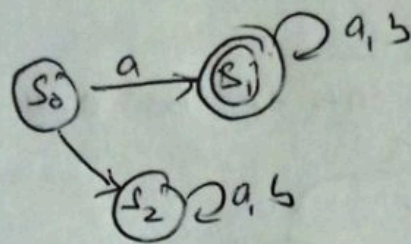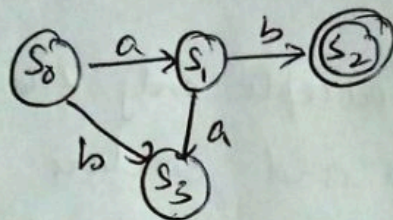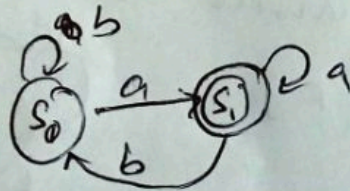1) Construct DFA which accepts of all strings starting with 'a' over $\Sigma = \{a, b\}$

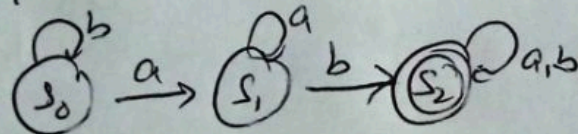2) Construct DFA which accepts languages of all strings starting with 'ab' over $\Sigma = \{a, b\}$
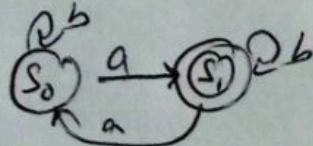

3) Construct DFA for
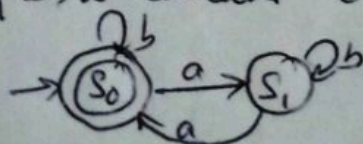→ $L = \{ w : w \text{ ends with 'a' over } \Sigma = (a, b) \}$

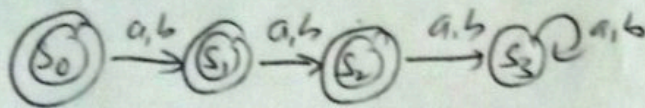$\rightarrow$ $L = \{ w : w \text{ contains substring 'ab' over } \Sigma = (a, b) \}$

→ $L = \{ w : w \text{ contains odd number of 'a' over } \Sigma = (a, b) \}$

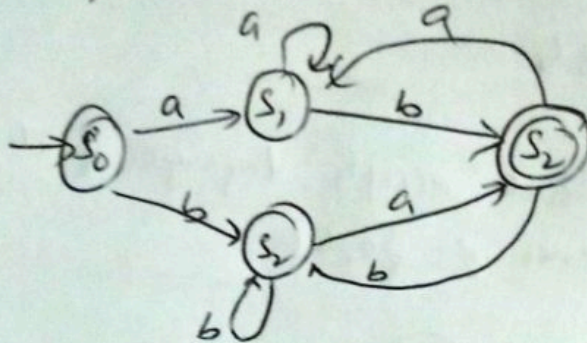→ $L = \{ w : w \text{ contains even number of 'a' over } \Sigma = (a, b) \}$

→ $L = \{w : |w| \le 2 \text{ over } \xi = (a,b)\}$

→ $L = \{w : w \text{ ends with 'ab' or 'ba' over } \xi = (a,b)\}$

Q) Design a FSA that accepts only those strings over $\{0,1\}$ that ends with 111 and contains odd number of 1's and other strings over $\{0,1\}$ should be rejected. Your design should include proper definition of finite state automata transition table & transition diagram.

So required DFSA $= \{S, I, f, S_0, F\}$
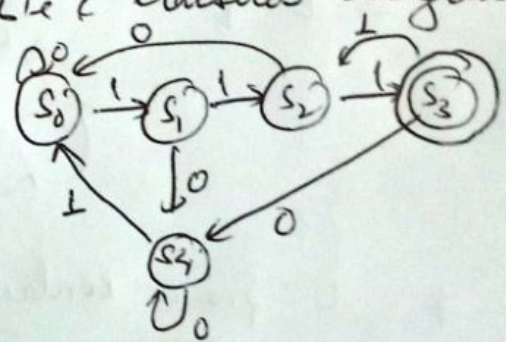
$S = \{S_0, S_1, S_2, S_3, S_4\}$

$I = \{0,1\}$

$f = $ table

$S_0 = \{S_0\}$

$F = \{S_3\}$

transition diagram

f

S	0	1
S_0	S_0	S_1
S_1	S_4	S_2
S_2	S_0	S_3
S_3	S_4	S_2
S_4	S_4	S_0