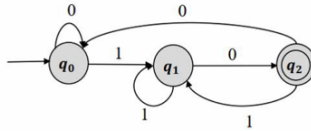
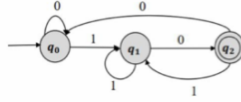


Exercise 1



Based on the DFA in Example 5, which of the given strings are accepted by M?

- i) 0111010
- ii) 00111
- iii) 111010
- iv) 0100
- v) 1110



0111010

i) $q_0 \xrightarrow{0} q_0 \xrightarrow{1} q_1 \xrightarrow{1} q_1 \xrightarrow{1} q_1 \xrightarrow{0} q_2 \xrightarrow{1} q_1 \xrightarrow{0} q_2$

\therefore accepted by M

ii) 00111

$q_0 \xrightarrow{0} q_0 \xrightarrow{0} q_0 \xrightarrow{1} q_1 \xrightarrow{1} q_1 \xrightarrow{1} q_1$

\therefore Not accepted by M

iii) 111010

$q_0 \xrightarrow{1} q_1 \xrightarrow{1} q_1 \xrightarrow{1} q_1 \xrightarrow{0} q_2 \xrightarrow{1} q_1 \xrightarrow{0} q_2$

\therefore accepted by M

iv) 0100

$q_0 \xrightarrow{0} q_0 \xrightarrow{1} q_1 \xrightarrow{0} q_2 \xrightarrow{0} q_0$

\therefore Not accepted by M

v) 1110

$$q_0 \xrightarrow{1} q_1 \xrightarrow{1} q_1 \xrightarrow{1} q_1 \xrightarrow{0} q_2$$

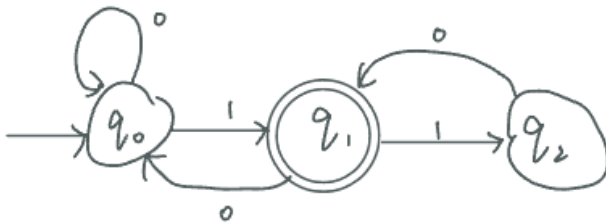
\therefore Accepted by m



Exercise 2

Construct a state transition diagram of a DFA M with the input set $\{0,1\}$ such that M accepts only the string 101.

$$M = (\{q_0, q_1, q_2\}, \{0, 1\}, q_0, f_s, \delta_1)$$



Exercise 3

$f(i)$	A	B	C	D	E	F	G	H	I
S_1	S_2	S_1	S_1	S_1	S_1	S_1	S_1	S_1	S_1
S_2	S_2	S_3	S_9	S_2	S_2	S_2	S_2	S_2	S_2
S_3	S_3	S_3	S_3	S_6	S_4	S_3	S_3	S_3	S_3
S_4	S_4	S_4	S_4	S_6	S_5	S_4	S_4	S_4	S_4
S_5	S_5	S_8	S_5	S_6	S_9	S_5	S_5	S_5	S_5
S_6	S_6	S_6	S_6	S_6	S_6	S_7	S_6	S_6	S_6
S_7	S_7	S_7	S_7	S_7	S_7	S_7	S_8	S_7	S_7
S_8	S_8	S_8	S_8	S_8	S_8	S_6	S_6	S_6	S_9

S_9 S_9 S_9 S_9 S_9 S_9 S_9 S_9 S_9 S_9 | 1 1 1 1 1 1 1

