

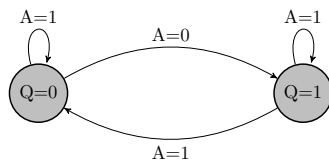
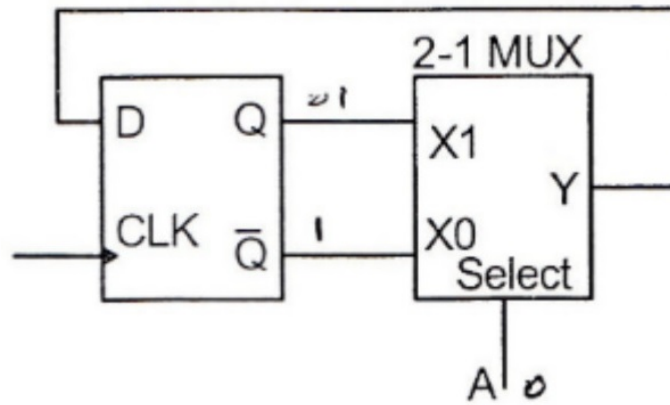
DLD ASSIGNMENT 8

maheshvasimalla

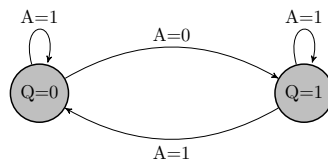
January 2021

1 Question

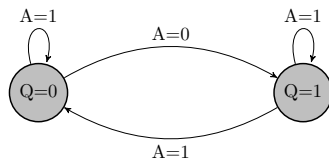
The state transition diagram for the logic circuit shown as



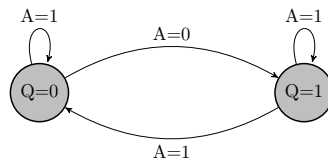
(a) (A)



(b) (B)



(c) (C)



(d) (D)

2 Answer

We know,

2-1 MUX \implies 2-1 Multiplexer

When $A=0$,

X_0 line is selected and connected to \overline{Q} and now \overline{Q}

is now connected to X_0 that is, X_0 is going to be shortened to Y . The output Y is now communicated with X_0 which is connected to \overline{Q} .

so, Y will become whenever $A=0$

$Y = X_0 = \overline{Q} = D$

then, $Q+ = \overline{Q}$

and similarly when $A=1$

$Y=X_1=Q=D$ Assume that $Q=0$ as one state and $Q=1$ as another state At state $Q=0$ if $A=0$ then transition of state changes from $Q=0$ to $Q=1$ if $A=1$ then transition of state remains constant At state $Q=1$ if $A=0$ then transition of state remains constant if $A=1$ then transition of state changes from $Q=1$ to $Q=0$

3 A Table Showing State Transition

	$A=0$	$A=1$
$Q=0$	Changes from $Q=0$ to $Q=1$	Remains constant at $Q=0$
$Q=1$	Changes from $Q=1$ to $Q=0$	Remains constant at $Q=1$

Table 1: State Transition Table

Hence the obtained state transition figure is similar to option D

Hence OPTION 'D' IS THE RIGHT OPTION

