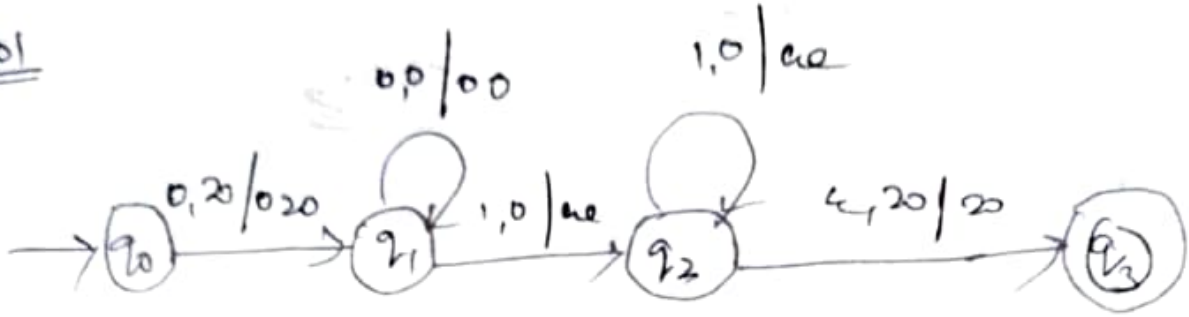
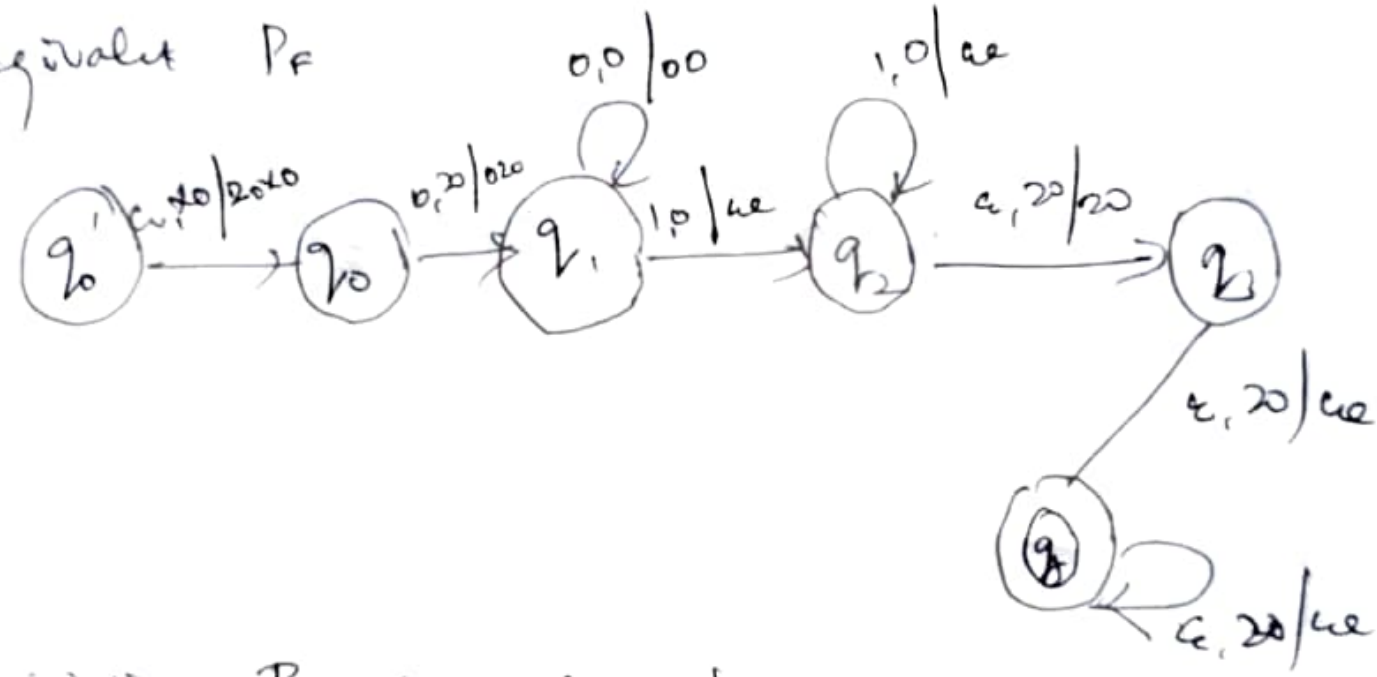
Ex:

$L = \{0^n 1^n \mid n \geq 1\}$ by empty stack

Sol



equivalent PF



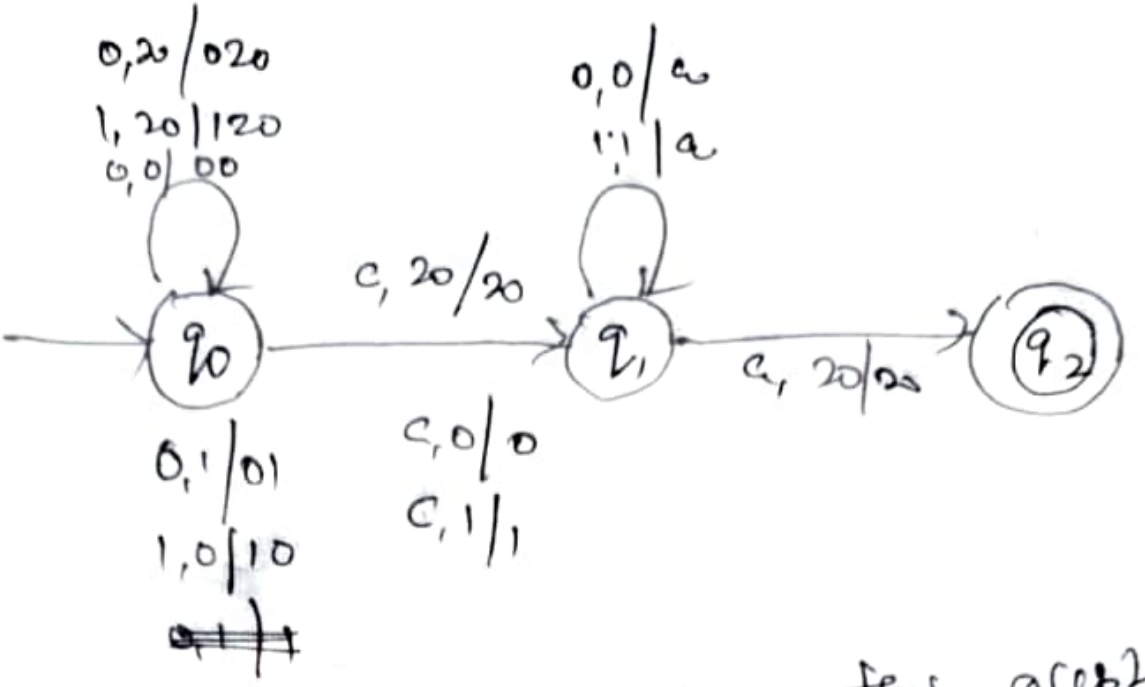
Deterministic Pushdown Automata

Def:

A PDA $P = (Q, \Sigma, \Gamma, \delta, q_0, Z_0, F)$ is deterministic if and only if satisfied the following condition

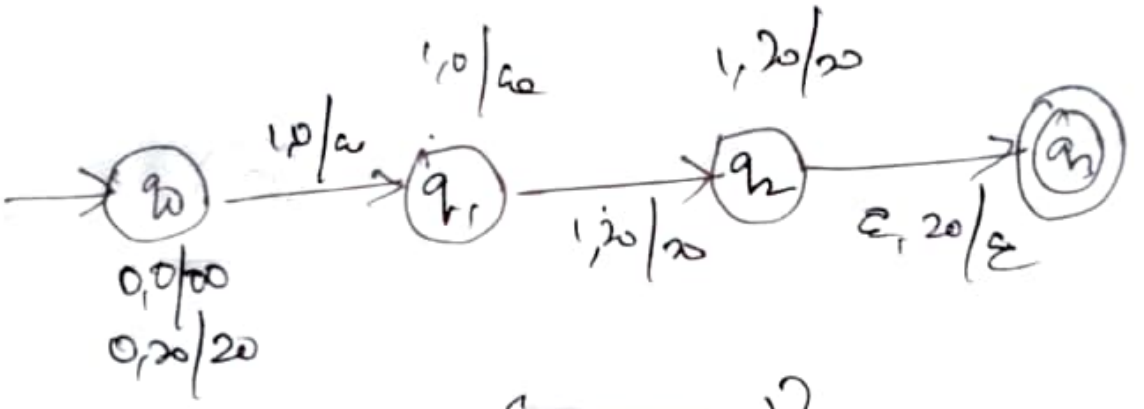
1) $\delta(q, a, x)$ has only one member for any q in Q, a in Σ or $a = \varepsilon$ and x in Γ
2) $\delta(q, a, x)$ is non empty, for some a in Σ, then $\delta(q, \varepsilon, x)$ must be empty

Ex: $wcw^R \mid w$ in $(0+1)^*$



Construct a deterministic PDA that accepts

$$L = \{ 0^n 1^m \mid n < m \text{ and } n, m \geq 1 \}$$



$$\delta(q_0, 0, 20) = \{(q_0, 020)\}$$

$$\delta(q_0, 0, 0) = \{(q_0, 00)\}$$

$$\delta(q_0, 1, 0) = \{(q_1, \varepsilon_0)\}$$

$$\delta(q_1, 1, 0) = \{(q_1, \varepsilon)\}$$

$$\delta(q_1, 1, 20) = \{(q_2, 20)\}$$

$$\delta(q_2, 1, 20) = \{(q_2, 20)\}$$

$$\delta(q_2, \varepsilon, 20) = \{(q_3, \varepsilon_0)\}$$