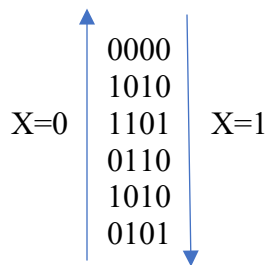Problem 1
Using D flip-flops and Multiplexers, design a 4-bit register with the following functionality

S1	S0	Function
0	0	Clear
0	1	load
1	0	Shift right
1	1	Shift left

Problem 2
Using D flip-flops, design a Mealy based controller to generate the following sequence at the output of 74194

X=0   0000
       1010
       1101   X=1
       0110
       1010
       0101

Problem 3
Using D flip-flops, design a Moore based controller to generate the following sequence at the output of 74194

X=0   0000
       1010
       1101   X=1
       0110
       1010
       0101