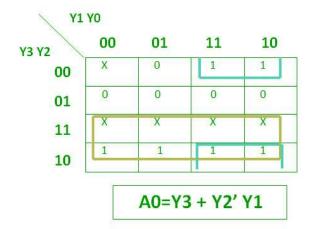
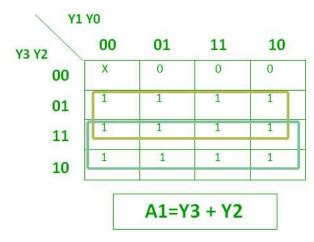
## Priority Encoder

A 4 to 2 priority encoder has 4 inputs: Y3, Y2, Y1 & Y0, and 2 outputs: A1 & A0. Here, the input, Y3 has the highest priority, whereas the input, Y0 has the lowest priority. In this case, even if more than one input is '1' at the same time, the output will be the (binary) code corresponding to the input, which is having higher priority. The truth table for the priority encoder is as follows.

INP	UTS		OUTPUTS					
E	<b>Y3</b>	Y2	<b>Y1</b>	YO	A1	AO		
0	0	0	0	0	X	X		
1	0	0	0	1	0	0		
1	0	0	1	X	0	1		
1	0	1	X	X	1	0		
1	1	X	X	X	1	1		

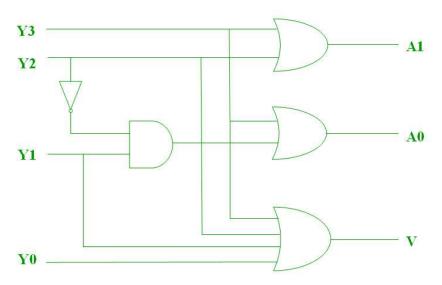


The logical expression for A0



The logical expression for A1

## The above two Boolean functions can be implemented as:



Priority Encoder Circuit Diagram

## **Simulation Waveform:**

Name	Value	0,000 ps	s	10.000	ns ,	20.000,1	ns , ,	30.000 1	ıs	40.000 1	ıs	50.000 r	ıs	60.000 r	ıs	70.000 n	ıs	80.000,1	ns	90.000 r
	1111	xxxx	0101	1111	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
<b>⋓</b> enable	1																			
data_out[1:0]	11			00			01		X	10		Χ			11					