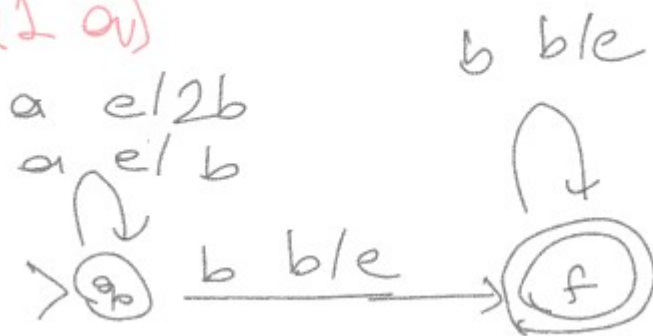
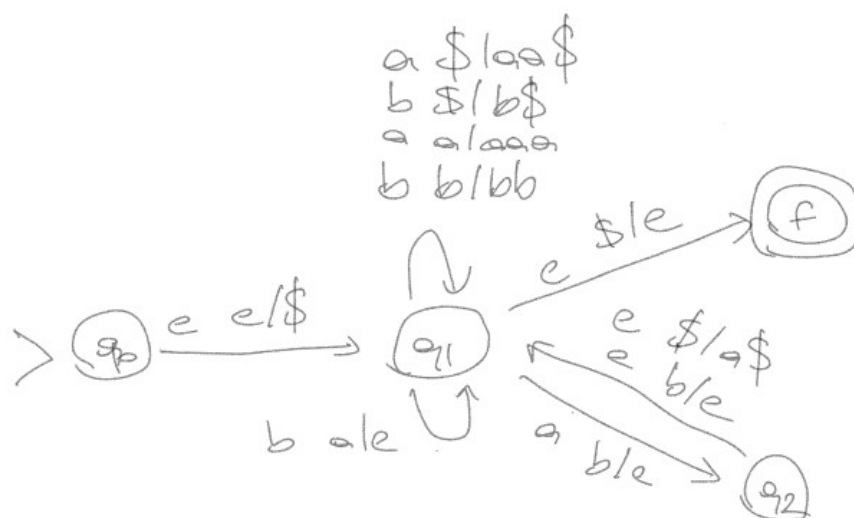


Q1 a)



Q1 b)



Q1 c) We will construct the PDA from its CFG

$G \rightarrow A \mid B$

$A \rightarrow aTd1aaAdd$

$T \rightarrow e1bbTcc$

$B \rightarrow Y1aaBdd$

$Y \rightarrow bc1bbYcc$

$A \rightarrow$ generates strings where n is odd and m is even

$B \rightarrow$ generates strings where n is even and m is odd

$e \rightarrow S/A$
 $e \rightarrow S/B$
 $e \rightarrow A/aT_d$
 $e \rightarrow A/a\bar{a}T_d$

