

Question 1: Priority Circuit Design Fill in the truth table, writing down the simplified SOP and then draw the circuit diagram.

A ₃	A ₂	A ₁	A ₀	Y ₃	Y ₂	Y ₁	Y ₀
0	0	0	0				
0	0	0	1				
0	0	1	0				
0	0	1	1				
0	1	0	0				
0	1	0	1				
0	1	1	0				
0	1	1	1				
1	0	0	0				
1	0	0	1				
1	0	1	0				
1	0	1	1				
1	1	0	0				
1	1	0	1				
1	1	1	0				
1	1	1	1				

Equation? (Write a boolean equation for Y₀, Y₁, Y₂, and Y₃)

Draw the circuit diagram:

Question 2: 4:1 Multiplexor We are going to design a 4:1 multiplexor circuit. First, draw the truth table in the box below (Hint: there are 2 select lines and 4 data inputs). Then, write down the simplified SOP expression for the output Y and finally draw the circuit diagram.
Truth Table (use don't cares if needed):

--

Equation:

--

Draw the circuit diagram:

--