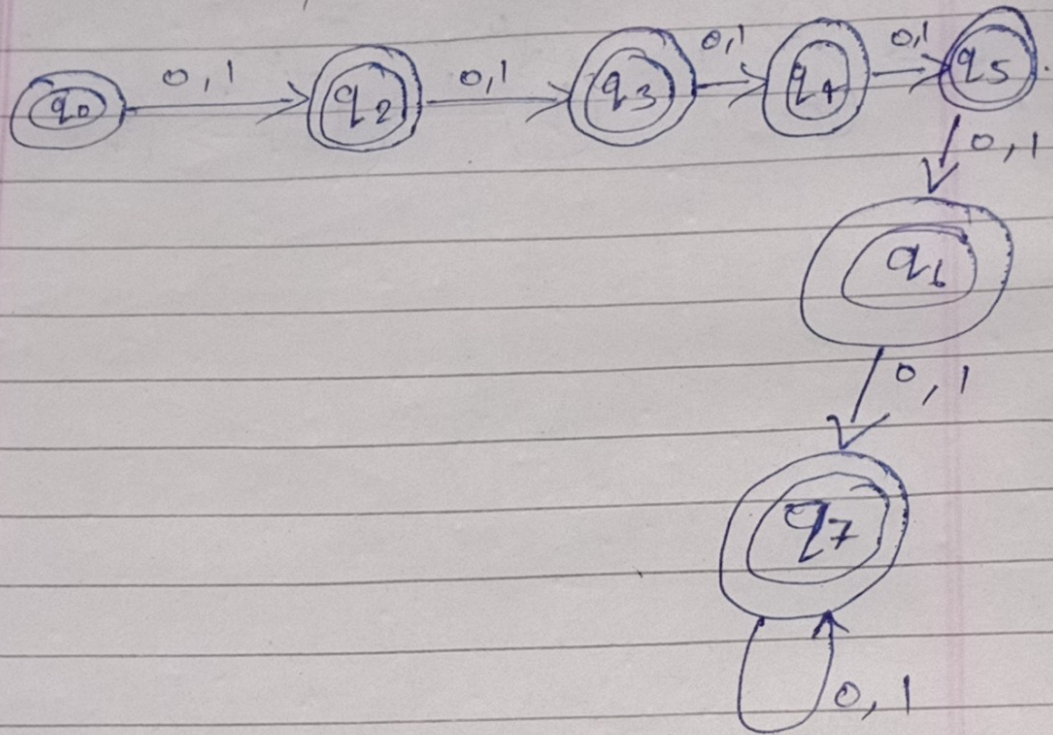


SEC - 3

2) Draw DFA of following over $\Sigma = \{0,1\}$
i) All string of length at most 5.



iii) Construction a PDA from the following CFG
 $G = (\{S, X\}, \{a, b\}, P, S)$ where the production are
 $S \rightarrow XS \mid \epsilon, A \rightarrow aXb \mid Ab \mid ab$

Given :- $G = (\{S, X\}, \{a, b\}, P, S)$
production :-
 $S \rightarrow XS \mid \epsilon, A \rightarrow aXb \mid Ab \mid ab$

Let the equivalent PDA
 $P = (\{q\}, \{a, b\}, \{a, b, x, s\}, \delta, q, s)$

where $\delta \rightarrow$
 $\delta(q, \epsilon, s) = \{(q, xs), (q, \epsilon)\}$

$$\delta(q, \epsilon, x) = \{(q, axb), (q, xb), (q, ab)\}$$

$$\delta(q, a, a) = \{(q, \epsilon)\}$$

$$\delta(q, b, b) = \{(q, \epsilon)\}$$