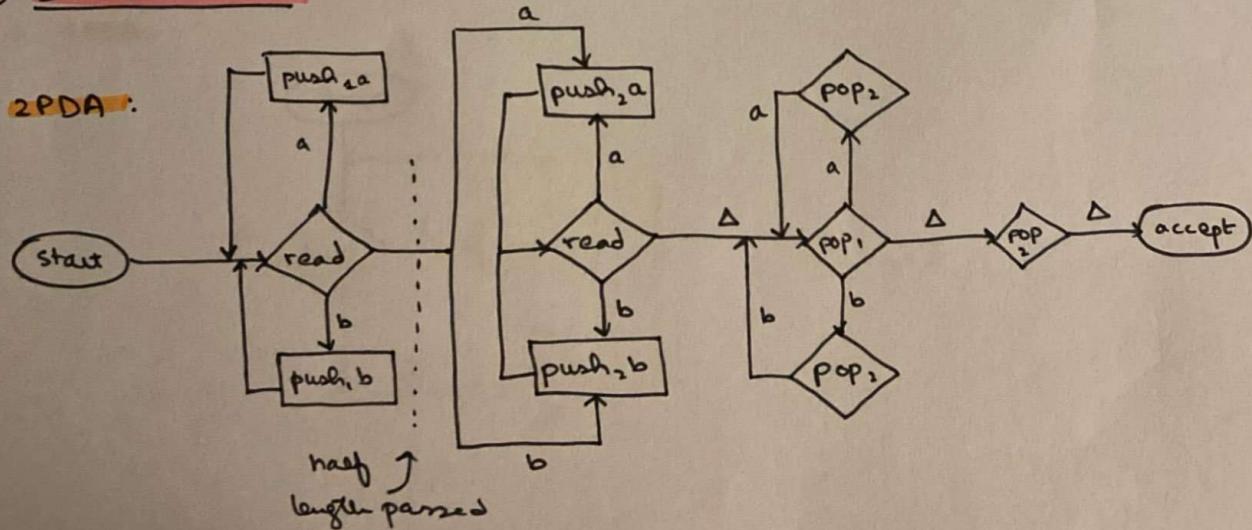


* Turing Machine

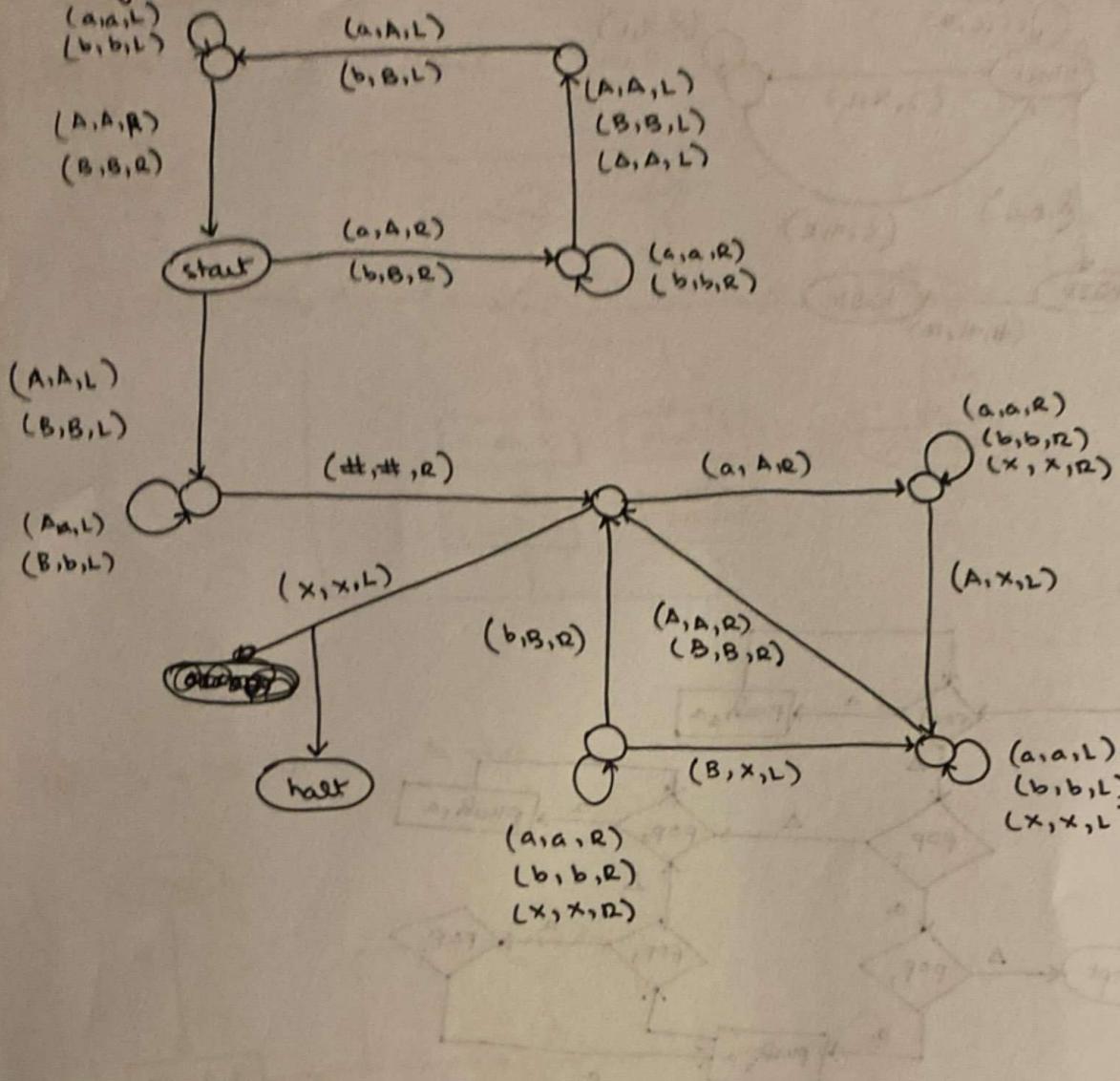


(c) Double word

* 2PDA :

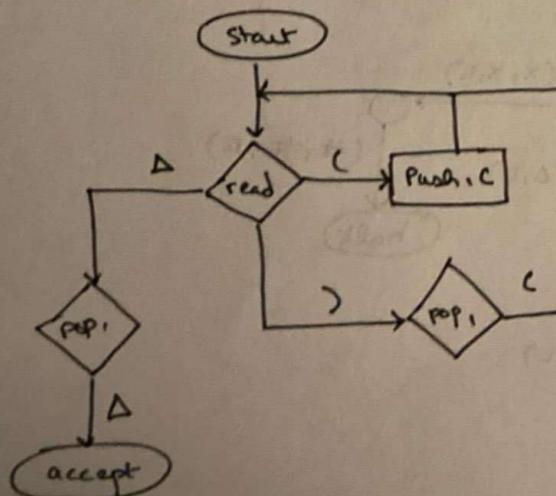


* Turing Machine

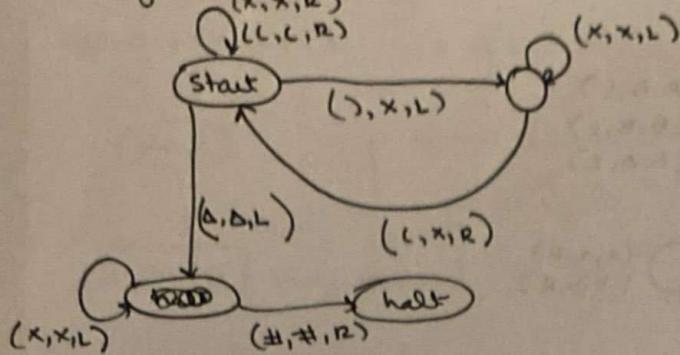


d) Parenthesis

* 2PDA

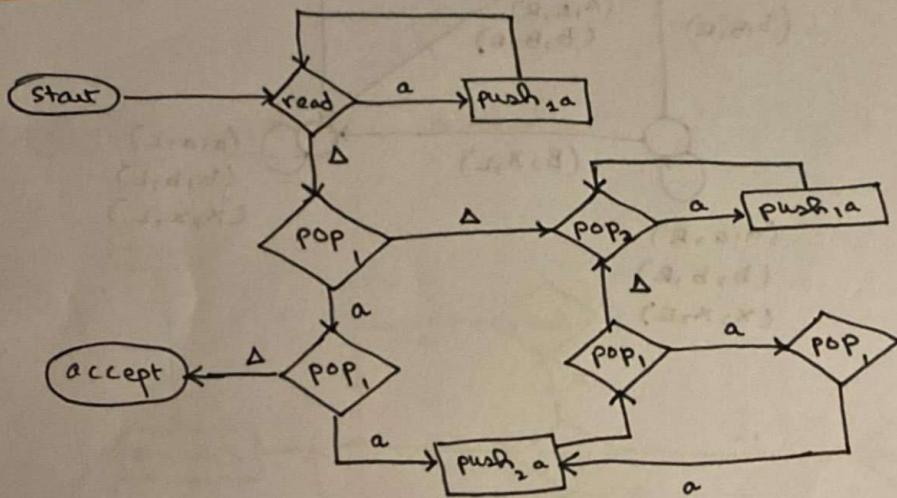


* Turing Machine

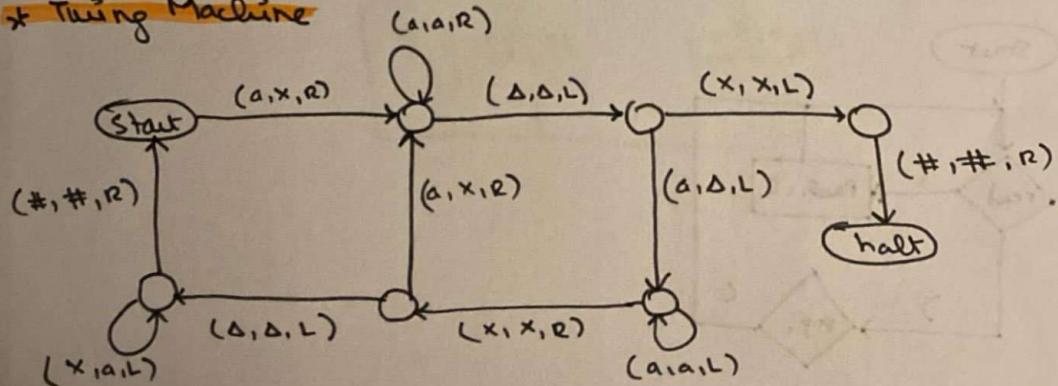


$\textcircled{e} a^2$

* 2 PDA

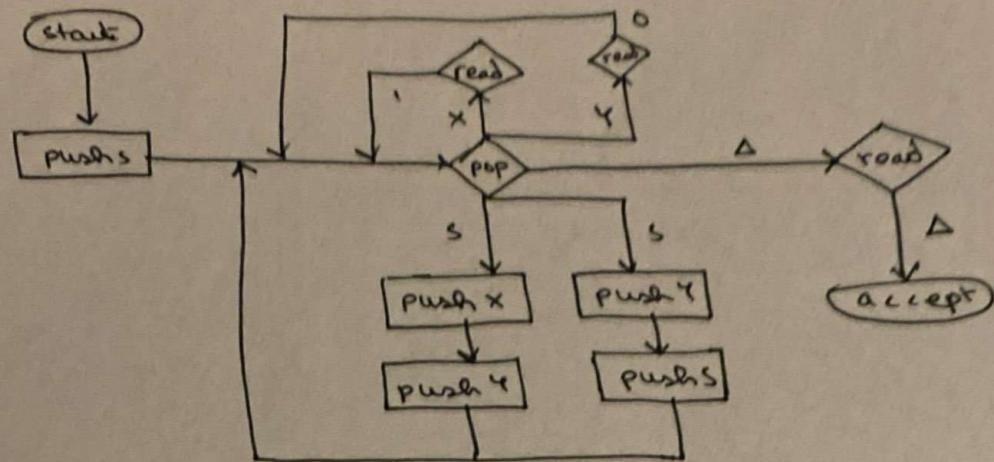


* Turing Machine



Question #02:

a) $S \rightarrow YX \mid SY \mid \Delta$ $X \rightarrow I$ $Y \rightarrow O$



b) $S \rightarrow SS \mid AA \quad A \rightarrow a$

