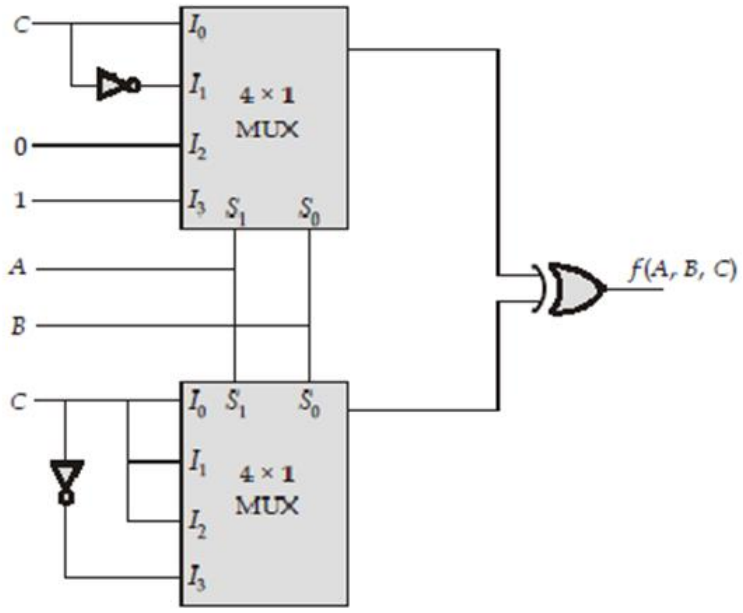
ASSIGNMENT-12

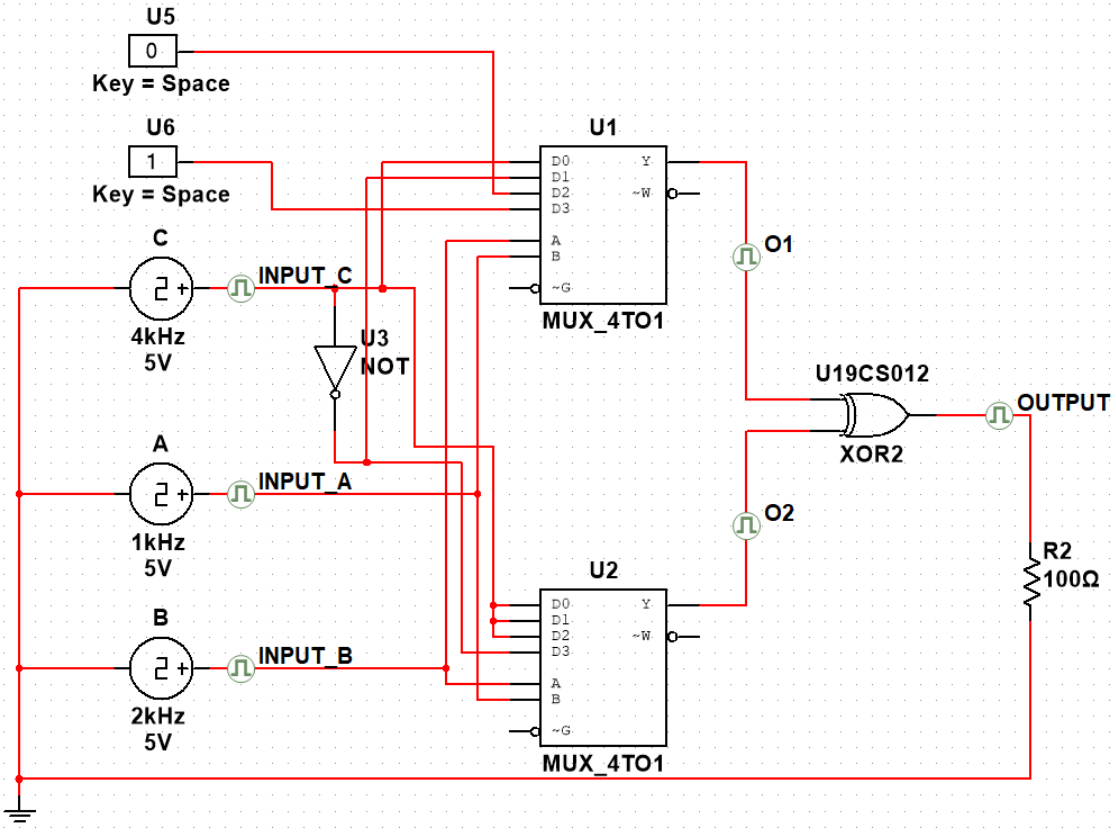
U19CS012

1. Solve for output Function/Functions. Also verify the same using Multisim.

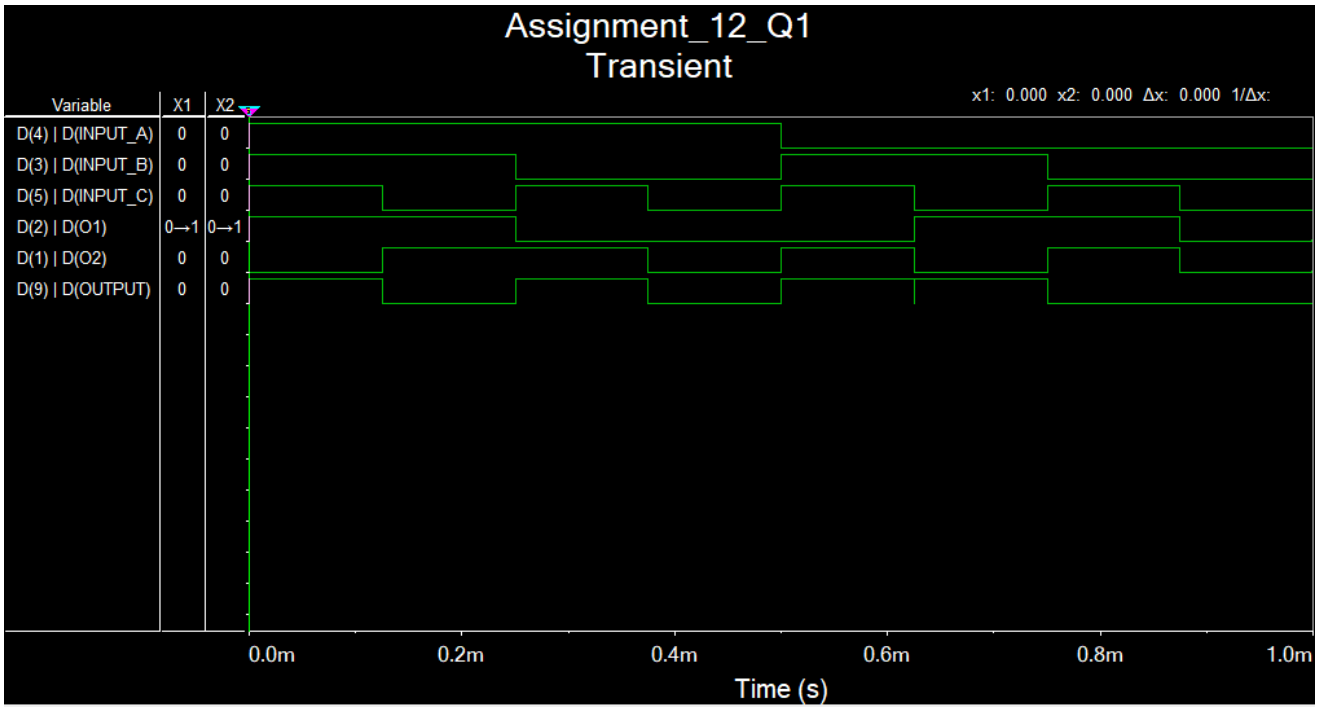


"A" Batch Question

Circuit Diagram [Multisim Implementation]



Grapher Image [Transient]



Theoretical Solution

U19CS012 DELD Ass-12

Q.1.) Theoretical Calculation

⊕ XOR

A	B	C	O1	O2	f = O1 ⊕ O2
0	0	0	0 } c	0 } c	0
0	0	1	1 }	1 }	0
0	1	0	1 } c'	0 } c	1
0	1	1	0 }	1 }	1
1	0	0	0 } 0	0 } c	0
1	0	1	0 }	1 }	1
1	1	0	1 } 1	1 } c'	0
1	1	1	1 }	0 }	1

Result ⇑

$F(A,B,C) = \sum m(2,3,5,7)$

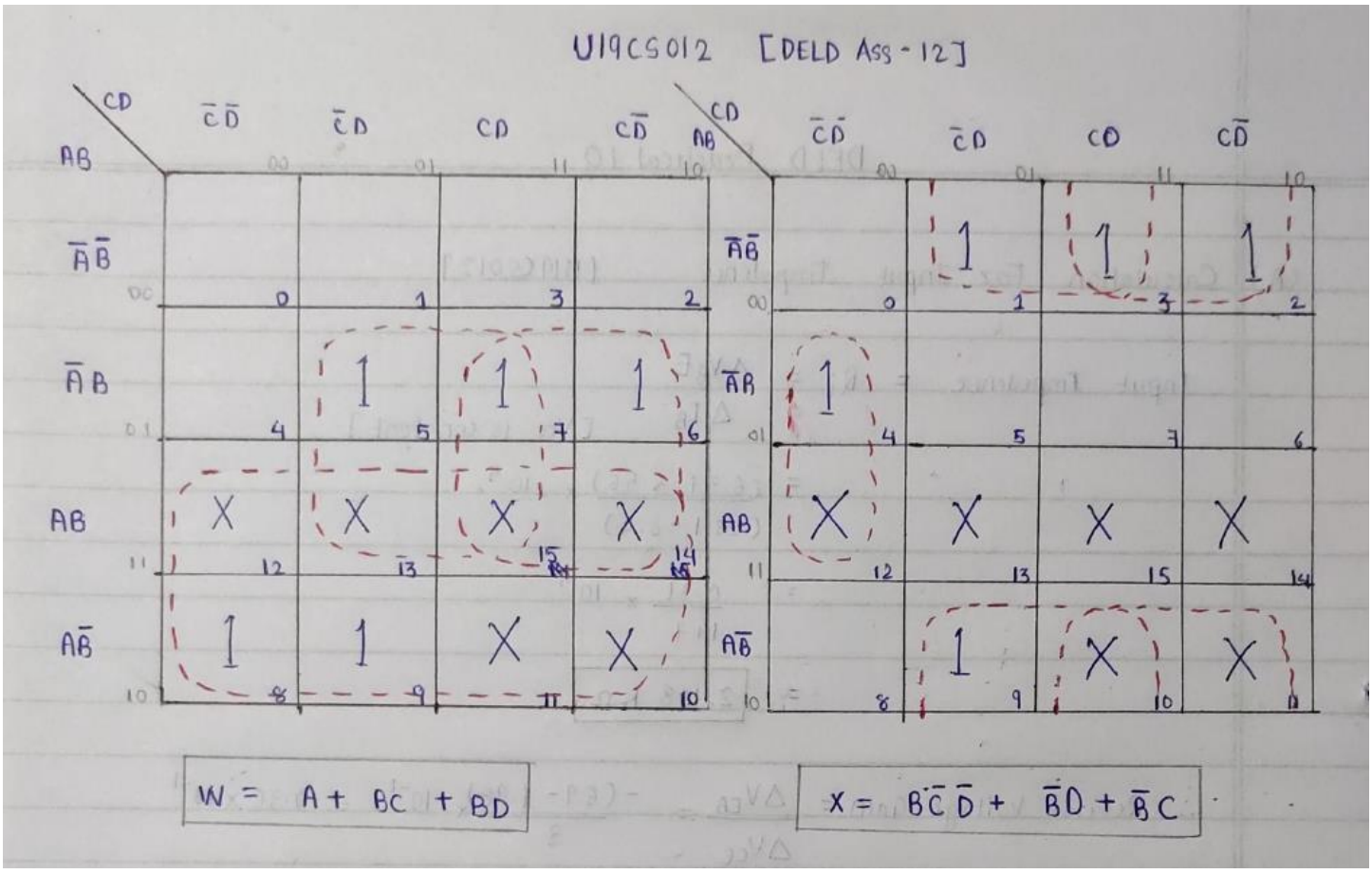
A \ BC	$\bar{B}\bar{C}$ 00	$\bar{B}C$ 01	BC 11	$B\bar{C}$ 10
$\bar{A}$ 0	0	1	1 (3)	1 (2)
A 1	4	1 (5)	1 (7)	6

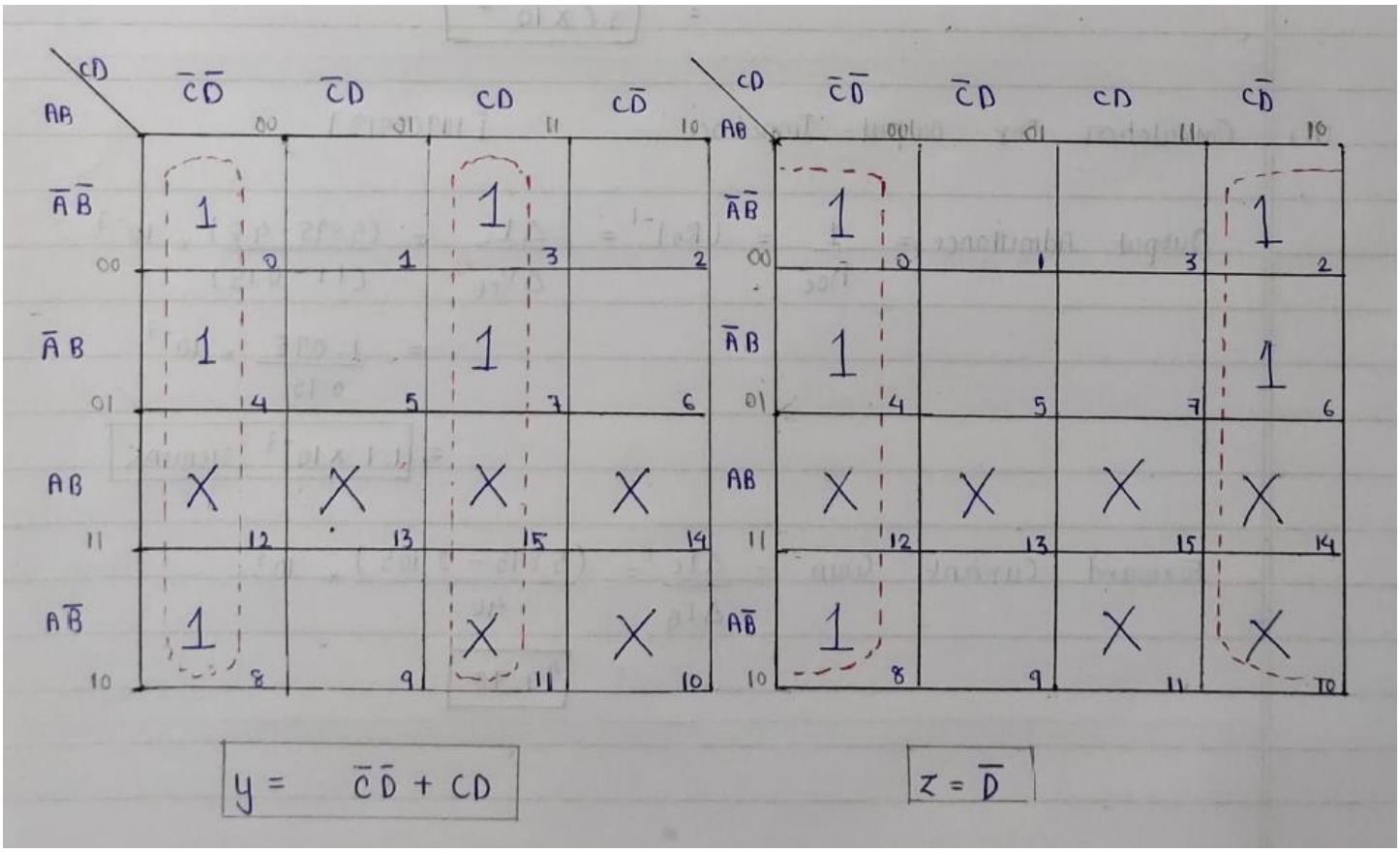
$f = \bar{A}B + AC$ (Minimized Expression using k-map

2. Design, implement and verify using Multisim: BCD to Excess – 3 Code Converter

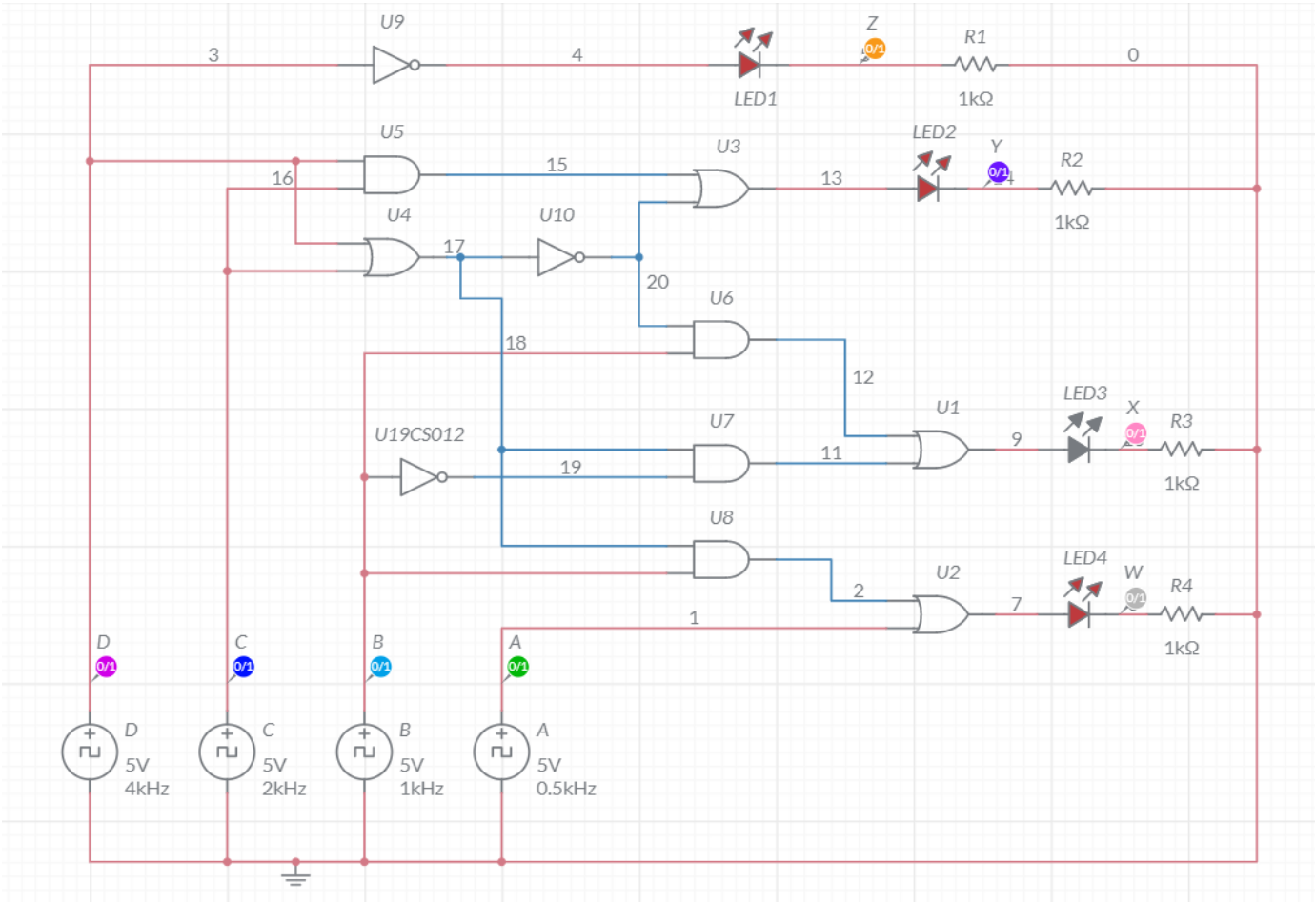
BCD(8421)				Excess-3			
A	B	C	D	w	x	y	z
0	0	0	0	0	0	1	1
0	0	0	1	0	1	0	0
0	0	1	0	0	1	0	1
0	0	1	1	0	1	1	0
0	1	0	0	0	1	1	1
0	1	0	1	1	0	0	0
0	1	1	0	1	0	0	1
0	1	1	1	1	0	1	0
1	0	0	0	1	0	1	1
1	0	0	1	1	1	0	0
1	0	1	0	X	X	X	X
1	0	1	1	X	X	X	X
1	1	0	0	X	X	X	X
1	1	0	1	X	X	X	X
1	1	1	0	X	X	X	X
1	1	1	1	X	X	X	X

Theoretical Solution

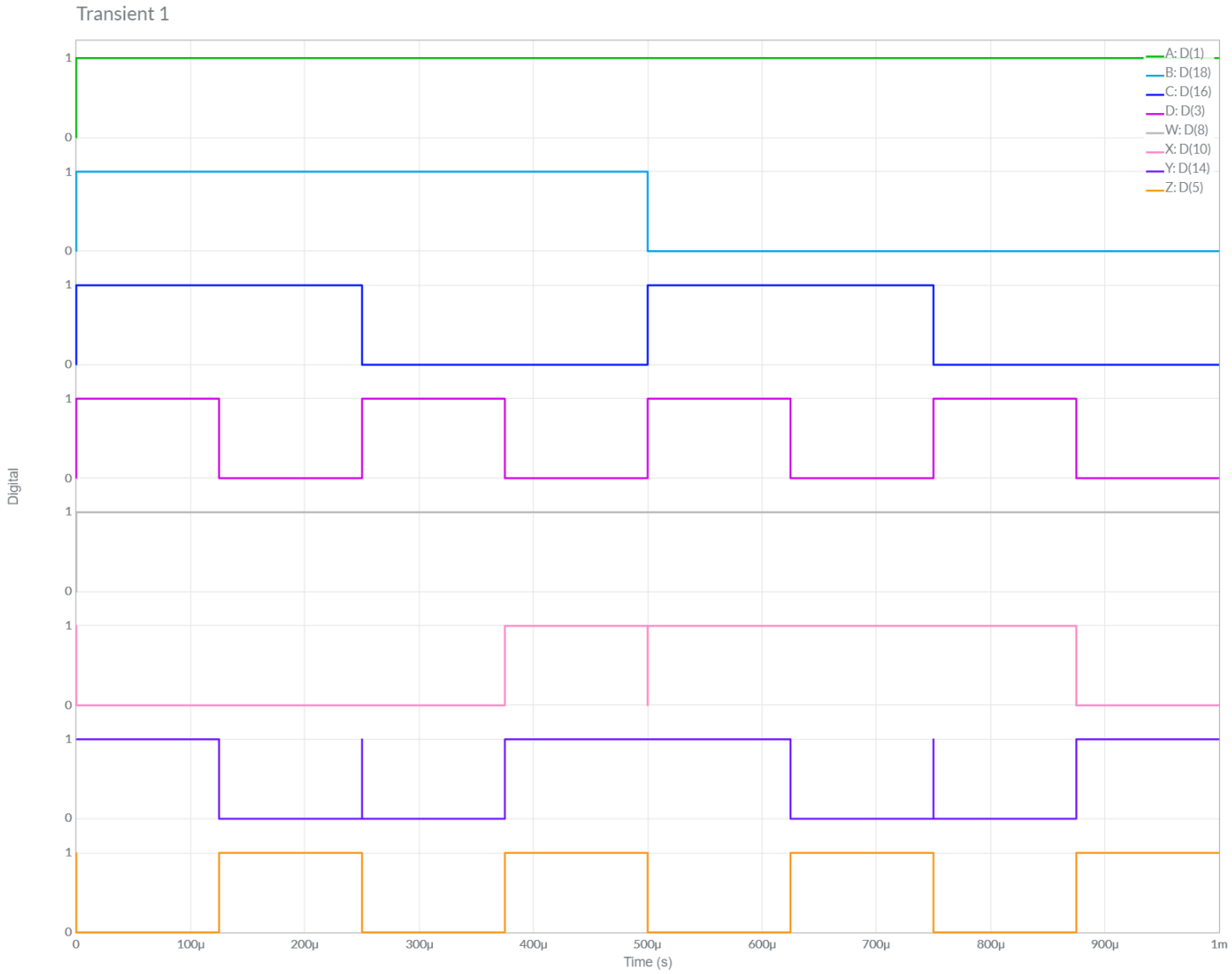




Circuit Diagram [Multisim Implementation]



Grapher Image [Transient]



D.) CONCLUSION:

We have Successfully Implemented *Particular Circuit [A'B + AC]* and *BCD to Excess-3 Convertor* and **verified** our **MULTISIM Outputs** and **Results** from *Theoretical Calculations.*

Hence Results Both Theoretical Calculation and Multisim Implementation have been verified to be ***same*** *and The Experiment has Been Successfully Performed.*