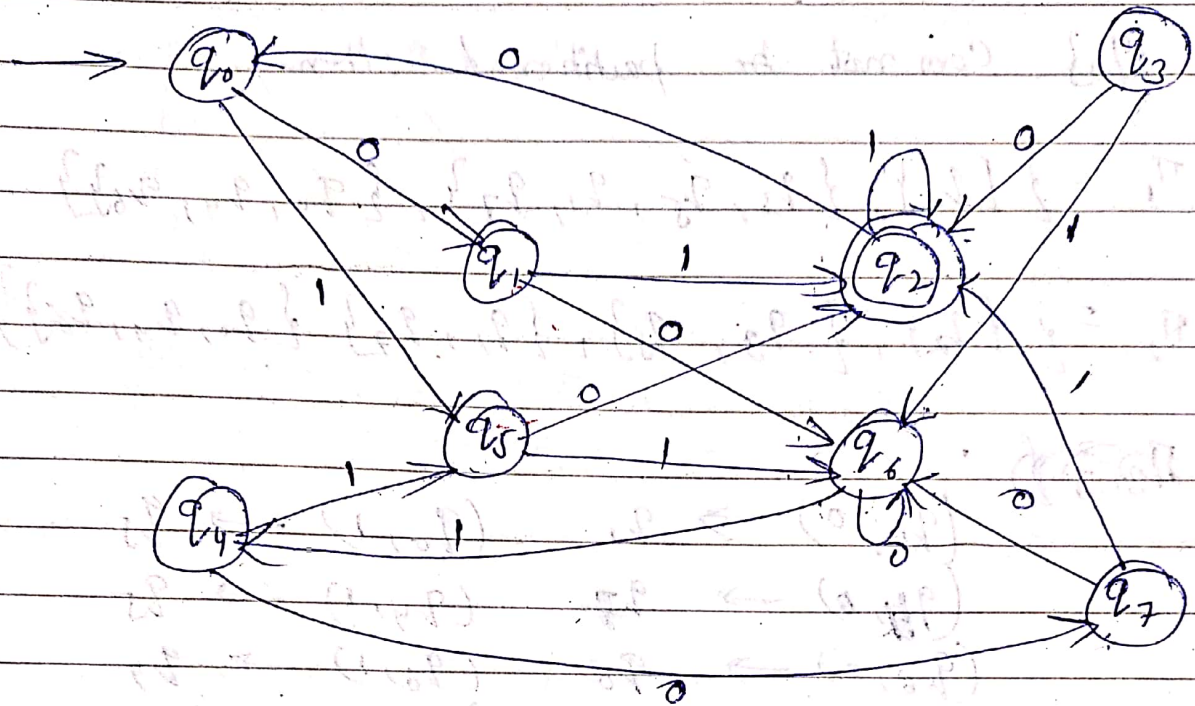


Ques: →



Sol: Transition table is.

State / Σ	0	1
→ q ₀	q ₁	q ₅
q ₁	q ₆	q ₂
(q ₂)	q ₀	q ₂
q ₃	q ₂	q ₆
q ₄	q ₇	q ₅
q ₅	q ₂	q ₆
q ₆	q ₆	q ₄
q ₇	q ₆	q ₂

$$Q_1^0 = F = \{q_2\}$$

$$Q_2^0 = Q - Q_1^0$$

$$\pi_0 = \{ \{q_2\}, \{q_0, q_1, q_3, q_4, q_5, q_6, q_7\} \}$$

$\{q_2\}$ can not be partitioned. then,

$$\pi_1 = \{ \{q_2\}, \{q_3, q_5, q_1, q_7\}, \{q_0, q_4, q_6\} \}$$

$$\pi_2 = \{ \{q_2\}, \{q_3, q_5\}, \{q_1, q_7\}, \{q_0, q_4, q_6\} \}$$

~~$\pi_3 = \{ \{q_2\}, \{q_3, q_5\}, \{q_1, q_7\}, \{q_0, q_4, q_6\} \}$~~

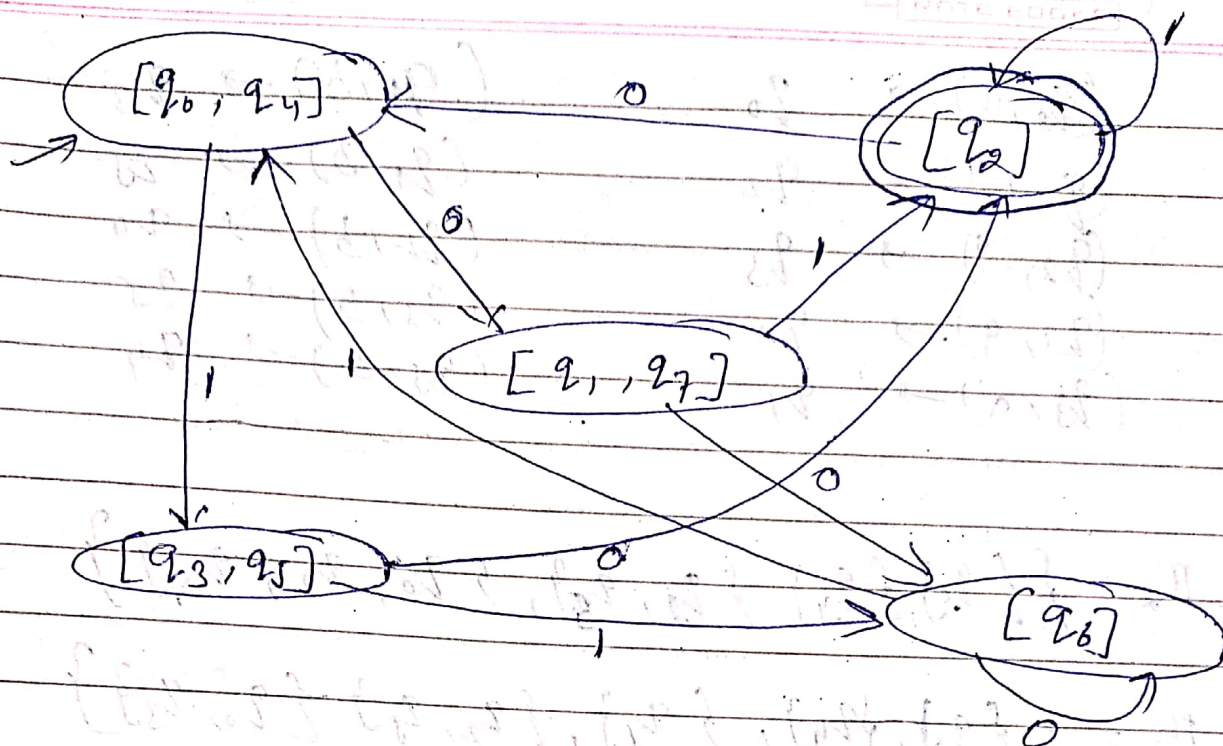
$$\begin{array}{ll} (q_0, 0) \rightarrow q_1 & (q_0, 1) \rightarrow q_5 \\ (q_4, 0) \rightarrow q_7 & (q_4, 1) \rightarrow q_5 \\ (q_6, 0) \rightarrow q_6 & (q_6, 1) \rightarrow q_4 \end{array}$$

$$q_3 = q_5 \quad \& \quad q_1 = q_7$$

$$\pi_3 = \{ \{q_2\}, \{q_3, q_5\}, \{q_1, q_7\}, \{q_0, q_4, q_6\} \}$$

the transition table is

Stack Σ	0	1
$\rightarrow [q_0, q_4]$	$[q_1, q_7]$	$[q_5, q_6]$
$[q_1, q_7]$	$[q_6]$	$[q_2]$
$[q_2]$	$[q_0, q_4]$	$[q_1]$
$[q_5, q_3]$	$[q_2]$	$[q_6]$
$[q_1]$	$[q_6]$	$[q_0, q_4]$



Ques:-

States	input	
	a	b
→ q ₀	q ₀	q ₃
q ₁	q ₂	q ₅
q ₂	q ₃	q ₄
q ₃	q ₀	q ₅
q ₄	q ₀	q ₆
q ₅	q ₁	q ₄
⊙ q ₆	q ₁	q ₃

$$\pi_0 = \{ \{q_6\}, \{q_0, q_1, q_2, q_3, q_4, q_5\} \}$$

$$\pi_1 = \{ \{q_6\}, \{q_4\}, \{q_0, q_1, q_2, q_3, q_5\} \}$$

$$(q_0, a) \rightarrow q_0$$

$$(q_1, a) \rightarrow q_2$$

$$(q_2, a) \rightarrow q_3$$

$$(q_3, a) \rightarrow q_0$$

$$(q_5, a) \rightarrow q_1$$

$$(q_0, b) \rightarrow q_3$$

$$(q_1, b) \rightarrow q_5$$

$$(q_2, b) \rightarrow q_4$$

$$(q_3, b) \rightarrow q_5$$

$$(q_5, b) \rightarrow q_4$$

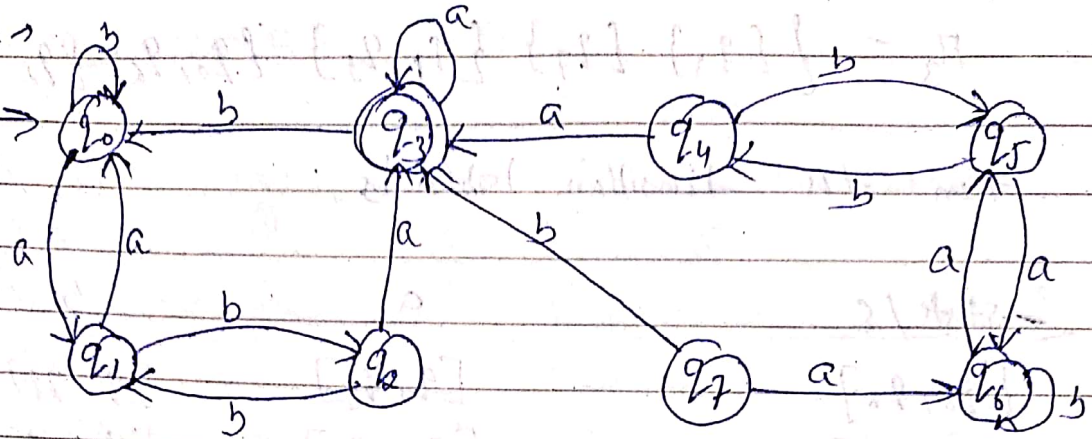
$$\Pi_2 = \{ \{ q_5 \}, \{ q_4 \}, \{ q_2, q_5 \}, \{ q_0, q_1, q_3 \} \}$$

$$\Pi_3 = \{ \{ q_5 \}, \{ q_4 \}, \{ q_1 \}, \{ q_2, q_5 \}, \{ q_0, q_3 \} \}$$

$$\Pi_4 = \{ \{ q_5 \}, \{ q_4 \}, \{ q_1 \}, \{ q_3 \}, \{ q_2, q_5 \}, \{ q_0 \} \}$$

$$\Pi_5 = \{ \{ q_5 \}, \{ q_4 \}, \{ q_1 \}, \{ q_3 \}, \{ q_2 \}, \{ q_5 \}, \{ q_0 \} \}$$

Ques:-



Sol:-

State / ϵ	a	b
$\rightarrow q_0$	q_1	q_0
q_1	q_0	q_2
q_2	q_3	q_1
q_3	q_3	q_0
q_4	q_3	q_5
q_5	q_6	q_4
q_6	q_5	q_3
q_7	q_6	q_3

$$F = \{q_3\}$$

$$\pi_0 = \{ \{q_3\}, \{q_0, q_1, q_2, q_4, q_5, q_6, q_7\} \}$$

$$\pi_1 = \{ \{q_3\}, \{q_0, q_1, q_5, q_6\}, \{q_2, q_4, q_7\} \}$$

$$\pi_2 = \{ \{q_3\}, \{q_0, q_1, q_5, q_6\}, \{q_2, q_4\}, \{q_7\} \}$$

$$(q_0, a) \rightarrow q_1$$

$$(q_0, b) \rightarrow q_0$$

$$(q_1, a) \rightarrow q_0$$

$$(q_1, b) \rightarrow q_2$$

$$(q_5, a) \rightarrow q_6$$

$$(q_5, b) \rightarrow q_4$$

$$(q_6, a) \rightarrow q_5$$

$$(q_6, b) \rightarrow q_3$$

$$\Pi_3 = \{ [q_3] [q_7] [q_1, q_5] [q_0, q_6] [q_2, q_4] \}$$

then the transition table is

State / ϵ	a	b
$[q_0, q_6]$	$[q_1, q_5]$	$[q_0, q_6]$
$[q_1, q_5]$	$[q_0, q_6]$	$[q_2, q_4]$
$[q_2, q_4]$	$[q_3]$	$[q_1, q_5]$
$[q_3]$	$[q_3]$	$[q_0, q_6]$
$[q_7]$	$[q_0, q_6]$	$[q_3]$

