Disco II - Quiz 2

Name:_____ Box #_____

There are two sides!

Here is a next state and output table for a finite state machine on the binary alphabet $\mathcal{I} = \mathcal{O} = \{0, 1\}$.

ν	0	1
s_0	s_1	s_3
s_1	s_2	s_4
s_2	s_0	s_5
s_3	s_1	s_3
s_4	s_2	s_4
s_5	s_0	s_5

ω	0	1
s_0	0	0
s_1	0	0
s_2	1	0
s_3	0	0
s_4	0	0
s_5	1	0

1. Draw the state diagram for this finite state machine.

2. Are there any transient states, sinks or strongly connected proper submachines?

3. Let $s = \nu(s_1, 0110)$. Which state is s? Can you find a different four letter word x such that $s = \nu(s_1, x)$.

4. Suppose $\omega(s_1, y) = 0100$. what are the possible states that the machine could be in, i.e., what are the possible values of values of $\nu(s_1, y)$