Question 1:

(a) $\in L_A$ and $\in L_B$

(b) $\in L_A$ and $\in L_B$

(c) neither

(d) $\in L_A$ and $\notin L_B$

(e) $\in L_B$

Question 2:

(a) $Q = \{q_0, q_1, q_2, q_3, q_4, q_5\}$

(b) $\Sigma = \{0, 1\}$

(c)

δ	0	1
q_0	q_1	q_2
q_1	q_4	q_3
q_2	q_4	q_1
q_3	q_3	q_3
q_4	q_5	q_1
q_5	q_5	q_5

(d) $q_0 = q_0$

(e) $F = \{q_0, q_2, q_4\}$

Question 3:

(a) q_0 not accepted

(b) q_0, q_1, q_2, q_1, q_2 not accepted

(c) $q_0, q_2, q_3, q_2, q_3, q_2, q_3, q_2, q_1, q_0, q_1$ accepted

(d) $q_0, q_2, q_3, q_1, q_0, q_2, q_1, q_0$ not accepted

(e) $q_0, q_2, q_1, q_2, q_1, q_2, q_1, q_2, q_1$ accepted

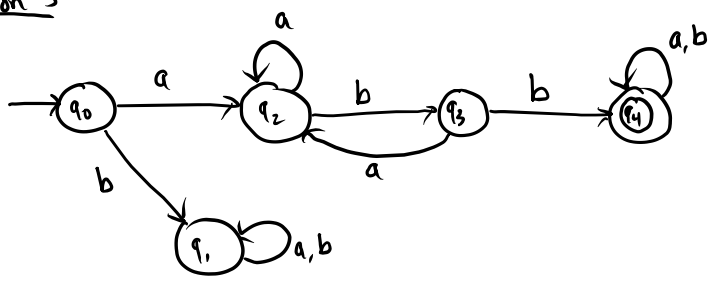
Question 4:

$\{w \in \{0,1\}^* \mid w$ consists of at most one $0\}$

or

$\{w \in \{0,1\}^* \mid w$ consists of any number of 1's or a possible prefix of 1's followed by one 0 then a possible suffix of 1's$\}$

Question 5



Question 6

δ	a	b
(q_0, p_0)	(q_1, p_0)	(q_0, p_1)
(q_0, p_1)	(q_1, p_0)	(q_0, p_1)
(q_1, p_0)	(q_1, p_0)	(q_0, p_1)
(q_1, p_1)	(q_1, p_0)	(q_0, p_1)