Assignment 9

Manav Garg

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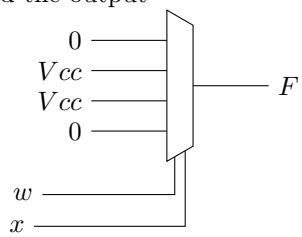
1 Question

Find the output



2 Solution

It is a Multiplexer problem So,

w	x	F
0	0	0
0	1	Vcc
1	0	Vcc
1	1	0

Let's call the output through first multiplexer F

$F = \bar{w}\bar{x}0 + \bar{w}xVcc + w\bar{x}Vcc + wx0$

here Vcc is nothing but 1, so the output through first multiplexer is
$F = \bar{w}x + w\bar{x}$
this goes through 2nd multiplexer, So
Output $Y = \bar{y}\bar{z}F + \bar{y}zF + y\bar{z}0 + yz0$
Here F is our output through first multiplexer so
$Y = (\bar{y}\bar{z} + \bar{y}z)(\bar{w}x + \bar{x}w)$
$Y = (\bar{y})(\bar{z} + z)(\bar{w}x + \bar{x}w)$
$Y = \bar{w}x\bar{y} + w\bar{x}\bar{y}.....as(\bar{z} + z) = 1$

y	z	Y
0	0	F
0	1	F
1	0	0
1	1	0

So, final output is $Y = \bar{w}x\bar{y} + w\bar{x}\bar{y}$