

# ASSIGNMENT 11

## Presentation On State Transition Diagram

Chetan Sarigala  
IIIT Raichur

January 5, 2021



# Table of contents

## 1 Question

- options

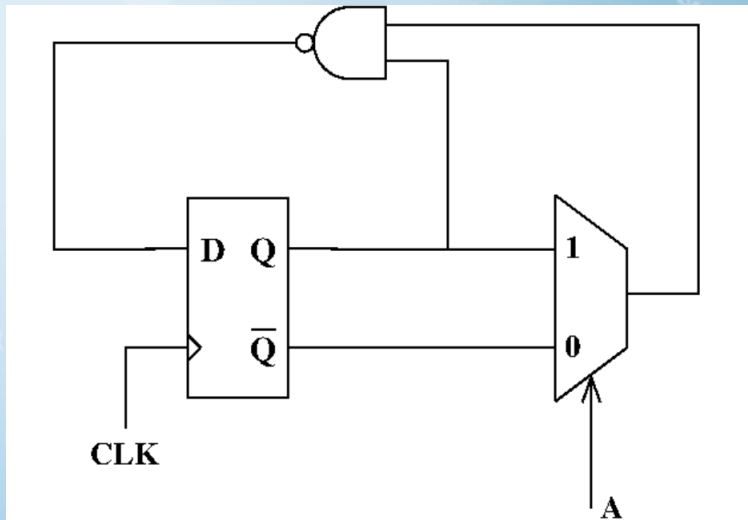
## 2 Answer

- multiplexer
- D flip flop
- truth table

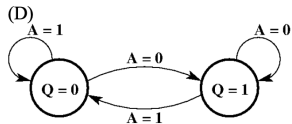
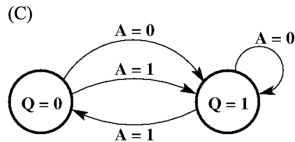
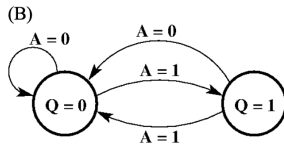
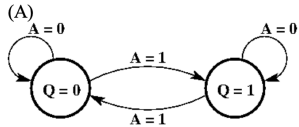


# Question

The state transition diagram for the following circuit is:



# Options



# Table of contents

## 1 Question

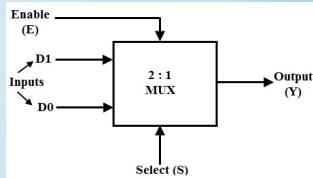
- options

## 2 Answer

- multiplexer
- D flip flop
- truth table



# multiplexer



There are total 5 types of multiplexer it varies in no of inputs

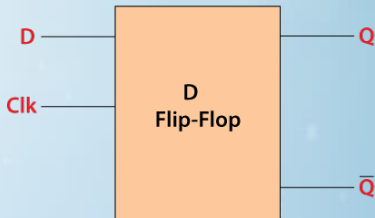
It is also known as Data Selector

The relation between selector and no of inputs is ( $s = \log_2 n$ )

if the selector(A) is 0 then the output will be 1 similarly the other therefore, output y can be 1 or 0



# D flip flop



The memory element in a sequential circuit is called as a flip flop from the question  $D = \overline{Q.y}$



TABLE 1			
clk	D	Q	$\overline{Q}$
1	0	0	1
1	1	1	0

from the truth table the total possible outputs for  $Q = 0, 1$

1) so let us take  $Q = 0$  when the selector  $A = 0$ ,  $y = 1$

$$D = \overline{Q} + \overline{y}$$

$$= 1 + 0 = 1$$

when the selector(A) is 1 then  $y = 0$

$$\text{then } D = 1 + 1 = 1$$

2) now take  $Q = 1$  when selector  $A = 0$ , output  $y = 1$

$$\text{then } D = 0 + 0 = 0$$

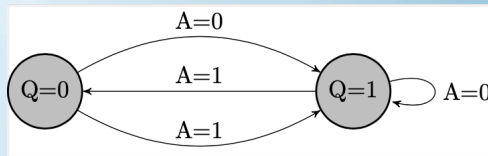
when selector  $A = 1$ , output  $y = 0$

$$\text{then } D = 0 + 1 = 1$$





# state transition diagram



the diagram itself explains, the  $Q = 0$  state opens door and the transition goes to state  $Q = 1$   
similarly the transition goes from state  $Q = 1$  to  $Q = 0$  when the transition condition is  $A = 1$ .



*Thank you.*

